



ISBNPA

Advancing Behavior Change Science

CADIZ, SPAIN

27 - 30 MAY, 2026



PROGRAM & ABSTRACT BOOK



Palacio de Congresos de Cádiz

Cádiz, Spain | May 27-30, 2026

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HOST CITY

Welcome to Cádiz — The Silver Cup



Cádiz — the oldest continuously inhabited city in Western Europe, on the Atlantic seafront.

Discover the oldest continuously inhabited city in Western Europe. Nestled on a narrow peninsula surrounded by the Atlantic, Cádiz offers ISBNPA 2026 delegates a unique blend of ancient history, vibrant culture and breathtaking coastal views.

Let yourself be captivated by the charm of a city founded by the Phoenicians around 1100 BC. As a historical gateway between the Mediterranean and the Atlantic, it features layered architecture — from the ancient Roman Theatre to the medieval quarter of Barrio del Pópulo and the grand 18th-century watchtowers.

Food & Wine

Cádiz is a paradise for food lovers. Visit the Mercado Central de Abastos, one of Spain's oldest covered markets, to sample coastal specialties at the "Rincón Gastronómico": **Tortillitas de Camarones** (crispy shrimp fritters), **Atún de Almadraba** (world-famous local Bluefin tuna caught using historic Phoenician netting techniques), **Pescaíto Frito** (assorted fresh fried fish served in paper cones) and **Jerez (Sherry)** from the neighbouring vineyards of the legendary Sherry Triangle.

Attractions

The Cathedral — known as the "Cathedral of the Americas" — has golden tiles that shimmer over the ocean, with a 360° panorama from the Poniente Tower. **Castillo de Santa Catalina** is a 17th-century star-shaped fortress with beautiful sunset views over La Caleta, while **Castillo de San Sebastián** is an iconic island fortress reachable via a scenic stone causeway. **La Caleta Beach & Parque Genovés** offer the city's most iconic urban beach beside a historical botanical oasis.



The Cathedral of Cádiz, overlooking the Atlantic.



WELCOME

Welcome Message from the Annual Meeting Committee

On behalf of the Annual Meeting Committee, it is an honor to officially welcome you to the ISBNPA 2026 Annual Meeting — the 25th Annual Meeting of our Society, here in Cádiz, Spain.

We are thrilled to see our global community of researchers, practitioners and advocates come together once again. This meeting is the heartbeat of our Society — a dedicated space where we move beyond the data on our screens to engage in the vibrant, face-to-face exchange of ideas that drives the field of behavioral nutrition and physical activity forward.

Our Shared Vision

This year's program reflects the urgency and evolution of our field. From the smallest behavioral "nudges" to large-scale systemic shifts, we are here to explore how our collective evidence can create a healthier, more equitable world. Over the coming days, we invite you to engage with cutting-edge science during our plenary sessions and symposia; to challenge existing paradigms through spirited debate and collaborative workshops; and to connect with colleagues from across the globe, sparking the partnerships that will lead to the breakthroughs of tomorrow.

Let the Journey Begin

Whether you are here to present your latest findings, learn from the pioneers of our field, or mentor the next generation of scientists, your presence is what makes this meeting a success. We encourage you to immerse yourself in the sessions, participate in the social events, and take full advantage of the wealth of knowledge gathered here.

Thank you for being a part of this journey. We look forward to an unforgettable few days of discovery, inspiration and community.

With warm regards,



Daniel Camiletti Moirón
ISBNPA 2026 Local Co-Chair



José Castro Piñero
ISBNPA 2026 Local Co-Chair



Rocío Izquierdo Gómez
ISBNPA 2026 Local Co-Chair

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ACKNOWLEDGEMENTS

Thank You to Our Reviewers

The Program Committee of the 2026 Annual Meeting of ISBNPA extends its sincere appreciation to all abstract and symposia reviewers. We are grateful for your commitment to advancing behavioral nutrition and physical activity research and for your invaluable contribution to the success of the 2026 Meeting.

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Palacio de Congresos de Cádiz, host venue of ISBNPA 2026.



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WITH GRATITUDE

Thank You to Our Sponsors & Exhibitors

We extend our sincere gratitude to our sponsors and exhibitors for their generous support and commitment to the ISBNPA Annual Meeting. Your partnership is vital in advancing behavioral nutrition and physical activity science and helps us create a world-class experience for all our delegates.

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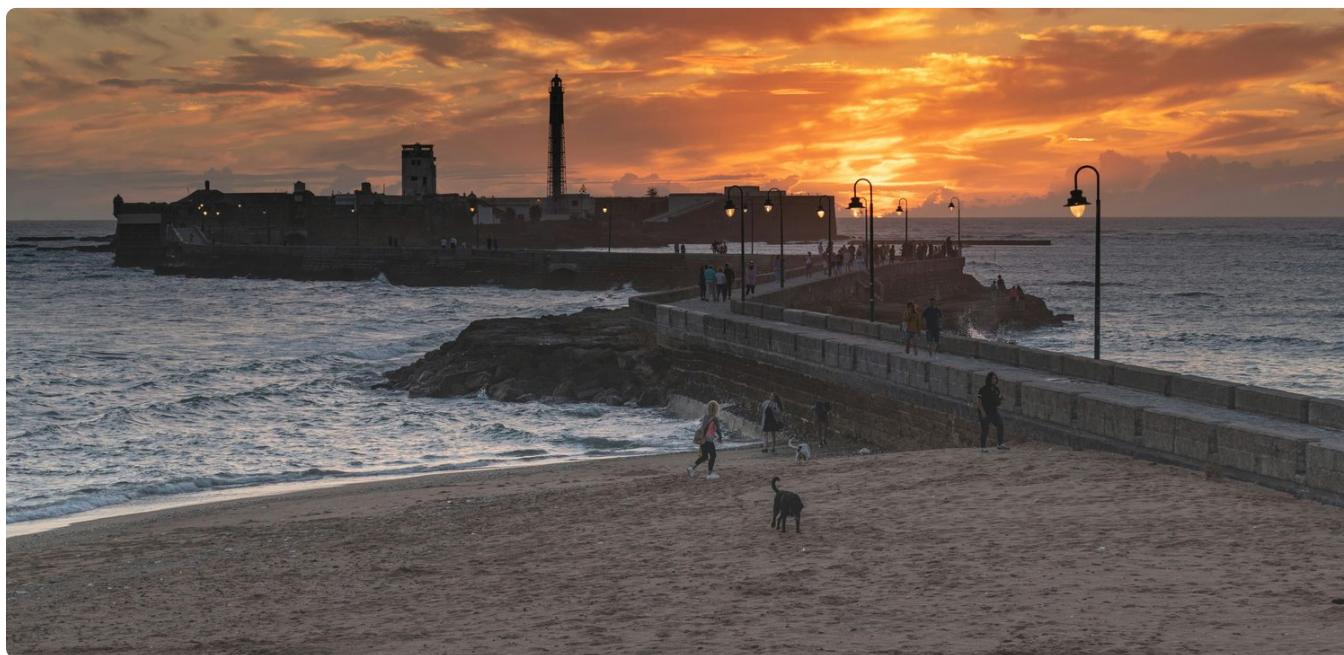
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EXHIBITORS



Castillo de San Sebastián, Cádiz.



PRACTICAL DETAILS

General Information (A-Z)

Everything you need to know during your stay in Cádiz, from arrival to closing ceremony.

BANKING FACILITIES

The currency is the Euro (€). Most shops and restaurants in the city centre and near the Palacio de Congresos accept major credit/debit cards. Several ATMs are located within a 5-minute walk along the Av. del Puerto; currency-exchange offices are available in the historic centre.

CATERING AREA

Catering areas for coffee breaks and lunches are located within the Poster Area at the Palacio de Congresos.

CERTIFICATE OF ATTENDANCE

Certificates of attendance will be made available to all registered participants after the meeting.

CLOSING CEREMONY

Saturday, May 30, 2026, in the Auditorium, from 12:35 PM to 1:15 PM.

CLOAKROOM

Available at the venue. Open Wed, May 27 8:00 AM–8:00 PM; Thu, May 28 8:00 AM–6:15 PM; Fri, May 29 8:00 AM–6:45 PM; Sat, May 30 8:00 AM–1:30 PM.

CODE OF CONDUCT

ISBNPA is committed to a safe and respectful environment. Please silence mobile phones in session rooms, treat all participants, staff and exhibitors with respect, and refrain from any form of harassment or disruptive behavior.

DISABILITIES

The Palacio de Congresos de Cádiz is fully accessible, including ramp access and elevators to all session levels.

EMERGENCY NUMBERS

General Emergency Number (Spain): 112 — connects to police, fire and medical services. First-aid services are available on-site at the registration area.

EXHIBITION AREA

Located in the Main Hall. Open Wed, May 27 1:00 PM–8:00 PM; Thu, May 28 8:30 AM–6:00 PM; Fri, May 29 8:30 AM–6:30 PM; Sat, May 30 8:30 AM–12:00 PM.

FILMING & PHOTOGRAPHY

To protect intellectual property and speaker copyright, filming and photography of presentation slides or posters are prohibited unless explicit permission is granted by the author.

GREENING POLICY

ISBNPA 2026 is dedicated to sustainability: a digital-only program (via App), reduction of single-use plastics, encouragement of public transit or walking between hotels and the venue, and vegetarian and locally sourced catering.

PRE-CONFERENCE PROGRAM

Pre-conference activities take place on Tuesday, May 26 and Wednesday, May 27, 2026 — Satellite Meetings (Tue, May 26), focused symposia organized by ISBNPA Special Interest Groups; and Workshops (Wed, May 27), interactive sessions on specialized methodology or professional development.

INSURANCE & LIABILITY

ISBNPA and the Secretariat (K.I.T. Group) do not accept liability for personal injury or loss of property. Participants are advised to arrange their own travel and health insurance.

LANGUAGE

The official language of the conference is English. No simultaneous translation is provided.



LOST AND FOUND

Lost items should be reported to or collected from the Cloakroom.

NAME BADGE

For security reasons, your name badge must be worn and visible at all times to access scientific sessions, the exhibition and social events. Replacement badges may incur a fee.

OPENING CEREMONY & WELCOME RECEPTION

The Opening Plenary takes place on Wednesday, May 27, 2026, followed by the first Keynote Sessions and the Welcome Reception in the Poster Area. Included in the registration fee for all participants.

PROGRAM CHANGES

The organizers reserve the right to make changes to the program. The most up-to-date schedule is always found in the ISBNPA 2026 Mobile App.

PUBLIC TRANSPORTATION

Cádiz is a very walkable city. For longer distances, the Cercanías (train) and local buses provide efficient service. The main train station (Estación de Cádiz) is adjacent to the Palacio de Congresos.

POSTER AREA

Paper posters are displayed on the Ground Floor of the Palacio de Congresos on Thursday, May 28 and Friday, May 29.

REGISTRATION

The registration counters are open Wed, May 27 8:00 AM–7:00 PM; Thu, May 28 8:00 AM–5:00 PM; Fri, May 29 8:00 AM–5:30 PM; Sat, May 30 8:00 AM–12:30 PM.

SMOKING POLICY

The venue is a smoke-free environment. Smoking is only permitted in designated outdoor areas.

SPEAKER SERVICE CENTER

All speakers must upload their slides at least 2 hours before their session. Location: First Floor, next to the Multipurpose Room. Open Wed, May 27 8:00 AM–6:00 PM; Thu, May 28 8:00 AM–6:15 PM; Fri, May 29 8:00 AM–6:45 PM; Sat, May 30 8:00 AM–12:00 PM.

WI-FI ACCESS

Free Wi-Fi is available throughout the Palacio de Congresos. Network: ISBNPA2026 · Password: Cadiz2026.



BEYOND THE SCIENCE

Social & Networking Events

Beyond the scientific program, ISBNPA 2026 offers a variety of activities designed to help you connect with colleagues, explore the beauty of Cádiz, and maintain your well-being.

1 • ISBNPA 2026 Dinner

Friday, May 29, 2026 • 8:30 PM Baluarte de los Mártires, Av. Dr. Gómez Ulla

Perched on the edge of the historic city walls, the Baluarte de los Mártires offers breathtaking views of the Atlantic Ocean and La Caleta beach. This iconic 19th-century fortress is the perfect backdrop for our signature social event — an evening of authentic Andalusian gastronomy and local culture.

Cost: 100€ (food & beverages included for the whole evening) · Registration required

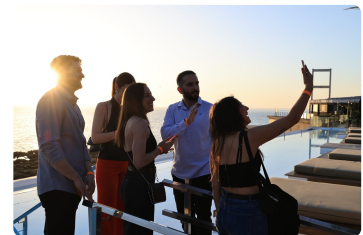


2 • NESI Social

Thursday, May 28, 2026 • 8:30 PM Paseo Almirante Pascual Pery 4 (Calachica)

Are you a student or early-career researcher looking to connect, chat and unwind? Join us for a casual cocktail with peers in the field.

Cost: 45€ (food & beverages included) · Registration required

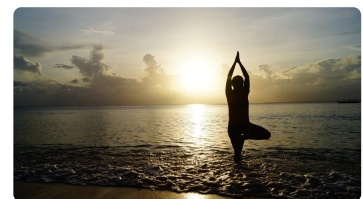


3 • Yoga Before Science

Thursday & Friday, May 28–29, 2026 • 7:00 AM Palacio de Congresos

Supported by UCA saludable, this guided session combines breath and movement to awaken the body and focus the mind, releasing tension and organizing energy for the day ahead.

Cost: Free (spots limited) · Registration required





4 • Move Before Sunrise — Social Run

Thursday & Friday, May 28–29, 2026 • 7:00 AM Palacio de Congresos (starting point)

Designed for all fitness levels, this social run offers a steady, accessible pace so you can enjoy the fresh sea air and connect with fellow delegates before the day's sessions begin.

Cost: Free (spots limited) • Registration required



5 • Nautical Activities

Wed, May 27 9:00 AM & 6:00 PM • Thu, May 28 6:00 PM Centro Náutico Puerto Elcano

An opportunity to engage in rowing, kayaking and stand-up paddleboarding (SUP) in the beautiful waters of Cádiz.

Cost: 29€ • Registration required



Local Andalusian gastronomy awaits ISBNPA 2026 delegates.



PLENARY PROGRAM

Keynote Speakers

We are honored to host a prestigious lineup of global experts at ISBNPA 2026. Join us as these leaders in physical activity, nutrition and public health share their latest research and insights into the future of health behavior.

MAY 27 • 5:00 PM–6:00 PM

Moving Forward by Looking Back

Dr. Mark Tremblay

University of Ottawa & CHEO Research Institute, Canada

BIOGRAPHY

Dr. Tremblay is a Senior Scientist with the Healthy Active Living and Obesity (HALO) Research Group at the Children's Hospital of Eastern Ontario Research Institute and Professor of Pediatrics at the University of Ottawa. He is a Fellow of the Canadian Society for Exercise Physiology, the American College of Sports Medicine and the Canadian Academy of Health Sciences, President of the Active Healthy Kids Global Alliance, Founder of the Sedentary Behavior Research Network and President of Outdoor Play Canada. He has published more than 700 scientific papers and book chapters on childhood obesity, physical activity measurement, exercise and sedentary physiology, outdoor play and health surveillance. With an h-index of 115 and over 60,000 citations, he is consistently listed among the top 1% of highly cited researchers in the world.

SESSION FOCUS

A growing number of people today have the opportunity — or misfortune — of living a completely sedentary lifestyle with omnipresent access to calorically dense ultra-processed foods. Global megatrends such as the automation, mechanization and digitization of daily routines have reduced all domains of physical activity and disrupted movement behaviors. Strategies to manage these forces have proven elusive and would benefit from a deeper understanding of foundational temporal changes to behavior. This presentation looks back in time — through cross-cultural comparisons, natural experiments, holistic 24-hour movement approaches and historically rooted behaviors such as active outdoor play — to extract lessons on how to confront and counter-balance lifestyle decay.



MAY 28 • 10:00 AM–11:00 AM

A Sustainable Lifestyle for Improving Human and Planetary Health

Dr. Inge Huybrechts

International Agency for Research on Cancer (IARC), France

BIOGRAPHY

Dr. Inge Huybrechts is a nutritional epidemiologist in the Nutrition and Metabolism Branch at the International Agency for Research on Cancer, where she leads the Sustainable Lifestyle and Cancer Team. She holds a PhD in medical sciences from Ghent University and has more than 20 years of experience in nutritional epidemiology. She has investigated lifestyle causes of non-communicable diseases through observational and intervention studies and is author of more than 400 peer-reviewed papers in nutrition, epidemiology and planetary health. She has built extensive expertise in dietary assessment methodologies across settings and population groups, with particular interest in the adverse health effects of the nutrition transition.

SESSION FOCUS

Dr. Huybrechts' ongoing projects investigate associations between dietary patterns, food biodiversity and cancer risk while considering co-benefits for human health and planetary impact — outlining how sustainable lifestyles can advance both human and planetary health.





MAY 29 • 10:00 AM–11:00 AM

Healthier Diets for All: Behavioral Approaches Across Digital, Retail, and Healthcare Settings

Dr. Carmen Piernas

University of Granada, Spain



BIOGRAPHY

Carmen Piernas is a nutrition scientist and Ramón y Cajal Fellow at the University of Granada. She obtained her PhD in Nutrition and Epidemiology from the University of North Carolina at Chapel Hill and held a University Research Lecturer position at the University of Oxford from 2015 to 2021. Her research focuses on the design, implementation and evaluation of behavioral interventions for the prevention of cardiometabolic diseases. Her current work, grounded in Precision Nutrition, integrates dietary and lifestyle data with multi-omics approaches to improve understanding of individual variability in diet–disease relationships.

SESSION FOCUS

Poor diet is a leading driver of non-communicable diseases, yet population-level dietary change requires effective behavioral approaches embedded within the systems that shape everyday food choices. This keynote examines how behavioral science and digital technologies — from experimental studies in simulated digital platforms and real-world supermarket natural experiments to consumer-facing apps and primary-care interventions using supermarket loyalty-card data — can promote healthier and more sustainable diets across food retail and healthcare settings.

MAY 30 • 11:30 AM–12:35 PM

Joint Actions at National Level to Make Healthy Eating and Physical Activity the Easiest Choices

Dr. Ester Samper & Dr. Santiago Gómez

Spanish Ministry of Health & Gasol Foundation, Spain



BIOGRAPHY

Dr. Ester Samper is a senior technician in the General Sub-Directorate of Health Promotion, Prevention and Equity at the Spanish Ministry of Health, working on national policies on physical activity, nutrition and equity. She holds a degree in Medicine, a Master's in Biomedical Biotechnology and a PhD in Cardiovascular Tissue Engineering. Dr. Santi F. Gómez is Global Director of Research and Programs at the Gasol Foundation. A psychologist with master's degrees in health and community welfare and in public health, and a PhD on childhood obesity, he is PI of the nationally representative PASOS study and Associate Professor at the University of Lleida.

SESSION FOCUS

This joint presentation discusses national-level policy and community interventions designed to integrate healthy habits into daily life, bringing together expertise in community-based obesity prevention and national health policy.



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EMERGING TALENT

One-to-Watch Invited Talks

The One-to-Watch sessions spotlight exceptional students and early-career researchers making notable contributions to behavioral nutrition and physical activity.



Usman Sani Dankoly

Marie Skłodowska-Curie Doctoral Fellow, Glasgow Caledonian University



BIOGRAPHY

Usman Sani Dankoly is a Marie Skłodowska-Curie Doctoral Fellow in Advanced Behavioral Data Science at Glasgow Caledonian University and part of the LABDA European Doctoral Network. His research sits at the intersection of health inequalities, intersectionality, artificial intelligence, and behavioral science, with a particular focus on how advanced data methods can be used to better understand physical activity and health behaviors across diverse populations. His work combines public health, social theory, and machine learning to address questions of equity in health research. He is particularly interested in how intersectional frameworks can be operationalized in study design, sampling, and analysis, and in how AI can support more inclusive and context-sensitive health research. Alongside his doctoral work, he has experience in natural language processing, large language models, and the analysis of complex behavioral and social data. Usman's broader aim is to develop methods that not only improve scientific rigour, but also help make health research more equitable, representative, and socially meaningful.

PRESENTATION

No Health Equity Without Intersectionality: Rebuilding Sampling, Nomenclature, and Classification from the Ground Up in Behavioral Science

ABSTRACT

We live in a world of deepening health inequalities which are replicated, from the start, in the way we do the science. The tools we use to measure health behaviors, physical activity, sedentary behavior, sleep, the intervention we design, and test have been built by observing about twelve percent of humanity to date. More than ninety percent of participants in behavioral research come from Western, high-income countries. And yet the guidelines, the policies, the interventions, the taxonomies, the measurement tools that come out of that research, we apply them globally. We act as if they're universal, because we think our research generalisable. They are not and the introduction of AI is going to amplify these inequalities. This program of work confronts that assumption at its root. It asks whether the foundational infrastructure of behavioral science: a) how we sample populations, b) how we name and categorize behavior, c) and how we classify behavioral data at scale can be rebuilt to reflect the diversity of human experience rather than a narrow, Western-derived slice of it. Three interconnected objectives structure our work: first, to evaluate the extent to which intersectional sampling has been operationalized in health behavior research; second, to develop a globally grounded nomenclature for human daily behavior derived from how people describe their own lives; and third, to assess and mitigate cultural bias in the large language models used to classify behavioral data across populations. A systematic review of 51,154 records identified just ten studies that designed sampling around intersecting social axes in combination. All originated from high-income, English-speaking countries. None from low- or middle-income settings. The field invokes intersectionality far more than it operationalizes it. To build an alternative foundation for naming behavior, we constructed a multilingual data pipeline drawing on naturalistic "day-in-my-life" video content across 195 countries and approximately 1,200 language-and-region strata, capturing how diverse populations describe their own daily routines in their own terms. Classification at this scale required large language models but these carried the very biases this work seeks to address. Using standard prompts, model precision for identifying daily-life content from non-Western settings was 29%. Content that did not conform to Western behavioral norms was systematically misclassified. Providing the model with culturally grounded context local naming conventions, daily rhythms, linguistic cues — raised precision to 80%, without retraining. If behavioral science is to serve the world's population rather than describe a fraction of it, its foundations: what we sample, what we name, and what our models see — must be rebuilt from the ground up, grounded in the diversity of global human experience, and this demands sustained confrontation with the biases embedded not only in our data and methods but in the very tools we are now turning to for solutions.



Dr. Alejandro Pérez Pérez

Galeno Research Group, University of Cádiz, Spain

BIOGRAPHY

Alejandro Pérez is an Assistant Professor at the University of Cádiz. His research focuses on the interaction between cardiorespiratory fitness, adiposity, and cardiometabolic health. His current interests include exploring bioenergetic approaches to the understanding and interpretation of health-related outcomes.



PRESENTATION

Are We Measuring Health the Wrong Way? Fitness, Adiposity, and Their Interplay

ABSTRACT

This abstract examines the interaction between cardiorespiratory fitness and adiposity, including their mediating and bidirectional relationships in relation to cardiometabolic risk. Building on these findings and drawing on bioenergetic principles and the emerging Energy Resistance framework, the research moves toward a deeper reconsideration of how fitness is defined and expressed in relation to body composition. Fitness is commonly normalized to body weight; however, this approach may not fully capture the dynamic interaction between energy availability and the organism's capacity to dissipate it. Rather than treating fitness and adiposity as independent or competing predictors, this research considers them as interacting components of a broader bioenergetic system. By integrating mechanistic physiology with population-level research, this perspective seeks to refine how fitness and adiposity are quantified and interpreted in relation to health.



Dr. Lisset Pantoja Arévalo

ImFINE Research Group, Universidad Politécnica de Madrid, Spain



BIOGRAPHY

Dr. Lisset Pantoja Arévalo is an Assistant Professor (PhD) at the Universidad Politécnica de Madrid (UPM) in Madrid (Spain), where she integrates Food Science, Nutrition, Molecular Biology, Genetics and Public Health within the ImFINE Research Group in the Department of Health and Human Performance of the School of Physical Activity and Sport Sciences (INEF-UPM). Her work focuses on the intersections between Adverse Reactions to Foodstuffs, Lifestyle, Metabolic Health and Physical Activity, contributing to multidisciplinary biomedical research and academic innovation. She has authored peerreviewed studies indexed in JCR and actively participates in institutional development at INEFUPM. Among the most noteworthy subjects she currently lectures in bachelor's and master's degree programs are: New Perspectives in Nutrition and Public Health, Physical Activity and Public Health, Nutrition and Ergogenic Aids, Health-Food Interaction, Nutrition and Assessment of Physical Condition and Exercise Biochemistry. Her scientific trajectory reflects a strong commitment to evidencebased health promotion and university lecturing excellence.

PRESENTATION

Innovating Adverse Reactions to Foodstuffs (ARFS) Research: Validated Tools, Novel Biomarkers, Substitutive Diet, and Lifestyle Factors

ABSTRACT

Dr. Lisset Pantoja Arévalo, Assistant Professor (PhD) at the Universidad Politécnica de Madrid (UPM), has established a pioneering scientific trajectory in the study of adverse reactions to foodstuffs (ARFS), integrating Nutritional Immunology, Molecular Biology, Nutrition, Genetics, Lifestyle and Sport Science studies. Her work includes the design and validation of two questionnaires that are robust assessment tools, the FBFCARFSQ18 and PSIMPARFSQ10, which demonstrated excellent reliability and content validity for identifying foodrelated triggers and associated symptomatology in the Spanish population. She has contributed to the description of a novel foodallergen-specific biomarker for adults with selfreported ARFS, describing its association with ARFS symptomatology, and contributing to the understanding of immunological patterns underlying these reactions and its relationship with other diseases, signs and symptoms. Her research further proposes a multifactorial diagnostic protocol integrating symptom profiling, biomarker analysis, dietary patterns, body composition, physical fitness and general health parameters, to evaluate the efficacy of a substitutive diet as a strategy to ameliorate ARFSrelated symptoms, as reported in her research articles. She has also characterized ARFS within the context of body composition, physical fitness, and health status, contributing novel insights to the Sport Sciences domain. Beyond her own projects, she collaborates in European initiatives examining nutrition and lifestyle in children with cystic fibrosis and exploring microbiota-ARFS-physical activity interactions. Currently, she is investigating genetic polymorphisms associated with ARFS and their potential links to qualityoflife outcomes, in collaboration with other UPM research facilities such as the Biomedical Technology Center (CTB-UPM) aiming to establish precisionhealth approaches for individuals affected by ARFS. Future research lines include the development of precisionnutrition models and algorithms for ARFS management, the integration of immunological-omicsbased biomarkers into clinical screening, and the inclusion of digital tools capable of monitoring symptoms, dietary exposures, and extrinsic modulators in clinical diagnostic protocols of the public health system or their collaborators. Her longterm vision is to establish an integrative public health nutrition approach including genetics, microbiota, diet quality, physical activity, and symptom expression, ultimately contributing to more effective prevention, diagnosis, and management of ARFS.



Dr. Maria Rodriguez-Ayllon

University of Málaga, Spain

BIOGRAPHY

Maria Rodriguez-Ayllon's research focuses on understanding the role of physical activity in brain, cognitive, and mental health across the lifespan, with a particular emphasis on childhood and adolescence. She obtained her PhD from the University of Granada (Spain) and subsequently held a three-year postdoctoral position in the Department of Epidemiology at Erasmus MC (the Netherlands), where she investigated the mechanisms linking physical activity and mental health, as well as the bidirectional relationship between physical activity and brain health across different cohorts. She recently returned to Spain and joined the University of Malaga, where she was awarded a Ramon y Cajal Fellowship. There, she is establishing her own research line, focusing on the development and implementation of effective and preventive physical activity interventions from primary care settings. She is part of the SAMSERAP research group (Mental Health, Services and Primary Care) at the Biomedical Research Institute of Malaga (IBIMA) and the Movement and Body Composition Lab at the University of Malaga. She currently leads innovative projects such as TeenFit, which aim to identify and evaluate existing physical activity apps for adolescents in Spain and to co-design a website with healthcare professionals, educators, adolescents, and caregivers. This platform will facilitate the selection of physical activity apps tailored to each adolescent's individual needs and preferences. Her long-term mission is to establish a research group focused on preventing mental disorders, such as depression and anxiety, in youth by implementing personalized physical activity and technology-based interventions—key strategies for fostering a healthier, more resilient society.



PRESENTATION

Can Physical Activity Improve Youth Mental Health? From Evidence to Practice

ABSTRACT

A growing body of evidence shows that physical activity has a small but positive effect on mental health. These findings have been consistently confirmed through systematic reviews and meta-analyses conducted by multiple researchers, including Dr. Maria Rodriguez-Ayllon, who will deliver this "One to Watch" talk. Following this evidence, a key goal in the field has been to move beyond demonstrating effectiveness and investigate how these effects can be optimized. In this context, Dr. Rodriguez-Ayllon has explored the mechanisms underlying the relationship between physical activity and mental health in order to identify targets that can enhance intervention effectiveness. To this end, she has collaborated with researchers from different parts of the world to examine neurobiological, psychological, and behavioral mechanisms using diverse methodological approaches, including population-based cohorts, randomized controlled trials, and systematic reviews. Across this work, one of the most consistent and relevant mechanisms identified is self-esteem. Physical activity appears to enhance self-esteem, which in turn may protect young people against mental disorders such as depression and anxiety. These findings suggest that future interventions should move toward more personalized and preference-based approaches to maximize benefits. In this regard, digital interventions represent a promising and cost-effective strategy, with the potential to reach large and diverse populations across different settings. However, an important question remains: do well-validated and effective physical activity apps for improving mental health in young people actually exist? To address this gap, Dr. Rodriguez-Ayllon is currently leading the TeenFit project, whose preliminary findings will be presented in this talk. The project aims to identify and evaluate existing physical activity apps for adolescents in Spain and to co-design a website with healthcare professionals, educators, adolescents, and caregivers. This website aims to facilitate the selection of physical activity apps tailored to adolescents' individual needs and preferences. Ultimately, this presentation will outline future directions for this emerging field.



Dr. Ty Ferguson

ARENA Research Centre, University of Adelaide, Australia

BIOGRAPHY

Ty Ferguson is an early-career Research Fellow at the University of Adelaide and a member of the ARENA research centre. His research focuses on how the weather we experience and the climate we live in shape our day, particularly across physical activity, sedentary behavior, and sleep. He works primarily with large-scale longitudinal wearable datasets, including global data spanning hundreds of thousands of participants and millions of days, to understand behavioral patterns and develop approaches for forecasting how these behaviors may change under future climate conditions. In addition to his climate-focused work, he has expertise in consumer-grade wearable devices and the temporal structure of 24-hour movement behaviors. His research is driven by a focus on future-proofing healthy movement in a changing climate, with an emphasis on generating insights that are both methodologically robust and practically actionable. His work has attracted international attention and is contributing to efforts to position movement behavior epidemiology within a climate forecasting framework.



PRESENTATION

Climate-Responsive Movement Behavior Epidemiology: From Within-Day Patterns to Future Projections

ABSTRACT

Movement behavior epidemiology has undergone a substantial methodological transition, from population surveillance based on brief self-report, to research-grade accelerometry, and more recently to large-scale consumer wearable data. These developments enable the collection of high-resolution, minute-level behavioral data across extended time periods and diverse populations, allowing the temporal structure of behavior across the 24-hour day to be examined in detail. These advances create new opportunities to examine how movement behaviors are shaped by environmental conditions. Associations between weather and 24-hour movement behaviors are increasingly well described, with evidence suggesting that behaviors are not only reduced or increased, but redistributed within the day in response to environmental constraints. In parallel, climate science has long combined observational data with forecasting frameworks to project future conditions under different emissions scenarios. Movement behavior epidemiology is now at a comparable point of development. High-resolution behavioral and environmental data enable both the examination of within-day responses to weather and the estimation of likely daily behavioral patterns based on typical routines and prevailing conditions. Behavioral response functions derived from large-scale global wearable datasets can be integrated with climate projections (e.g., CMIP6/IPCC scenarios) to examine how the timing and distribution of daily behaviors may change under future climates, linking short-term responses with longer-term environmental change. This presentation argues for the development of climate-responsive movement behavior epidemiology as a defined area of research. Establishing this direction will be important for understanding how daily behavior may be reorganised under climate change and for informing the design of environments, policies, and behavioral strategies to support population health



Dr. Jen Gale

Human Potential Research Institute, Auckland University of Technology, New Zealand

BIOGRAPHY

I am a Lecturer in Physical Activity and Nutrition at Auckland University of Technology (AUT), a New Zealand Registered Dietitian, and a researcher within AUT's Human Potential Research Institute. My work sits at the intersection of metabolic health, behavior change, and 24-hour movement behaviors, with a particular focus on how physical activity, sedentary behavior, and sleep collectively influence glycaemic control and cardiometabolic health. I have led and contributed to work spanning physical activity interventions, diabetes technologies, and equity-focused models of care. I am increasingly working in the area of metabolic health and GLP1-based therapies, with a particular interest in how these treatments intersect with nutrition behaviors, physical activity, and longer-term behavior change to support sustainable health outcomes. Alongside my research and teaching, I contribute to professional service as CoChair of the FONS Early Career Taskforce, CoChair of the NESI Workshop & Webinar Subcommittee, and Secretary of the ASPA SIG Committee. I enjoy collaborating across research, clinical, and industry settings and am always open to new connections and collaborations.



PRESENTATION

Opportunities for Behavioral Science in a Changing Metabolic Health Landscape

ABSTRACT

My career has been shaped by opportunities to work across the spectrum of behavioral research, from controlled laboratory experiments to large-scale health delivery systems. This journey has clarified where behavioral science can deliver the greatest impact, and where future opportunities lie. My early experimental work examined the physiological impacts of interrupting sedentary behavior, identifying the evening as a high-risk period for metabolic dysfunction due to prolonged sitting, high energy intake, and reduced insulin sensitivity. We demonstrated that frequent resistance exercise "activity breaks" (three minutes every 30 minutes) reduced postprandial glucose by 31.5% and insulin by 26.6%. Importantly, this work also identified a novel link between evening activity breaks and sleep, with activity breaks extending subsequent sleep duration by approximately 30 minutes. Recognizing the translational potential of these findings, I led a pilot study that used mobile technologies and behavior change theory (COMB) to support freelifing adults to integrate these behaviors into everyday home routines. A further shift occurred as my work expanded into health system delivery through the ACCESS AID Study. Here, the focus moved beyond individual behavior change to addressing systemic barriers, including workforce capacity, geographic isolation, and inequitable access to diabetes care. Through the implementation of a remote "Hub" model and a train-the-trainer framework, this work demonstrates how technology-enabled, multidisciplinary care can build public health capacity while prioritizing communities most in need. Looking ahead, the rise in the use of GLP1 receptor agonists marks a pivotal shift in metabolic health care. However, pharmacological innovation alone is unlikely to deliver equitable long-term outcomes or be accompanied by other health-promoting behaviors. I see a clear opportunity for behavioral researchers to lead in this space by embedding behavioral science within scalable health delivery models. I am deeply grateful to the many colleagues, collaborators, and participants who have contributed across these projects, and I present this work as a reflection of the collective efforts of all those involved.



PRE-CONFERENCE

Pre-Conference Workshops

Pre-conference workshops offer a valuable opportunity to delve deeper into specific topics in behavioral nutrition and physical activity. Date: Wednesday, May 27, 2026 · 8:30 AM–12:30 PM · Palacio de Congresos de Cádiz. Workshops are booked in addition to the conference (50€; 25€ reduced for students and delegates from countries not listed as High-Income).

Network of Early Career Researchers and Students of ISBNPA (NESI) Workshop — Exploring the Ethics and Innovation of AI in Research

Chair(s): Jennifer Gale (Auckland University of Technology) & Emma Ostermeier (University of Manitoba)

A two-part workshop for early career researchers and students. The first session gives practical strategies for integrating AI into research workflows; the second focuses on responsible use, addressing academic integrity, authorship and transparency in AI-assisted outputs. Led by specialists in AI applications for behavior-change research and journal editors, with hands-on activities and peer networking.

Engaging Young Minds in Systems Science: Co-Creating Maps for Movement and Behavior Change

Chair(s): Anne Martin (University of Glasgow)

A dynamic 4-hour session exploring how systems mapping can engage children and young people in understanding the complex factors that influence physical activity. Grounded in child-centred, participatory design, it offers practical tools, real-world case studies and role-play simulations to embed children's voices in systems research.

Bridging the Digital Health Divide: Practical Considerations for the Design and Evaluation of Digital Nutrition and Physical Activity Interventions

Chair(s): Kathryn M. Ross (Advocate Aurora Research Institute, Wake Forest University School of Medicine)

Pragmatic considerations in the design and evaluation of inclusive, scalable digital health interventions. Participants discuss intervention design, trial recruitment and retention, and outcomes analysis, with emphasis on actionable insights and accounting for social inequality indicators to avoid widening health disparities.

The Art and Science of Storytelling for Health: Narrative Tools to Advance Behavioral Nutrition and Physical Activity

Chair(s): Monica Wang (Boston University School of Public Health; Harvard T.H. Chan School of Public Health)

Practical narrative tools to communicate science with clarity, authenticity and impact. Drawing on the book 'The Collective Cure', participants identify the elements of an effective health story, tailor messages for diverse audiences, and integrate storytelling into interventions through guided writing, 'story labs', mini pitches and peer feedback.

Physical Activity Policy Implementation: Measures, Methods and Means of Evaluation

Chair(s): Catherine Woods (Physical Activity for Health Research Centre, University of Limerick)

Sharing learnings from the Policy Evaluation Network (PEN) and the IMPAQT ERA4Health project. Attendees gain hands-on experience using the PA-Environment Policy Index to assess implementation of national PA policies, compare against international best practice, and create feasible recommendations.



Introduction to Social Network Analysis in Physical Activity and Nutrition

Chair(s): Tyler Prochnow (Texas A&M University)

An introduction to the theory and application of social network analysis (SNA) in health-behavior research — analyzing connections within systems, from organizational ties in health coalitions to friendship ties and program adoption. No prior knowledge of SNA or data analysis is required.

Techquity: Democratizing Behavioral Nutrition and Physical Activity Research through Digital Literacy and Technology Capacity Building

Chair(s): Jasmin Bhawra (Toronto Metropolitan University)

Addresses inequities caused by expensive proprietary digital tools by introducing 'techquity'. Participants learn to use CloneApp, a device-agnostic progressive web application, to build customised mobile research tools for activity tracking, dietary assessment and intervention monitoring while maintaining data sovereignty.

The Pulse of Youth Fitness: Global Insights into Surveillance, Measurement, and Interventions

Chair(s): Dr. Justin Lang (Public Health Agency of Canada)

A deep dive into emerging global research in youth fitness surveillance, assessment and intervention. Explores how simple, cost-effective and scalable fitness assessment can complement physical activity surveillance, temporal trends, school-based assessment strategies, and the value of fitness outcomes in interventions.

Sustaining Wellbeing through Mentorship and Intergenerational Knowledge Exchange: Indigenous Perspectives from Turtle Island, Abya Yala and Aotearoa

Chair(s): Dave Bergeron (Université du Québec à Rimouski, Canada)

An Indigenous-led workshop grounded in concepts of wellbeing (Whānau Ora, Buen Vivir, Kaswentha). Through talking circles, small-group dialogues and short 'igniter' presentations, Elders/Knowledge Keepers, Indigenous trainees and allied researchers reflect on how land, language, food systems and movement shape health, and co-identify research and mentorship priorities.

The Next Step: Adapting and Implementing Interventions in a Real-World Context

Chair(s): Marla Hahnrahts (CAPHRI, Maastricht University)

Practical tools to identify and define the core components of interventions that must remain intact during adaptation and scale-up. Using real-world examples such as SuperFIT and the SWAP IT Healthy School Lunchbox program, participants apply concepts to their own intervention in small subgroups.

Novel Approaches to Modeling Intraindividual Variability and Coupling in Intensive Longitudinal Data with Open-Source MixWILD Software

Chair(s): Wei-Lin Wang (University of Southern California)

State-of-the-science statistical approaches using open-source MixWILD software for modeling intraindividual means, variances and slopes from intensive longitudinal data. Includes illustrative applications and hands-on demonstrations for integrating the method into participants' own workflows.



Environments in Action: Field-Based Training in Observational and Audit Tools in Cádiz

Chair(s): [Nicole den Braver \(Amsterdam University Medical Centre\)](#)

A field-based workshop training participants to use environmental audit and behavioral observation tools across Cádiz's walkable streets, coastal promenades and historic districts. Small groups rotate through field sites applying five validated tools in a 'comparison challenge', exploring interdisciplinary adaptability for PA and nutrition research.



RECOGNIZING EXCELLENCE

Award Nominees

Congratulations to all nominees in the ISBNPA 2026 Award Sessions. Award sessions take place on Wednesday, May 27, 2026, 3:30 PM–4:45 PM.

Awards 1 • Cancer Prevention and Management / Mental Health and Well-being • Wed, May 27 • 3:30 PM–4:45 PM

CANCER PREVENTION AND MANAGEMENT

344	Manon Gouez Centre Léon Bérard	Feasibility and Preliminary Efficacy of Aerobic Acute Exercise Prior Chemo-immunotherapy Infusion in Patients with Metastatic Non-small Cell Lung Cancer: A Randomized Controlled Trial
633	Kieran Sargeant Rivilla RECSM, Universitat Pompeu Fabra	Sun Protection Behaviors at the Beach: Real-time Insights to Inform Skin Cancer Prevention in Spain
1077	Yue Liao University of Texas at Arlington	Impact of Motivational Factors and Sleep Quality on Daily Physical Activity in Cancer Survivors

MENTAL HEALTH AND WELL-BEING

583	Fátima Martín-Acosta University of Cádiz	Cross-lagged Panel Analysis of Physical Activity, Physical Fitness, Executive Functions, and Arithmetic Fluency in Adolescents
1076	Kathryn Hesketh University College London	Active Play, Restraint and Screen Time Are Associated with Mental Health Outcomes in British 1–4-year-Olds

Awards 2 • Socio-Economic Inequalities and Indigenizing Research • Wed, May 27 • 3:30 PM–4:45 PM

SOCIO-ECONOMIC INEQUALITIES

170	Marjolijn Vos Ghent University	Dinner Is Served at 1–2–3 Euros: Process and Effect Evaluation of a Belgian Supermarket Intervention Supporting Vulnerable Families in Healthy Meal Practices
672	Rachael Farayola Loughborough University	Social and Physical Environments Shaping Healthy Diet and Physical Activity Behaviors among Ethnic Minority Communities in the UK

INDIGENIZING WELLBEING RESEARCH

223	Ambria Crusan St. Catherine University	Identifying Facilitators and Barriers to Traditional Foods Use and Consumption for Native American Families Living in Urban Settings
371	Olivia Young University of Auckland	Conceptualizing the Role of Kai for Hinengaro among Rangatahi Māori
1441	Camille Lassale ISGlobal Barcelona	Associations between Mental Distress, Lifestyle Factors, and Ultra-processed Food Consumption among Adults with Diabetes in Dakar, Senegal



Awards 3 • Motivation and e- & mHealth • Wed, May 27 • 3:30 PM–4:45 PM

MOTIVATION AND BEHAVIOR CHANGE

738	Carol Brennan University of Victoria	Predicting a Physical Activity Identity: Evidence from a Prospective Model
1101	Thomas Sire Université du Québec à Trois-Rivières	A Person-centered Analysis of Intuitive Eating and Motivation Reveals an Adaptive Intuitive Eater Profile Linked to Positive Body Image and Dietary Outcomes
1248	Francis Dzakpasu Swinburne University of Technology	Associations of Sitting Relative to Standing, Physical Activity and Sleep with Australian Adults' Kidney Health: A 24-hour Time-use Composition

E- & MHEALTH

194	Laura M. König University of Vienna	Is Taking the Weekend off a Good Idea? An Experimental Test of Dietary Self-monitoring Schedules on Adherence and Effectiveness
346	Nanette van der Spek Amsterdam University of Applied Sciences	Developing Competencies for Using Behavioral Intervention Technologies to Support Self-management in Patients with Chronic Joint Disorders
433	Katarina Åsberg Linköping University	The Effectiveness of Components of Two Digital Multiple Health Behavior Interventions (Buddy and Coach): Findings from Factorial Randomized Trials

Awards 4 • Children and Families and Early Care • Wed, May 27 • 3:30 PM–4:45 PM

EARLY CARE AND EDUCATION

832	Zhiguang Zhang University of Wollongong	Behavioral Profiles and Health Outcomes in Pre-schoolers: Findings from the ACODA Study
969	Oliver Traynor University of Glasgow	Co-developing Systems-based Interventions to Optimize Nature Play in Scottish Early Childhood Education Settings
1226	Julie E. Campbell Dalhousie University	Developing Consensus for a Responsive Feeding Approach in Early Care and Education Settings

CHILDREN AND FAMILIES

631	Evelien Iliano Ghent University	Bridging Generations for Health: A Mixed-methods Process and Effect Evaluation of a Family-based Intergenerational Physical Activity Intervention
1460	Natarajan Padmapriya National University of Singapore	The Longitudinal Associations of Early Childhood Movement Behaviors with Muscle Health in Adolescence: A Compositional Analysis



Awards 5 • Implementation and Systems Science • Wed, May 27 • 3:30 PM–4:45 PM

IMPLEMENTATION AND SCALABILITY

1190	Carly Gardner University of Newcastle	How Do Policy Makers and Practitioners in Australia Respond to the Challenge of Sustaining Public Health Programs? A Qualitative Study
1356	Anna Rayward University of Newcastle	Acceptability of Scale-up Strategies to Increase Adoption of a School-based Nutrition Program in Four Australian Jurisdictions
1358	Rixt Smit Amsterdam UMC	A Matter of Luck? Determinants and Strategies for Successful Scale-up of Health Interventions in the Netherlands

SYSTEMS SCIENCE

200	Clara Heinze Diabetes Center Copenhagen	Implementation and Systems Impact of a Systems-based Health Promotion Program at Danish Vocational Schools: Results after 2-years Follow-up
1491	Loes Crielaard Amsterdam UMC	Using Systems Archetypes in Public Health: A Scoping Review Exploring their Potential for Bridging the Gap between System Structure and Leverage Points
1507	Shari L. Barkin Emory University School of Medicine	Making Evidence Go Further: Leveraging the ACTIVE Agent-based Model and the GROW Trial to Inform the Design of Novel Interventions for Childhood Physical Activity

Awards 6 • Ageing and Young Adults • Wed, May 27 • 3:30 PM–4:45 PM

AGEING

42	Saulo Rocha Universidade Estadual do Sudoeste da Bahia	Effectiveness of a Green Physical Exercise Program in Improving the Balance of Institutionalized Healthy People in Mozambique
688	Palma Chillón University of Granada	Associations between the Dose-response of Active Commuting to/from Work and All-cause Mortality and Incidence of Cardiovascular Disease: Evidence from UK Biobank
1461	Akriti Singh Rajpoot International Institute for Population Sciences	Major Depressive Disorder and Social Frailty among Indian Older Adults: Evidence from LASI Wave-1

YOUNG ADULTS

1457	Shaniek Parks University of Oxford	Co-designing a WhatsApp-based Healthy Eating Intervention with Young Adults in Jamaica and the United Kingdom
608	Tom Deliens Vrije Universiteit Brussel	Promoting Healthy and Sustainable Eating Behavior in Higher Education Students: A Multicomponent Co-created Intervention
781	Adyya Gupta Deakin University	Digital Marketing Techniques and Food Choice Drivers: Real-time Insights into Young People's Online Food Delivery Service Use in Australia



Awards 7 • Policies and Environments and Participatory Research • Wed, May 27 • 3:30 PM–4:45 PM

PARTICIPATORY RESEARCH IN HEALTH PROMOTION

585	Alice Bellicha Université Sorbonne Paris Nord / EREN-CRESS	Co-creation of Nutrition Interventions in Higher Education Settings: Proposals from a Student Citizens' Assembly
903	Gideon Amevinya UMR MoISA, University of Montpellier	Co-Designing a Multi-component Intervention to Promote Healthy Diet and Physical Activity among Adolescents in Urban Ghana and Kenya: The Generation H Study
1386	Hannah Goss Dublin City University	LifeLab Dublin: Co-creating a Health Literacy Intervention with and for Young People

POLICIES AND ENVIRONMENTS

1280	Bettina Backman Deakin University	Sustaining Healthy Food Retail: Do Australian and New Zealand Government Policies Consider Long-term Change?
1415	Michael Essman World Food Policy Center, Duke University	Understandings of Ultra-processed Foods: A Qualitative Interview Study of UK Adults with Responsibility for Household Food Activities



INTERACTIVE SESSIONS

Dare-2-Share Sessions

Dare2Share sessions promote interactive, participatory and innovative engagement beyond traditional symposia — fostering collaboration, mentorship and meaningful dialogue. Sessions last up to 80 minutes.

DS.1.01 Meditation practices in the school health promotion program, SI! Program

DESCRIPTION

The SI! Program is a school holistic-health promotion intervention aimed at children aged 6 to 12 years. In the latest version of the program, we propose the incorporation of a new intervention based on meditation practices. This component is designed to foster greater self-awareness and emotional regulation, with the goal of improving attitudes and behaviors ultimately supporting the development of healthier lifestyle habits, particularly regarding diet, physical activity, sleep and sedentary lifestyle.

The session will begin with brief introduction to the SI! Program, including an overview of the main challenges currently faced in achieving long-term sustainability. In this context, the rationale for incorporating meditation-based resources will be presented, highlighting their potential to increase awareness and enhance behavioral regulation through intrinsic motivation and personal self-care.

This will be followed by an experiential role-playing activity designed to facilitate the exchange of ideas regarding tools, implementation strategies, and potential challenges. As part of this activity, participants will engage in a guided meditation practice to directly experience how these resources can be integrated into the program.

The session will conclude with a collective reflection and presentation of the main ideas, challenges, and opportunities identified, focusing on this new version of the program and its potential impact.

SESSION PROGRAM

Session Coordinator: Carla Rodríguez Caballero (Madrid, Spain)

Entering the Ecosystem: A Story of Origins and Evolution

· Gloria Santos-Beneit (Barcelona, Spain)

Introducing the Contemplative and Psychocorporal Practices and Group Meditation

· Carla Rodríguez Caballero (Madrid, Spain)

Walking in Someone Else's Shoes: Role-Playing with Spark Cards

· Mercedes de Miguel (Barcelona, Spain) · Patricia Bodega (Barcelona, Spain) · Amaya de Cos-Gandoy (Barcelona, Spain) · Xavier Òrrit (Barcelona, Spain)

Making Sense Together: Live Insight Mapping and Final Remarks

· Xavier Òrrit (Barcelona, Spain) · Carla Rodríguez Caballero (Madrid, Spain)

DS.1.03 Working with "messy" implementation data in real-world settings; A brainstorming session

DESCRIPTION

Dissemination and Implementation (D&I) research seeks to accelerate the translation from research to practice to improve nutrition and physical activity outcomes and ultimately enhance population health. With a growing focus on D&I research, researchers and practitioners need ways to capture implementation of evidence-based nutrition and physical activity programs/policies "on the ground" in addition to more traditional implementation outcomes such as adoption, fidelity, and sustainability which are often gathered through survey data.

This is important as researchers cannot rely solely on surveys and interviews with implementers; many key facilitators/challenges to implementation are often missed because field notes and observation data are not prioritized in the same way as outcome data.

This session will bring together researchers and practitioners working in a large array of settings (e.g., healthcare, schools, communities, policy) to brainstorm pragmatic ways to organize and interpret data collected during site visits and informal interviews.

The facilitators (working in United States and Australia) will share the ways they are currently working with data gathered through observations, informal conversations, and other documentation during site visits as part of ongoing implementation-effectiveness trials. This will facilitate

brainstorming of common practices that could be adopted by ISBNPA researchers and practitioners to work with “messy” implementation data to increase efficiency and rigor of implementation data analysis.

Brainstorm session, In-person session, 75 minutes

SESSION PROGRAM

Session Coordinator: Gabriella McLoughlin (Philadelphia, United States)

Introductions and overview of session goals

· Gabriella McLoughlin (Philadelphia, United States)

Presentations

· Nicole Nathan (Newcastle, Australia) · Gabriella McLoughlin (Philadelphia, United States)

DS.2.04 Psychedelics, Health Behaviors, and Public Health

DESCRIPTION

We propose a session focused on the growing body of research examining interventions and therapies that incorporate guided experiences of altered states of consciousness—often, though not exclusively, involving psychedelic substances—in the context of mental, physical, and behavioral/preventive health.

The session will begin with a brief state-of-the-art overview of current research in this area, with particular emphasis on studies exploring the relationship between psychedelic experiences and health behavior change. This overview will be followed by a small number of selected first-person testimonials from participants in such interventions, presented either live or via recorded video.

The second half of the session will consist of an open discussion on the increasing mainstreaming of psychedelics. Topics will include fear and stigma, the evolving regulatory landscape, and the training and professionalization of practitioners. The discussion will also consider the implications of these developments for research and practice at both individual and population levels.

The session will be split between tutorial, testimonials, and discussion parts. Participation from the audience will be encouraged throughout. More details above.

SESSION PROGRAM

Session Coordinator: Jorge Encantado (Lisboa, Portugal)

DS.2.05 Prioritizing Climate Action Research: Identifying New Research Priorities for ISBNPA Members

DESCRIPTION

The purpose of this session is to support ISBNPA researchers with identifying new research priorities within behavioral nutrition and physical activity research that intersect with our commitment to planetary health.

A Fuzzy Cognitive Mapping session will be conducted with members to identify opportunities for our researchers to lead innovative projects that support behavior change that is aligned with our commitment to planetary health. Participants will be co-authors on the report generated and submitted to the Executive Committee.

SESSION PROGRAM

Session Coordinator: Shilpa Dogra (Oshawa, Canada)

Introduction

· Shilpa Dogra (Oshawa, Canada)

Group Workshops

· Ty Ferguson (Adelaide, Australia)

DS.2.07 What Should We Call the 24-Hour Cycle of Physical Activity, Sedentary Behavior, and Sleep? A Symposium on Terminology, Implications, and Global Perspectives



DESCRIPTION

Concurrently examining physical activity, sedentary behavior, and sleep is rapidly gaining traction in research, policy, and public health. However, variation in terminology across disciplines, cultures, and regions creates confusion and limits comparability, equity, and knowledge translation globally.

This #Dare2Share session seeks to bring together researchers, practitioners, and stakeholders from different countries and disciplines to engage in a collective brainstorming and creative dialogue aimed at harmonizing language, surfacing cultural/contextual considerations, and laying groundwork for a globally applicable, inclusive framework. The goal is not simply to present research, but to collaboratively generate ideas, build networks, and foster future cross-national collaborations. In addition, as part of this session, we will share the initial results of the Around the Clock Terminology Consortium's (ACT-C's) ongoing consensus which is aiming to develop internationally agreed upon terminology for concurrently discussing physical activity, sedentary behavior, and sleep.

We propose a 75 minute in-person participatory session featuring the following elements:

- Opening “flash context” (5 min): A brief framing of the 24-hour paradigm, the current challenge of inconsistent terminology and how the Around the Clock Terminology Consortium is working to tackle it.
- World Café / small-group breakout discussion (20 min): Participants are divided into 4–6 small, diverse groups by geography, discipline, and career stage. Each group addresses a series of guiding questions (e.g., “Which terms have you used or seen?”, “What are the pros/cons?”, “What cultural or regional factors matter?”).
- Group synthesis & idea generation (20 min): Each group summarizes key points and suggests potential candidate terms, principles for selecting terminology, or cultural/contextual caveats.
- Plenary creative mapping & consensus building (20 min): Use a digital board (if available) to map out proposed terminology frameworks, noting where consensus exists and where regional/contextual variation may be warranted.
- Networking and commitment to next steps (10 min): Discuss the ongoing Around the Clock Terminology Consortium (ACT-C) – an initiative aiming to resolve these issues, and also potential future research needed beyond this project.

Throughout the session, chairs/facilitators will encourage open participation, cross-disciplinary exchange, and collaborative problem-solving.

SESSION PROGRAM

Session Coordinator: Ryan Stanley Falck (Vancouver, Canada)

Introduction

• Ryan Stanley Falck (Vancouver, Canada)

Small-Group Breakout Discussion

• Ryan Stanley Falck (Vancouver, Canada) • António L. Palmeira (Lisboa, Portugal) • Esther Cerin (Melbourne, Australia)

Group Synthesis and Idea Mapping

Summary and Networking

DS.2.08 Recruiting and Retaining Students for School-Based Intervention Research

DESCRIPTION

Schools are an important venue for intervention and recruitment in nutrition and physical activity research. Recruiting students from schools in the U.S. has become increasingly difficult due to concerns about privacy and data sharing. Recently, we received a seven-year NIH grant to develop and test an innovative public-private partnership between primary schools and grocery stores to promote fruit and vegetable consumption. For this project, we will test three recruitment strategies (social media, recruitment from grocery stores, and traditional parent outreach through schools) to identify 400–600 children and parents per year for five years. We invite other teams to share their strategies for recruiting children and parents from low-income, racially and ethnically diverse families outside of school settings.

In this session, we will share our recruitment strategies and engage audience members working in this area, including those facing similar challenges internationally, to “dare to share” experiences and best practices. After a short presentation where we frame the issue in the international context (10 minutes), based on audience interest, three small groups will be formed to discuss the three approaches and discuss challenges particular to their situation and propose ideas and innovations for successful recruitment and retention (35 minutes). In the last 15 minutes the groups will come together to share and document ideas and discuss. We will then have a moderated question and answer session and end with top ideas and innovations for different contexts, for example grade vs high school (15 minutes).



SESSION PROGRAM

Session Coordinators: Punam Ohri-Vachaspati (United States) · Marc Adams (United States)

DS.2.09 Beyond the Screening: Co-Designing Food Security Solutions in Prenatal Care

DESCRIPTION

Food insecurity during pregnancy is linked to poorer nutrition, higher stress and depression, and adverse birth outcomes. Yet even as more clinics integrate screening, few offer immediate, household-level solutions. Our team at Women & Infants Hospital piloted a meal delivery program for food-insecure pregnant patients - offering ready-to-eat, balanced meals for the entire household. Feedback revealed improved nutrition and reduced stress.

In this Dare2Share session, we invite participants to step into the lived experience of food insecurity and collaboratively reimagine how healthcare systems can respond in a variety of cultural contexts. Through storytelling, “empathy-mapping”, and design “sprints”, participants will explore barriers and opportunities to integrating food support into prenatal care. The session blends evidence from our ongoing study with creative, co-design activities that build new connections and practical ideas for research and implementation.

Participants will leave with a draft “Food Security in Pregnancy Toolkit” - a set of research questions, program concepts, and partnership pathways that can be carried forward into new collaborations.

By the end of the session, participants will:

- Understand the lived experience and clinical implications of food insecurity in pregnancy.
- Co-create innovative, culturally responsive and equitable strategies for addressing food insecurity through clinical-community partnerships.
- Network and collaborate with others interested in maternal nutrition, mental health, and social determinants of health research.

Proposed Format (75 minutes):

- Opening & Framing (10 min)
- Short storytelling presentation and overview of the Food Insecurity in Pregnancy Project 2.0, emphasizing real-world context and patient perspectives.
- Empathy & Experience (15 min)
- Participants engage in “food journey” mapping using provided “personas” - identifying barriers, emotions, and system gaps from the perspective of pregnant patients and families.
- Creative Design Sprint (30 min)
- Small groups brainstorm and prototype practical interventions (clinic workflows, partnerships, data tools, or policy approaches) to improve food security support during prenatal care.
- Connection Carousel (10 min)
- “Speed-sharing” among groups to cross-pollinate ideas, build connections, and identify shared research interests.
- “Harvest & Commit” (10 min)
- Groups share key insights. Collective development of a “Food Security in Pregnancy Toolkit” (compiled post-session and shared digitally with all participants).

Expected Outcomes:

- A participant-generated toolkit of practical ideas, measures, and collaboration opportunities.
- New interdisciplinary partnerships focused on food insecurity and perinatal health.
- Broader awareness of how empathy-driven design can improve equity in clinical interventions.

SESSION PROGRAM

Session Coordinators: Jon Olansen (Providence, RI, United States) · Janet Lefkowitz (Providence, United States)

Opening

· Jon Olansen (Providence, RI, United States) · Janet Lefkowitz (Providence, United States)

Empathetic Framing

· Janet Lefkowitz (Providence, United States)

Design Sprint

· Janet Lefkowitz (Providence, United States) · Jon Olansen (Providence, RI, United States)



Roundtable

Commitment Renewal and Closing

DS.3.10 A human-centred design approach to tackling challenges and creating solutions for healthy eating and physical activity.

DESCRIPTION

WHAT:

- Expose delegates to a problem-solving approach that brings together diverse perspectives, expertise, and creativity to generate new ideas and solutions collaboratively within the public health space, specifically physical activity and nutrition. It will create a space that emphasizes active participation, shared ownership, and leveraging collective knowledge to address complex challenges within the public health space, specifically related to physical activity and nutrition.

WHY:

- Generates more creative and effective solutions that are environmentally, socially, and economically sustainable.
- Encourages stakeholder buy-in and shared accountability by collaborating early and identifying the primary end-user.
- Enhances adaptability and resilience to changes.
- Builds stronger relationships and trust among participants by highlighting a shared vision.

HOW:

This will be an interactive session and will be initiated on Day 1 of the conference. The session will be limited to 20 conference attendees.

On Day 1 of the conference delegates signed up for the session will be asked to locate the three "Build-It" boxes, which will have a prompt for each:

- Any underlying problem/need/insight: Example, lack of safe spaces to exercise
- Any users/target group/specific group of people: Example, adolescents
- Any setting/context/constraints: Example, live in under-resourced community in Cape Town, South Africa

Session delegates will be asked to write a note for each box using the prompts and drop the completed notes into the box anytime between Day 1 and Day 2.

Session Day:

On Day 3, the session delegates will start the session within the given space, set-up in a way that is conducive to team activities. The session will start with a brief introduction to human-centred design (HCD) followed by creating groups among session delegates. Each group will start with some psychological safety exercises before they jump into the co-creation activities.

Groups will be asked to randomly and blindly select a note from each box and collectively create a challenge statement to work on. Once the statement is created the team will have an opportunity to explore the statement using some HCD tools.

Brainstorming techniques will be shared before the teams dive into creating ideas and finally a solution that they can prototype. During the prototyping component teams will have access to Lego and craft material such as: pipe cleaners and cardboard paper to create the low fidelity prototypes that can be tested.

Session delegates will have the opportunity to do a quick test with other delegates that they find at the conference venue to provide the team with some structured feedback. The teams will then incorporate the feedback and share their iterated solution with the session delegates. After sharing of prototypes, the session will close off by providing a space for delegates to offer their support to initiate collaborations with others or if they would want to start one (or many) of the proposed solutions.

Interactive – team building

SESSION PROGRAM

Session Coordinators: Zulfa Albertyn-Blanchard (Cape Town, South Africa) · Estelle. V. Lambert (Cape Town, South Africa)

Participants will be working in groups

Introduction presentation

Workshop activities



DS.3.11 Elevating Culinary Nutrition Research

DESCRIPTION

Culinary nutrition is an interdisciplinary field that integrates food procurement and cooking with nutrition science to promote healthy eating behaviors and improve overall health and well-being. Emphasizing practical, culturally relevant and age-appropriate approaches, culinary nutrition aims to promote sustainable, dietary patterns often aligning with food-based dietary guideline (FBDGs) recommendations. Brazilian and Canadian FBDGs explicitly refer to cooking in their recommendations. However, barriers to cooking are complex and can include time constraints, nutrition insecurity, limited cooking and food skills, and the convenience and ubiquity of energy dense and nutrient poor foods.

Despite its significance and potential to improve nutrition-related health and well-being, culinary nutrition research is plagued with methodological weaknesses that limit its impact. These challenges underscore the need for robust research methods to inform effective interventions, education strategies and policies. Strengthening the science behind culinary nutrition will enable evidence-based approaches to foster enhanced credibility, impact, innovation and availability of resources for culinary nutrition science.

The proposed #Dare2Share session will commence with a brief introduction to set the scene, highlighting the current state and gaps in culinary nutrition research. Following this participants will break into facilitated interactive small-group brainstorming sessions to identify and discuss high-priority areas for methodological improvement.

Discussion topics may include:

- Conducting exploratory and participatory research in culinary nutrition to understand community needs, lived experiences, and contextual barriers before designing interventions
- Designing culinary nutrition education programs for impact
- Evaluating changes in cooking behavior – designing and implementing brief, validated measures
- Food systems, workplace culture and policy levers to support home cooking
- Research designs to capture real-world implementation of programs that aim to support cooking-related behavior change
- Culinary nutrition research funding challenges and opportunities

Groups will generate actionable ideas for research collaborations and cross-disciplinary partnerships. The session is not limited to people within the field of culinary nutrition.

All delegates with relevant insights to offer are invited. Outputs will be synthesized fostering connections and sparking future research initiatives. This session embodies the spirit of #Dare2Share by creating a dynamic, participatory environment that will connect researchers in a creative space to design solutions that elevate culinary nutrition science and practice.

Face to face, presentations followed by interactive small group discussions

SESSION PROGRAM

Session Coordinator: Julia Wolfson (Baltimore, United States)

Welcome and opening presentations

• Tamara Bucher (Bern, Australia) • Fiona Lavelle (London, United Kingdom)

Discussion groups

• Joyce Haddad (Bern, Switzerland) • Tamara Bucher (Bern, Australia) • Fiona Lavelle (London, United Kingdom)

Sharing and questions



SAVE THE DATE

ISBNPA 2027 • Halifax, Canada

The 26th ISBNPA Annual Meeting will take place in Halifax, Canada, from June 16–19, 2027. We look forward to welcoming the global community to Nova Scotia's vibrant coastal capital to continue advancing behavior-change science.



SCHEDULE

Program at a Glance

The full, searchable scientific program — including all symposia, oral and short-oral sessions, posters and room allocations — is available online at isbnpa2026.abstractserver.com/program.

Session Formats at a Glance

Workshops — interactive 4-hour sessions for hands-on skill development. **One-to-Watch** — 30-minute spotlights on emerging researchers. **Symposia** — 75-minute sessions: 10-min chair introduction, three 15-min presentations and a 20-min discussant-led discussion. **Symposia Debates / Two-Presentation Symposia** — 10-min introduction, two 20-min presentations and a 25-min moderated debate. **Dare-2-Share** — creative, participatory sessions up to 80 minutes. **Oral Presentations (incl. Award Sessions)** — 10 minutes plus 2 minutes discussion. **Short Orals** — 5 minutes plus 1 minute discussion. **Poster Viewing** — posters displayed across the three meeting days, with dedicated viewing sessions on Thursday and Friday.

PROGRAM OVERVIEW

WEDNESDAY, MAY 27

	AUDITORIUM	ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8	ROOM 9	MULTIPURPOSE ROOM
	GROUND FLOOR	FIRST FLOOR			SECOND FLOOR			FIRST FLOOR			
8:30 am	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm	8:30 am - 12:30 pm
8:45 am	Network of Early Career Researchers and Students (at ISBNPA NES) Workshop - Exploring the Ethics and Innovation of AI in Research	Engaging Young Minds in Systems Science: Co-Creating Maps for Movement and Behaviour Change and Innovation of AI in Research	Bridging the Digital Health Divide: Practical Considerations for the Design and Evaluation of Digital Nutrition and Physical Activity Interventions	The Art and Science of Storytelling for Health: Narrative Tools to Advance Behavioral Nutrition and Physical Activity	Physical activity policy implementation: Measures, methods and means of evaluation.	Introduction to Social Network Analysis in Physical Activity and Nutrition	Environments in Action: Field-Based Training in Observational and Audit Tools in CAG2	The Pulse of Youth Fitness: Global Insights into Surveillance, Measurement, and Interventions	Sustaining Wellbeing through Mentorship and Intergenerational Knowledge Exchange: Indigenous Perspectives from Turtle Island, Aka Yala and Aotearoa	The next step: Adapting and implementing interventions in a real-world context	Novel Approaches to Modeling Intra-individual Variability and Coupling in Interactive Longitudinal Data with Open Source MuWILD software
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03:45 pm		Awards 1: Cancer Prevention and Management / Mental Health and Well-being	Awards 2: Socio-Economic Inequalities and Indigenizing Research	Awards 3: Motivation and e and rehealth	Awards 4: Children and Families and Early Care	Awards 5: Implementation and Systems Science	Awards 6: Ageing and Young Adults	Awards 7: Policies and Environments and Participatory research			
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05:00 pm	5:00 pm - 6:00 pm										
05:15 pm	Moving Forward by looking back										
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06:00 pm	6:00 pm - 7:30 pm										
06:15 pm	Welcome Reception in the poster area										
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THURSDAY, MAY 28

	AUDITORIUM	ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8	ROOM 9	MULTIPURPOSE ROOM
	GROUND FLOOR	FIRST FLOOR			SECOND FLOOR			FIRST FLOOR			
8:30 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am	8:30 am - 9:45 am
8:45 am	Motivation and behavior change: Addressing the Complete Picture: Advancing the Promotion of Physical Activity in School-Aged Children During School Terms and Holidays	Policies and environments: Collaborative approaches to transform real food environments for health promotion	Cancer Prevention and Control: From Evidence to Practice	Children and Families: Translating Physical Literacy into Policy and Practice	Motivation and behavior change: From Vision to Impact: The 2025 Position Statement on Active Outdoor Play	Systems science: From development to evaluation: building robust responses to remotely-delivered interventions designed to improve activity behaviours among people living with and beyond cancer	Cancer Prevention and Control: From Evidence to Practice	Policies and environments: Demand- and supply-side responses to mandatory food policies around the world	Policies and environments: How as well as how much: Can evidence for the importance of physical behaviour inform future policy and practice? Evidence from the ProHAKS Consortium	Policies and environments: Savings for Health: Informal Savings Groups as a Platform Promoting Economic Resilience, Food Security, Food Sovereignty and Healthy Food Consumption in Urban African Food Systems	8:30 am - 9:45 am
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- Abstract Award Session
- Plenary Keynote Session
- Other
- Workshop
- Symposium
- Oral Abstract Session
- Short Oral
- Dare-to-Share Session
- One-to-Watch



More details available on the ISBNPA 2026 App

PROGRAM OVERVIEW

FRIDAY, MAY 28

	AUDITORIUM	ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8	ROOM 9	MULTIPURPOSE ROOM
	GROUND FLOOR	FIRST FLOOR			SECOND FLOOR			FIRST FLOOR			
8:30 am	8:30 am - 9:45 am Children and families	8:30 am - 9:45 am Policies and environments	8:30 am - 9:45 am Cancer prevention and management	8:30 am - 9:45 am Participatory Research in Health Promotion	8:30 am - 9:45 am Feeding the future: novel trial design approaches to advance nutrition during postpartum period and beyond	8:30 am - 9:45 am Motivation and behavior change	8:30 am - 9:45 am Physical activity as a catalyst for planetary health and global health equity	8:30 am - 9:45 am Policies and environments	8:30 am - 9:45 am Participatory Research in Health Promotion	8:30 am - 9:45 am Socio-economic inequalities	
8:45 am	Designing outdoor play spaces for and with children: integrating participation, green design, and municipal processes	Advancing Equity in Food and Physical Activity Policy: Strategies, Participatory Approaches, and Evaluation	Physical activity micropractice: A stealth lifestyle factor with the potential to support sustainable habit formation interventions?								
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10:00 am	10:00 am - 11:00 am Healthier Diets for All: Behavioural Approaches Across Digital, Retail, and Healthcare Settings										
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12:15 pm	Early Life Health: Rerouting Movement Behaviors, and Developmental Outcomes	Safe Routes, Food Systems and Food in Local Policy Processes	Advancing Care and Prevention: Strategies for Health Promotion, Movement and Dietary Behaviors	Early Childhood Health Promotion, Interventions, Assessments, and Analytical Approaches	Implementation and scalability	From Environment to Action: Systems Science for Health Behavior Change	Young adults				
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02:30 pm	Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors	Structural Approaches to Healthy Food Environments	Occupational Health and Long-Term Movement Patterns	Early Childhood Health Promotion, Interventions, Assessments, and Analytical Approaches	Implementation and scalability	From Environment to Action: Systems Science for Health Behavior Change	Young adults				
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04:00 pm	Promoting Movement: From Outdoor Play to Active Travel	Early-Life Nutrition, Sleep, and Sedentary Behaviors	Interrupting Sedentary Time and Movement Integration	Early Childhood Health Promotion, Interventions, Assessments, and Analytical Approaches	Implementation and scalability	From Environment to Action: Systems Science for Health Behavior Change	Young adults				
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05:45 pm	Promoting Sleep in Youth and Young Adults: Development, Implementation and Evaluation of Sleep Programs Targeting Adolescents and Young Adults	Advancing Global Evidence for Active Healthy, and Sustainable Diets: Cross-Implementation and Evaluation of Sleep Programs Targeting Adolescents and Young Adults	Innovative Approaches to Promote Physical Activity and Prevent Mobility Decline in Older Adults: Evidence from the Global Observatory of Healthy and Sustainable Diets	Early Childhood Health Promotion, Interventions, Assessments, and Analytical Approaches	Implementation and scalability	From Environment to Action: Systems Science for Health Behavior Change	Young adults				
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SATURDAY, MAY 29

	AUDITORIUM	ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8	ROOM 9	MULTIPURPOSE ROOM
	GROUND FLOOR	FIRST FLOOR			SECOND FLOOR			FIRST FLOOR			
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Abstract Award Session
Plenary Keynote Session
Other

Workshop
Symposium
Oral Abstract Session

Short Oral
Dare-to-Share Session
One-to-Watch



More details available on the ISBNPA 2026 App

ABSTRACT BOOK

ORAL ABSTRACT SESSIONS & SYMPOSIA

ABSTRACT AWARD SESSIONS

AA.01-1

Feasibility and Preliminary Efficacy of Aerobic Acute Exercise Prior Chemo-immunotherapy Infusion in Patients with Metastatic Non-small Cell Lung Cancer: A Randomized Controlled Trial

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AA.01: Awards 1: Cancer Prevention and Management / Mental Health and Well being
Room 1, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Recent preclinical evidence indicates that acute exercise induces immune modulation and enhance tumor blood perfusion, potentially improving cancer treatment efficacy. Integrating exercise with chemo-immunotherapy (ChemoIO) treatment may therefore represent a novel behavioral strategy to improve therapeutic outcomes in metastatic non-small cell lung cancer (mNSCLC). The ERICA trial (NCT04676009) aimed to assess the feasibility, safety and preliminary effects of performing acute aerobic exercise performed immediately before the administration of ChemoIO in patients with mNSCLC. Secondary aims were to explore the intervention's impact on physical activity levels, cardiopulmonary fitness, muscle strength, body composition, patient-reported outcomes (PROs), and treatment completion rates.

Methods: Newly diagnosed mNSCLC patients were randomly assigned (2:1) to the exercise or control group. The exercise intervention included supervised acute exercise before each of four ChemoIO cycles plus a 3-month home-based walking program with an activity tracker and step goals. Feasibility outcomes included adherence, acceptability, tolerability, and safety. Secondary endpoints were assessed at baseline and after 3 months using objective and self-reported measures of physical activity behavior, cardiorespiratory fitness, muscle strength, body composition, and PROs (fatigue, quality of sleep, and quality of life).

Results: Twenty-six patients (mean age 60.6 years; SD 10.65) participated, with a 90.9% acceptance rate. In the exercise group (n=17), 80.9% of the participants completed acute exercise sessions, with a median interval of 38 minutes [IQR, 20-60] between exercise and ChemoIO. No exercise-related adverse effects were reported. After 3 months, 60% of the participants in the exercise group were classified as 'active' and maintained their step goals. The participants reported maintaining physical fitness, reducing fatigue, improving quality of life, and decreasing insomnia.

Conclusion: Acute aerobic exercise performed immediately before ChemoIO is feasible, acceptable, and safe in patients with mNSCLC. This innovative integration of exercise into cancer management, represents a promising, non-pharmacologic strategy to enhance therapeutic response and patient well-being. Larger trials are warranted to evaluate its efficacy on clinical outcomes and biological mechanisms.

AA.01-2

Cross-lagged Panel Analysis of Physical Activity, Physical Fitness, Executive Functions, and Arithmetic Fluency in Adolescents

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AA.01: Awards 1: Cancer Prevention and Management / Mental Health and Well being
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Purpose: The relationship between physical health and academic outcomes in adolescents is well-established, but the complex directionality and reciprocal nature of these associations remain unclear. Given the foundational role of mathematical skills in overall academic success, the central research question addressed was: What are the dynamic and reciprocal predictive relationships among moderate-to-vigorous physical activity (MVPA), physical fitness (PF), core executive functions (EF), and arithmetic fluency (AF) over a seven-month lag during a school year? This study offers a novel contribution by rigorously testing a dynamic longitudinal model that simultaneously accounts for key physical health factors (MVPA and PF), EF and AF, examining their bidirectional and dynamic interrelations over time.

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Methods: Participants were 1,156 Spanish adolescents (aged 12–14 years) evaluated in a repeated-measure design over a seven-month interval (Time 1 and Time 2). MVPA was assessed using Actigraph GT3X+ devices. PF components (cardiorespiratory fitness (CRF) and strength) were determined through 20-m shuttle run, hand grip, and standing broad jump, respectively. Core EF (inhibition, cognitive flexibility, working memory) were assessed using the computerized-based NIH Examiner Battery. AF was measured with Test 6 of the Woodcock protocol. Cross-lagged panel models were employed to examine the predictive relationships between T1 and T2 variables, adjusting for potential confounding variables including age, sex, and socioeconomic status at T1.

Results: Cross-lagged panel models showed significant temporal stability for all main variables. Crucially, baseline general PF significantly predicted both subsequent EF ($\beta = 0.104, p < 0.001$) and AF ($\beta = 0.040, p < 0.05$) seven months later. A robust reciprocal relationship was consistently identified between EF and AF over time ($\beta = 0.132, p < 0.001$). When analyzing specific components, CRF at T1 predicted both EF and AF at T2, whereas strength T1 predicted EF but not AF. MVPA at T1 did not significantly predict general PF, EF, or AF at T2.

Conclusion: These findings underscore the foundational importance of PF, particularly CRF health, and EF as dynamic, longitudinal predictors of mathematical achievement in adolescence. The results strongly advocate for educational strategies that integrate the promotion of PF to foster cognitive development and, consequently, enhance mathematical skills.

AA.01-3

Sun Protection Behaviours at the Beach: Real-time Insights to Inform Skin Cancer Prevention in Spain

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AA.01: Awards 1: Cancer Prevention and Management / Mental Health and Well being
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Purpose: Skin cancer rates continue rising globally, with age-standardised melanoma rates in Spain rising from 8.85 per 100,000 in 2014 to 18.50 per 100,000 in 2023. Sun protection represents a critical cancer preventive strategy, yet adherence to recommended measures remains suboptimal, particularly among beachgoers, who face heightened UV exposure. This study examines the behavioural determinants of sun protection behaviours among Spanish beachgoers to inform cancer prevention interventions. The research employs a geolocation-triggered survey methodology to capture real-time behaviours.

Methods: Beachgoers (N=454) were surveyed in the Netquest geolocated panel during summer 2024 using in-the-moment surveys triggered by GPS data one hour after detecting arrival at one of Spain's 2,480 mainland beaches, minimising recall bias and social desirability while gathering event-specific data on sun protection behaviours. The survey data was complemented with meteorological data (UV biologically effective dose and temperature). Using Structural Equation Modelling (SEM), we identified the pathways through which knowledge, attitudes, environmental factors, and demographics influence sunscreen usage.

Results: While 78% of beachgoers used sunscreen and 83% demonstrated accurate knowledge about UV risks, significant gaps persist in comprehensive protection. Only 7% wore protective clothing, and only 28% held favourable attitudes toward sunscreen texture, undermining reapplication. SEM analysis revealed that attitudes toward sun protection emerged as the strongest predictor of sunscreen usage, followed by water contact and sunscreen texture attitudes. Environmental factors showed significant effects: cloudiness reduced sunscreen use directly and indirectly by reducing UV levels, while UV radiation modestly increased protection. Positive tanning attitudes negatively affected usage, yet positive sun exposure attitudes increased sunscreen use. Temperature influenced protection indirectly by increasing water contact. Knowledge showed no direct effect on behaviour, and female gender was the only significant demographic predictor.

Conclusion: These results suggest that effective skin cancer prevention may require moving beyond knowledge-based approaches to attitude-change interventions. Public health campaigns should emphasize that UV risks persist despite cloud cover and leverage water contact as a behavioural trigger for reapplication, while addressing sunscreen texture concerns to improve adherence. This research provides insights for designing cancer prevention strategies among high-risk populations, demonstrating how innovative behavioural data collection methods can inform interventions that reduce skin cancer incidence.

ABSTRACT AWARD SESSIONS

AA.01-5

Impact of Motivational Factors and Sleep Quality on Daily Physical Activity in Cancer Survivors

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AA.01: Awards 1: Cancer Prevention and Management / Mental Health and Well being
Room 1, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Regular physical activity (PA) offers many health benefits to cancer survivors. To promote an active lifestyle, PA interventions often target motivational factors such as self-efficacy (SE), outcome expectancy (OE), intention, and goal setting. In addition to these cognitive factors, emerging evidence shows sleep quality could affect PA. However, it is unclear if sleep quality influences cancer survivors' motivational determinants for PA. This pilot study tested the impact of SE, OE, intention, and goal setting on subsequent PA levels, and if sleep quality influences these relationships in cancer survivors using real-time data capture methods.

Methods: This analysis included data from 17 cancer survivors who wore an accelerometer on their non-dominant wrist and answered daily morning survey via a smartphone app over a 30-day period. The survey included questions regarding sleep quality LAST NIGHT, and SE, OE, intention, goal setting related to PA TODAY. Multilevel regression model was used to separate the within-person (WP) and between-person (BP) effects of motivational factors on total daily step counts. The WP and BP moderating effects of sleep quality were evaluated by adding single-level and cross-level interaction terms.

Results: Participants were 94% female, 24% Hispanic. Average age was 55 years (range: 39-74). Average daily step counts at person-level were 8,722 (range: 2,443-14,743). Intraclass correlation was lowest for SE (0.390) and highest for OE (0.704); suggesting variations in SE mainly came from changes within participants from day to day while variation in OE mainly came from differences between participants. SE and intention in the morning were positively associated with total steps that day (WP ps <.05), and these associations were not moderated by sleep quality. Sleep quality moderated the association between goal setting and steps (WP interaction <.05). When participants had worse sleep than their usual, goal setting was positively associated with total steps that day. Neither OE in the morning nor the interaction between OE and sleep quality was associated with steps that day.

Conclusion: Sleep quality may moderate the effects of certain motivational determinants in PA in cancer survivors. PA interventions need to consider the impact of sleep when attempting to strengthen relations between motivation and health behavior.

AA.01-6

Active Play, Restraint and Screen Time Are Associated with Mental Health Outcomes in British 1-4-year-Olds

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AA.01: Awards 1: Cancer Prevention and Management / Mental Health and Well being
Room 1, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Increasingly, young children have fewer opportunities for active play and spend more time restrained (e.g. in strollers, car seats) and watching screens. Concurrently, 10% of British children have a diagnosable mental health (MH) condition. Active play (i.e. physically active play) contributes to under-5s physical activity (guideline: ≥180 minutes/day) and may help to prevent MH problems, but is unexplored in under-5s. This study investigated how active play, restraint and screen time were associated with MH outcomes in British preschoolers.

Methods: Data were from a nationally representative sample of British caregivers of 1-4-year-olds, recruited via a public opinion company (YouGov, April 2025). Three exposures and four outcomes were derived from parent-report questionnaires, using validated measures. Exposures were time a child spent (in hours/day): i) playing actively; ii) restrained (in a car seat, stroller or highchair) and iii) watching screens. Outcomes were: internalising (INT) and

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externalising (EXT) scores (using the Strengths and Difficulties Questionnaire (SDQ)); and positive and negative affect scores (using the Positive and Negative Affect Schedule for Children-P). Linear regression was used to explore associations between the three exposures and four outcomes; interactions between exposures were tested. Models were adjusted for child gender, ethnicity, age, childcare (hours/week), parent education, geographic region and urbanicity.

Results: Care-givers of 1,982 children (51% male; mean age (SD): 2.6(1.0) years; 78% white) provided valid data. On average, children engaged in active play for 4.3(2.2) hours/day, were restrained for 2.7(1.9) hours/day and watched screens for 1.7(1.4) hours/day; 68% of children engaged in active play for ≥ 180 minutes/day. For each additional hour/day a child engaged in active play, they had lower internalising scores [beta: -0.08 (95%CI: -0.14, -0.02)] and higher positive affect [0.14 (0.06, 0.21)]. Greater time spent restrained and watching screens was associated with poorer mental health outcomes, although the magnitude of associations was too small to be meaningfully interpreted. No interactions were identified.

Conclusion: More active play was associated with better MH outcomes in British preschoolers, whereas more time spent in restraint and watching screens was associated with poorer MH. Ensuring children have ample opportunities for active play, from an early age, may support positive mental health outcomes.

AA.02-1

Dinner Is Served at 1-2-3 Euros: Process and Effect Evaluation of a Belgian Supermarket Intervention Supporting Vulnerable Families in Healthy Meal Practices

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AA.02: Awards 2: Socio-Economic Inequalities and Indigenizing Research
Room 2, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Having a lower socioeconomic status (SES) is associated with poorer dietary habits and fewer family meals. The “Dinner is served at 1-2-3 euros” (DS123) intervention, developed by a Belgian retailer in collaboration with social organizations, aims to support socioeconomically vulnerable families in cooking more home-made meals through two-weekly recipe booklets combined with a price incentive. This study first explored participants’ and stakeholders’ experiences to identify success factors and areas for improvement, and second, examined the intervention’s effect on food choices using purchase data.

Methods: For the first objective, a mixed-methods design combining qualitative (focus groups and interviews) and quantitative research (surveys) was used. The process evaluation framework developed by Saunders et al. (2005) guided the data collection, and thematic analysis was applied for data analysis. For the second objective, a longitudinal within-group pre-post design analyzed food purchase data (n = 260,214 transactions) from 134 participating lower SES households over four and a half years. Binomial generalized linear mixed models were used to assess changes in the proportion of total food budgets spent on vegetables, prepackaged meals, and sweet and salty snacks.

Results: By July 2023, the intervention had reached 9,400 participants via 315 social organizations. Most participants joined for financial or inspirational reasons. Recipe booklets were used variably and were valued for their clarity, affordability, and child-friendly tips. Many participants reported eating healthier and enjoying cooking more. Social organizations were generally satisfied with their collaboration with the retailer. Purchase data showed that enrollment increased the odds of spending more on vegetables (OR = 1.119), and less on prepackaged meals (OR = 0.810) and snacks (OR = 0.851). Higher adherence strengthened these effects, with more recipe booklet products bought associated with greater vegetable spending (OR = 1.089) and reduced spending on prepackaged foods (OR = 0.934) and snack foods (OR = 0.965). Effects slightly declined or stabilized over time.

Conclusion: The intervention effectively promoted healthier, budget-friendly meal preparation among low-SES households by increasing vegetable use and cooking inspiration. Combining individual and structural strategies within a public-private partnership shows promise for sustainably reducing health and nutrition inequalities.

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AA.02-2

Identifying Facilitators and Barriers to Traditional Foods Use and Consumption for Native American Families Living in Urban Settings

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AA.02: Awards 2: Socio-Economic Inequalities and Indigenizing Research

Room 2, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Cultural relevance is essential in designing effective interventions. Nutrition and physical activity interventions integrating traditional foods and practices supported by community knowledge have shown promise in improving health outcomes for Native American communities. However, there is a gap in the research regarding community use of traditional foods, in particular amongst Native American populations living in urban environments. The objective of this study is to identify facilitators and barriers to use and consumption of traditional foods across tribal affiliations living in urban settings in Minnesota (United States).

Methods: Semi-structured interviews promoting storytelling and conversational methods were conducted with leaders in food sovereignty advocacy in Minnesota from multiple Indigenous organizations and diverse tribal affiliations represented in the metropolitan area. The Visiting Way was also used to challenge the interviewer's reflexivity with both themselves and the interviewee. As an Indigenous partnered project, the approach of Two-Eyed Seeing was promoted to encourage worldview through an Indigenous lens and a Western lens. The transcripts were analyzed to preserve Indigenous ways of knowing, comparing and contrasting collective stories to preserve the integrity of the shared relationships within the conversation.

Results: Twelve interviews (1 male, 9 female, 2 non-binary) were reviewed and compared to identify facilitators such as the importance of community connections and cultural collectivism via sharing of traditions and knowledge across generations. The leaders spoke of the strong desire to integrate more traditional foods into diet patterns and the flexibility the community offers each other to meet people where they are at with knowledge of preparing and eating traditional foods. Barriers within the urban environment included challenges in sharing of generational knowledge (e.g. groups were "elders" "youth" only), shifts in access to community connections (organizations working in silos because of competitive funding), and decreased land access in urban settings. Moreover, leaders noted disproportionate rates of poverty that can affect food access, transportation, and individual involvement in the community.

Conclusion: A stronger understanding of ways to facilitate access and generational knowledge, while reducing barriers to accessing and consuming traditional foods in urban settings is needed to improve health outcomes for Native American communities.

AA.02-3

Conceptualising the Role of Kai for Hinengaro among Rangatahi Māori

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AA.02: Awards 2: Socio-Economic Inequalities and Indigenizing Research

Room 2, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Mental health is a significant health concern for rangatahi (young people) in Aotearoa New Zealand, especially rangatahi Māori, with rates of depression symptoms doubling between 2012-2019, and inequities continuing to widen. The role of nutrition in mental wellbeing is an emerging area, although it is primarily grounded in Western paradigms. Limited research explores the relationship between kai (food) and mental wellbeing seen through a te ao Māori lens. The aim of this research is to conceptualise the role of kai in supporting mental wellbeing among rangatahi Māori who have experienced mental health challenges.

Methods: This project utilises Participatory Action Research methodologies informed by kaupapa Māori principles of

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whanaungatanga (relationships), manaakitanga (respect) and tino rangatiratanga (self-determination). Researchers partnered with The Kindness Institute, an organisation that supports wellbeing through kaupapa Māori-aligned programs. Photovoice was used to explore rangatahi perspectives, values and beliefs around kai and their mental wellbeing in response to three questions - “what does kai mean to you?”, “what role does kai play in your mental wellbeing?” and “what helps you or makes it hard for you when it comes to kai?”. Five young Māori women (aged 19-23) participated in this activity, followed by a focus group discussion to explore their photographs and the research topic in greater depth. Themes were developed through Reflexive Thematic Analysis.

Results: Final themes were generated under the overarching theme of ‘Nā te kai ka ora’, through kai, there is wellbeing – reflecting that kai is more than just food and nutrients. Within this, four themes were developed - ‘Kai hei Haerenga, Kai hei Oranga’ (*Kai as a journey, kai as wellbeing*), ‘Ko te Kai he Taura Here’ (*Kai as the Binding Cord*), Kai i te Ao Matihiko’ (*Kai in the Digital World*) and ‘He ara kai, He ara hinengaro’ (*Kai as a pathway to mental wellbeing*).

Conclusion: This study has developed a deeper understanding of what is important for the mental wellbeing of rangatahi Māori in relation to kai. From this, kai-based approaches that centre and value Māori culture and beliefs can be developed to support the mental wellbeing of rangatahi Māori.

AA.02-5

Social and Physical Environments Shaping Healthy Diet and Physical Activity Behaviours among Ethnic Minority Communities in the UK Populations

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AA.02: Awards 2: Socio-Economic Inequalities and Indigenizing Research

Room 2, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Ethnic minority groups in the UK experience persistent inequalities in diet and physical activity, yet limited evidence describes the specific social and physical environments that enable healthier practices in these communities. This study explored opportunities within the social and physical environments that enable and support the adoption of healthy diet and physical activity behaviours among African and Caribbean communities in the UK.

Methods: Qualitative study using semi-structured interviews with fifteen community leaders of African and Caribbean origin, from different sectors (e.g. charity and religious organisations) in Greater Manchester and Leicestershire. Participants were recruited through purposive and snowball sampling, supported by community referrals and targeted social media outreach. Data were analysed using reflexive thematic analysis to identify opportunities that facilitate a healthy diet and physical activity.

Results: Two key opportunities influenced the adoption of healthy diet and physical activity behaviours among ethnic minority communities in the UK. Community and social support systems played a central role, with third sector and faith-based organisations providing trusted spaces and culturally relevant activities for healthy living. Support was reinforced through family and friends, and through digital community groups on social media, e.g., WhatsApp and YouTube, which offered encouragement, shared information, and a sense of togetherness. However, engagement with the wider physical environment (e.g., parks, public facilities) was limited unless prompted by a specific need or event. Professional health support (e.g. GPs and nurses) was sought mainly when a health condition required medical attention, or when trust had been established through personal relationships.

Conclusion: Opportunities for adopting a healthy diet and physical activity in ethnic minority groups are largely supported primarily through third sector organisations and social-digital peer networks, while NHS and professional support are accessed mainly when trust or health needs are present. This study highlights these community and digital networks as key opportunity pathways and underscores the value of stronger collaboration between the NHS, third sector and peer support networks to enhance cultural relevance and sustainability of health interventions.

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AA.02-6

Associations between Mental Distress, Lifestyle Factors, and Ultra-processed Food Consumption among Adults with Diabetes in Dakar, Senegal: A Cross-sectional Study

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AA.02: Awards 2: Socio-Economic Inequalities and Indigenizing Research
Room 2, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: In urban Sub-Saharan Africa, the nutrition transition is fueling a dual burden of westernization of the diet and rise of non-communicable diseases including type 2 diabetes (T2D). This study investigated the association between mental distress, lifestyle factors, and ultra-processed food (UPF) consumption.

Methods: We conducted a cross-sectional study including 174 adults with diabetes recruited at Marc Sankalé Diabetology Center in Dakar, Senegal. Mental distress was assessed using the Self-Reporting Questionnaire, 20-item version (SRQ-20) and UPF consumption via a 23-item NOVA-based checklist. A UPF score was created as the number of different UPF products consumed during the previous 24 hours, ranging 0 to 23. Multivariate linear regression, adjusted for age, sex, and residence, examined associations with the UPF Score.

Results: Participants (mean age: 54.9 years; 75.9% female) had a high prevalence of probable mental distress (41.4%, SRQ-20 ≥ 8). Overall, 92.5% consumed at least one UPF category. The most commonly reported products were “bouillon cubes” (stock) and industrial flavorings (83.3%), followed by sweetened powdered drinks (56.3%), instant milk/chocolate powders (53.4%), spreadable cheese (53.4%), industrial bread (47.1%), and processed condiments like mayonnaise or ketchup (39.1%). Less frequently consumed were items such as sugary soft drinks, cookies, and instant noodles. A significant inverse association was found between mental distress and UPF intake; higher SRQ-20 scores (i.e. more mental distress) were associated with a lower variety of consumed UPF products ($\beta = -0.238$, 95% CI: -0.372 to -0.105, $p < 0.001$). In contrast, higher BMI ($\beta = 0.110$, $p = 0.011$) and male sex ($\beta = 1.140$, $p = 0.037$) were associated with a higher number of UPF products consumed.

Conclusion: Contrary to common assumptions, higher mental distress in this population of patients with diabetes was linked to more restricted UPF consumption, possibly reflecting diabetes-specific distress prompting dietary caution. Observed gender disparities and the normalization of specific UPFs like bouillon underscore key sociocultural drivers. Findings advocate for integrated T2D management in Senegal that includes mental health support and culturally-attuned nutritional guidance to mitigate the impacts of the nutrition transition.

AA.03-1

Predicting a Physical Activity Identity: Evidence from a Prospective Model

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AA.03: Awards 3: Motivation and e and mHealth
Room 3, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Physical activity (PA) identity is a robust correlate of PA, yet its formative antecedents are seldom quantified within a single explanatory model. This study tested an integrated conceptual model proposing that five distal factors—relatedness, personal investment, perceived capability, PA alignment, and priority—shape subsequent PA identity through behavioral enactment and self-regulatory experiences in community-dwelling adults.

Methods: We used a prospective, two-wave online survey across three weeks with Canadian adults aged 19–65 (T1 N=570; T2 n=389; 68.2% retention). Baseline measures included weekly moderate-to-vigorous PA (MVPA) assessed with a modified Godin Leisure-Time Exercise Questionnaire; four self-regulatory processes from the Physical Activity Regulation Scale (proactive regulation, reactive regulation, social monitoring, self-monitoring); and the five distal antecedents. PA identity was assessed three weeks later using the exercise identity scale. The conceptual model was evaluated via structural equation modeling (Mplus 7.2) using full-information maximum likelihood; model adequacy was judged by χ^2 , CFI, TLI, RMSEA, and SRMR, and indirect effects were estimated to test mediation.

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Results: Model fit was good: $\chi^2(324)=795.92$, CFI=.95, TLI=.95, RMSEA=.05 (90% CI .05-.06), SRMR=.07. PA identity at T2 showed significant direct effects from T1 MVPA ($\beta=.17$, $p<.01$), reactive regulation ($\beta=.34$, $p<.01$), and self-monitoring ($\beta=.18$, $p<.01$), together with smaller direct effects from relatedness ($\beta=.11$, $p=.01$), perceived capability ($\beta=.12$, $p=.04$), alignment ($\beta=.12$, $p=.04$), and priority ($\beta=.13$, $p=.04$). The model accounted for 73% of the variance in PA identity. Significant indirect effects were observed for relatedness ($\beta=.09$) primarily via MVPA ($\beta=.02$) and reactive regulation ($\beta=.07$); for personal investment ($\beta=.18$) via MVPA ($\beta=.04$), reactive regulation ($\beta=.10$), and self-monitoring ($\beta=.07$); for priority ($\beta=.15$) via MVPA ($\beta=.05$), reactive regulation ($\beta=.09$), and self-monitoring ($\beta=.03$); and for perceived capability ($\beta=.02$) via MVPA ($\beta=.02$).

Conclusion: PA identity appears to develop through both behavioral enactment and self-regulatory experiences, with reactive regulation and self-monitoring emerging as prominent, independent levers. Distal social-cognitive factors also contribute directly and through these mediators. Quantifying multiple pathways prospectively identifies precise targets for identity-focused PA interventions and provides an empirically grounded specification for experimental tests of identity change.

AA.03-2

Is Taking the Weekend off a Good Idea? An Experimental Test of Dietary Self-monitoring Schedules on Adherence and Effectiveness

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AA.03: Awards 3: Motivation and e and mHealth

Room 3, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Self-monitoring is an effective behaviour change technique. Yet, adherence to daily dietary self-monitoring is low, especially on weekends that lack routine. In this study, we experimentally compared three dietary self-monitoring schedules (20 random days on any day; 20 random days only Monday to Friday; 20 self-selected days) to test whether explicitly prompting individuals to (not) self-monitor on weekends influences adherence and fruit and vegetable consumption, and whether adherence and changes in fruit and vegetable consumption are related.

Methods: Participants ($N = 159$; 73.6% women; mean age 24.5 years; mean Body-Mass Index 23.7 kg/m²) used a digital dietary self-monitoring app for a month, being asked to self-monitor on twenty out of thirty days following a pre-specified schedule to which they were randomly assigned. They self-reported average portions of fruits and vegetables consumed per day in the previous week before and after the intervention. Adherence was operationalised as the number of days with at least one self-monitoring entry.

Results: Adherence was high (mean 17.7 out of 20 days; 89%) and did not differ between the three experimental groups, $F(2, 156) = 1.83$, $p = .163$. Following up this finding, we found that relative adherence was, across groups, higher on weekdays ($M = 89\%$, $SD = 17\%$) than on weekends ($M = 83\%$, $SD = 23\%$), $t(100) = 3.20$, $p = .002$, Cohen's $d = 0.32$. Fruit and vegetable consumption increased from 2.6 ($SD = 1.0$) to 3.3 ($SD = 1.1$) portions per day from pre to post intervention, $F(1, 156) = 40.37$, $p < .001$, but these changes did not differ between experimental groups, $F(2, 156) = 1.09$, $p = .339$. Adherence and changes in fruit and vegetable consumption were unrelated, $r(158) = .12$, $p = .124$.

Conclusion: Dietary self-monitoring is effective in increasing fruit and vegetable consumption. Although adherence was somewhat higher on weekdays compared to weekends, instructing users to not self-monitor on weekends did not significantly improve adherence overall, potentially because adherence was high. Furthermore, adherence was unrelated to intervention effectiveness, suggesting that also relatively infrequent self-monitoring of only half of the days in a month or less may induce meaningful effects.

ABSTRACT AWARD SESSIONS

AA.03-3

A Person-centered Analysis of Intuitive Eating and Motivation Reveals an Adaptive Intuitive Eater Profile Linked to Positive Body Image and Dietary Outcomes

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Purpose: Intuitive eating (IE) is a positive and non-restrictive approach to eating that involves responding to the body's internal cues without judgment or rigid rules. Four dimensions of IE are distinguished: unconditional permission to eat, eating for physical rather than emotional reasons, reliance on hunger and satiety cues, and body-food choice congruence. Most studies on IE have used variable-centered analyses, which do not allow for an examination of how these dimensions combine to form distinct eating profiles. The present study aimed to (1) identify latent profiles based on the four IE dimensions and three types of motivation to regulate eating, and (2) assess whether profile membership was associated with body esteem, eating behaviors, and diet quality.

Methods: A total of 2,088 Canadian adults (65% women) completed online questionnaires assessing: IE (Intuitive Eating Scale-3); autonomous motivation, controlled motivation, and amotivation (Regulation of Eating Behavior Scale); body esteem (Body Esteem Scale); cognitive restraint, emotional eating, and uncontrolled eating (Three-Factor Eating Questionnaire); and overall diet quality (Canadian Food Intake Screener). Latent profile analyses using robust maximum likelihood estimation tested two- to four-profile models. One-way ANOVAs were conducted to compare profiles on body esteem, eating behaviors, and diet quality.

Results: The four-profile solution provided the best statistical and theoretical fit. Profile 1 (Disconnected eaters) showed low IE, high amotivation and controlled motivation, and moderate autonomous motivation. Profile 2 (Balanced eaters) displayed moderate-to-high IE with a mix of autonomous and controlled motivation. Profile 3 (Adaptive intuitive eaters) exhibited the highest IE, combined with high autonomous motivation, along with low amotivation and controlled motivation. Profile 4 (Multimotivated intuitive eaters) showed high IE with moderate-to-high levels of autonomous motivation, controlled motivation, and amotivation. Adaptive intuitive eaters reported significantly higher body esteem and diet quality, as well as lower cognitive restraint, uncontrolled eating, and emotional eating, compared to all other profiles.

Conclusion: These findings reveal that similar levels of IE can be accompanied by different forms of motivation, leading to distinct eating and body image outcomes. Fostering IE in combination with autonomous motivation may represent a promising avenue for promoting a healthier relationship with one's body and food.

AA.03-4

Developing Competencies for Using Behavioral Intervention Technologies to Support Self-management in Patients with Chronic Joint Disorders

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Purpose: Behavioral Intervention Technologies (BITs), including mobile applications and online platforms that are designed to promote self-management, are valuable tools to support individuals with chronic joint disorders. Despite

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their potential, healthcare professionals remain uncertain about how to effectively integrate BITs into clinical practice to enhance self-management, particularly in combination with face-to-face guidance. The aim of this study was to identify and describe the competencies required by physiotherapists and exercise therapists to effectively use BITs in supporting self-management among patients with chronic joint disorders.

Methods: The concept mapping method was used to gain insight into the competencies required to use BITs. Therapists (n=9) and patient partners (n=8) individually generated ideas in response to a predefined statement “*What does a therapist need to know and do to use apps and wearables in such a way that the patient will use them to reduce the impact of their condition*”. The participants then shared and refined ideas during group brainstorming sessions. The ideas were transformed into competencies and learning objectives using the Five-A-Model (Glasgow et al., 2003). Two meetings were held with nine experts in the fields of health technology, self-management and education. In the first meeting, the panel reviewed and refined the draft competencies. In the second meeting, the experts finalized these competencies. The resulting framework was ultimately validated by two therapists.

Results: Therapists generated 80 statements and patient partners 68. After merging duplicates, 27 unique statements remained. The first expert meeting resulted in a preliminary framework consisting of four competencies and 21 learning objectives. In the second expert meeting, the classification and naming were discussed and refined. After validation by two therapists, the final framework comprises four core competencies and 19 learning objectives. These competencies are: (1) being open to change behavior and adapting work processes, (2) assessing the suitability of BITs for individuals, (3) collaboratively selecting and personalizing BITs and (4) coaching patients toward independent use.

Conclusion: Building on these competencies, a 10-week blended learning module is being developed to support therapists in using BITs to promote self-management in patients with chronic joint disorders. The AMSOS learning module will be presented at the ISBNPA Congress.

AA.03-5

Associations of Sitting Relative to Standing, Physical Activity and Sleep with Australian Adults' Kidney Health: A 24-hour Time-use Composition

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Purpose: Excessive time spent sitting has been associated with poorer kidney health; however, most studies focus on absolute sitting time, ignoring the co-dependence among other daily time-use behaviours. We examined the cross-sectional associations of estimated glomerular filtration rate (eGFR) with varying substitutions of sitting with standing, physical activity, and sleep within the 24-hour time-use composition.

Methods: Data were from a subsample of 692 participants (age: 58 years; BMI: 27.6 kg/m²; female: 56.2%) in the Australian Diabetes, Obesity and Lifestyle Study (AusDiab 2011/2012) who wore thigh-mounted accelerometers for 7 days. eGFR was assessed using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation, with enzymatically measured serum creatinine. The 24-hour compositions were derived from the average of 7 days of activPAL device data, with time use categorised into sitting, standing, light-intensity physical activity (LIPA: steps <100/min), moderate-to-vigorous-intensity physical activity (MVPA: steps ≥100/min), and sleep. Multiple linear regression models were used, adjusting for sociodemographic confounders and sleep quality. Furthermore, compositional isotemporal substitution analysis estimated the hypothetical effects of reallocating time use from sitting to standing, LIPA, MVPA and sleep.

Results: Sitting time was the most prevalent behaviour (median [interquartile range-IQR]: 530 [451–605 min/day]),

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followed by sleep (497 [460–538]), standing (280 [229–342]), LIPA (90.9 [69.3–113.5]), and MVPA (22.4 [12.2–36.5]). The participants' kidney function was relatively normal, with a median eGFR of 94.3 (IQR: 85.1–101.5) mL/min/1.73m². Higher relative sitting time was associated with lower eGFR (β : -3.32 [CI: -6.59 to -0.05]). Replacing 60 minutes of sitting with standing (1.10 [CI: 0.51 to 1.69] mL/min/1.73m²) or MVPA (1.12 [CI: -0.33 to 2.56]) was associated with higher eGFR; however, only the sitting-to-standing substitution was statistically significant. No significant associations were observed for LIPA (-0.05 [CI: -1.43 to 1.33]) nor sleep (0.29 [CI: -0.47 to 1.05]).

Conclusion: Higher daily sitting time was detrimentally associated with lower kidney function (eGFR). Reducing sitting, potentially by increasing standing, may help preserve kidney health. These findings provide novel insights to inform future sitting-reduction interventions and movement-promotion strategies for kidney health.

AA.03-6

The Effectiveness of Components of Two Digital Multiple Health Behaviour Interventions (Buddy and Coach): Findings from Factorial Randomized Trials

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Purpose: Two trials aimed to estimate the effects of the components of digital multiple behaviour interventions on alcohol, diet, physical activity, and smoking among university students in Sweden (Buddy), and individuals searching online for help (Coach).

Methods: Two separate studies were conducted in Sweden, both using a double-blind randomised factorial trial design with six two-level factors. The Buddy trial recruited university students proactively through student health care centres and social media at 18 universities. The Coach trial recruited participants through web search and social media who were seeking help to change behaviours. Participants were included if 18 years or older and if they had at least one health behaviour classified as unhealthy. Effects of six components were estimated: screening and feedback; goal-setting and planning; motivation; skills and know how; mindfulness; and self-authored messages. Primary outcomes were weekly consumption of alcohol and frequency of heavy episodic drinking; average daily consumption of fruit and vegetables; weekly consumption of sugary drinks; weekly moderate to vigorous physical activity; and four week point prevalence of smoking. Analyses of outcomes were conducted using multilevel regression models estimated using Bayesian inference. Marginal and pairwise interaction effects of the six intervention components were estimated, with results reported as posterior probabilities of effect and 95% compatibility intervals (Col).

Results: A total of 1704 students (Buddy) and 5419 adults (Coach) were randomised. Evidence for the effectiveness of individual and two-way interactions between components was found across multiple health behaviours. The components screening/feedback, goal-setting/planning, motivation, and skills/know-how demonstrated both individual and interacting improvements. For example, combining screening/feedback and skills/know-how increased fruit and vegetable consumption (0.26 portions/day, Col = 0.05; 0.46, POE 99.4%) at 4 months, while motivation and mindfulness increased physical activity (78.0, Col = 28.3; 128.2, POE = 99.9%) at 2 months.

Conclusion: Findings clarify which components of digital interventions contribute to effectiveness, with heterogeneous effects across behaviours. By identifying how individual intervention components and their interactions influence behaviour change, the studies inform how effective digital interventions can be designed. Findings provide valuable evidence to inform the design of scalable public health interventions addressing key behavioural challenges including unhealthy diet and insufficient physical activity.

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AA.04-1

Behavioural Profiles and Health Outcomes in Pre-schoolers: Findings from the ACODA Study

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AA.04: Awards 4: Children and Families and Early Care

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Purpose: To characterise pre-schoolers' behavioural profiles based on outdoor play time, screen time, and nighttime sleep duration, and examine associations with health outcomes using a person-centred approach, alongside a variable-centred approach to disentangle individual behaviours' contributions.

Methods: Participants were 991 pre-schoolers (3.94±0.56 years) from Wave 1 (2023-2024) of the Australian Children of the Digital Age (ACODA) survey. Parents reported children's outdoor play time, screen use across 11 devices, and sleep schedules, which were used to derive daily duration for each behaviour. Behavioural, cognitive, and emotional self-regulation (Child Self-regulation and Behaviour Questionnaire subscales) and mental health including positive affect, anxiety, and depression (Patient-Reported Outcomes Measurement Information System; standardised scores) were measured. Complementary analytical approaches were used: latent profile analysis with weighted regression (person-centred) to identify behavioural profiles and associations with developmental outcomes; and multiple regression (variable-centred) to examine associations between individual behaviours and outcomes. All regression models adjusted for sociodemographic covariates.

Results: Three profiles emerged: Group A (10%)—moderate outdoor play (3.40hr/d), higher screen use (6.32 hr/d), shorter sleep (10.12hr/d); Group B (75%)—lower outdoor play (2.57 hr/d), moderate screen use (1.61 hr/d), moderate sleep (10.72 hr/d); Group C (15%)—higher outdoor play (5.52 hr/d), moderate screen use (1.56 hr/d), and longer sleep (10.86 hr/d). Small-to-moderate differences in developmental outcomes were observed across profiles. Compared with Group C, Group A showed lower cognitive self-regulation ($\beta=-0.42$, 95%CI: -0.66, -0.17) yet higher emotional self-regulation ($\beta=0.27$, 95%CI: 0.02, 0.52). Group B exhibited lower cognitive self-regulation ($\beta=-0.16$, 95%CI: -0.30, -0.02) and positive affect ($\beta=-0.16$, 95%CI: -0.31, -0.01) versus Group C. Echoing these patterns, variable-centred analyses revealed small effect-size associations: more outdoor play was associated with better cognitive self-regulation and positive affect but lower emotional self-regulation ($|\beta|=0.07-0.12$). Higher screen use was associated with poorer cognitive self-regulation, paradoxically better emotional self-regulation, and higher anxiety ($|\beta|=0.08-0.12$); Longer sleep was associated with better cognitive self-regulation, greater positive affect, and lower depression ($|\beta|=0.07-0.10$).

Conclusion: Our findings indicate synergistic relationships between integrated daily behaviours and health outcomes in pre-schoolers. Promoting outdoor play and adequate sleep while maintaining moderate-to-low screen use appeared important for cognitive self-regulation and mental health in this age group.

AA.04-3

Co-developing Systems-based Interventions to Optimise Nature Play in Scottish Early Childhood Education Settings

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AA.04: Awards 4: Children and Families and Early Care

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Purpose: Nature play in Early Childhood Education (ECE) settings offers a promising, equity-sensitive strategy to increase physical activity and support holistic child development. This study applied a systems science approach to co-design interventions with stakeholders, aiming to embed nature play more effectively within ECE settings.

Methods: Four co-design workshops were conducted with ECE practitioners (n=17) and managers/providers (n=17).

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Using a previously developed systems map of factors influencing nature play implementation in ECE, participants identified change points and designed interventions through scenario-based approaches. Considerations included local authority priorities, implementation mechanisms, and potential unintended consequences. A systems-based programme theory was developed to integrate interventions across the system. Additionally, an online survey of ECE practitioners, informed by the Effort-Reward Imbalance model, examined the impact of providing nature-based experiences on practitioner wellbeing (n=123) and explored perceptions of implementing these interventions in the workplace (n=83).

Results: Ten interventions were co-developed, including: Stay & Play sessions in nature spaces; setting-specific training on creating nature-based experiences; nature space modifications at ECE; child-led risk assessments; positive role modelling behaviour amongst practitioners; outdoor training for modern apprentices; reflective practice templates; staff rota systems for indoor/outdoor time; job descriptions for outdoor provision; and a shared vision for nature play at ECE. These interventions introduced 26 new system factors and 40 connections. Analysis of feedback loops identified 26 loops (23 reinforcing loops and 3 balancing loops) capturing stakeholder-proposed interventions and indicating the potential for systemic change. Survey findings showed that 72% of practitioners agreed or strongly agreed that spending time outdoors at work benefited their wellbeing more than indoors. Additionally, 64% of practitioners viewed setting-specific training and nature space modification interventions as desirable, with 41% and 51% respectively believing these would likely reduce their workload when creating nature play experiences.

Conclusion: This is the first systems approach to intervention co-development to promote nature play in ECE. The systems-based programme theory provided a whole-system intervention plan which may be adopted by other ECE settings who wish to improve their nature play provision to increase child physical activity through playing outdoors in nature and support practitioner wellbeing.

AA.04-4

Bridging Generations for Health: A Mixed-methods Process and Effect Evaluation of a Family-based Intergenerational Physical Activity Intervention for Grandparents and Grandchildren

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Purpose: Many children and older adults do not meet WHO physical activity (PA) guidelines, and most PA interventions target individuals rather than family systems. Intergenerational PA programs may strengthen relationships while integrating PA into daily life. Ages Get Active is a co-created intervention, developed using the Behavior Change Wheel, to stimulate joint physical activity (co-PA) among grandparents and their grandchildren. This study examined (1) its effectiveness on PA, co-PA, and well-being, and (2) its feasibility, acceptability, and sustainability in real-life family contexts.

Methods: A mixed-methods ABAB single-case experimental design was conducted with nine grandparent-grandchild dyads (N = 18). Dyads alternated between baseline (A) and intervention (B) phases, enabling intra-individual comparison over time. Total PA was measured with wrist-worn Axiivies; co-PA was tracked using weekly activity calendars; and general well-being was assessed biweekly with validated questionnaires. Semi-structured interviews with grandparents and parents explored relational experiences and perceived changes. Process evaluation data (attendance logs, feedback forms, interviews, and a focus group) assessed feasibility and acceptability. Quantitative effects were evaluated using TAU-U statistics (negligible: .00–.19; small: .20–.39; moderate: .40–.59; large: .60–.79), correcting for baseline trends. Qualitative data were analyzed using reflexive thematic analysis.

Results: Most grandparents (75%) increased total PA during intervention phases. Co-PA effects ranged from negligible (22%) and small (44%) to moderate (22%) and one large, statistically significant effect (11%, $p = .02$). Children's PA changes were more variable, partly influenced by holidays during baseline. Grandparents reported significantly higher well-being during intervention phases ($p = .006$). Qualitative findings highlighted strengthened emotional closeness and shared enjoyment. Group sessions were valued for motivation and social support, while engagement with home- and community-based activities declined over time due to time constraints, fluctuating motivation, and seasonal/contextual influences. Participants suggested digital rewards and personalized feedback to support sustaining home-based activities.

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Conclusion: Ages Get Active shows potential to enhance co-PA, PA levels, well-being, and intergenerational relationships. Sustaining joint activity outside structured sessions remains challenging. Incorporating digital and lighter-touch maintenance strategies may support longer-term integration into family routines. The study contributes to growing evidence for relational, family-based approaches to promoting PA.

AA.04-5

Developing Consensus for a Responsive Feeding Approach in Early Care and Education Settings

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AA.04: Awards 4: Children and Families and Early Care

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Purpose: Early care and education (ECE) programs play a critical role in shaping children's relationships with food through responsive feeding environments. Responsive feeding, characterized by recognizing and appropriately responding to children's hunger and fullness cues, promotes self-regulation and lifelong healthy eating behaviours. Despite growing interest, there remains limited consensus defining the core behaviours that constitute a responsive feeding environment in ECE settings. Building on previous intervention work from the *CELEBRATE Feeding* (Coaching in Early Learning Environments to Build a Responsive Approach To Eating and Feeding) feasibility study, the current study aimed to identify and confirm the critical behaviours that facilitate a responsive feeding environment in ECE programs through an expert consensus.

Methods: A three-round modified online Delphi study was conducted with international experts from Canada, the United States, Australia, and the United Kingdom in early learning, nutrition, and responsive feeding to refine and validate the *CELEBRATE Feeding Approach* (Rossiter et al. 2024), a framework of responsive feeding behaviours in ECE. Across three iterative survey rounds, participants rated each behaviour on six APEASE criteria (affordability, practicality, acceptability, effectiveness, side-effects, and equity) using a 7-point scale, and provided qualitative feedback. Consensus was defined as a standard deviation ≤ 1.0 for each criterion.

Results: A total of 33 participants completed Round 1, 31 completed Round 2, and 27 completed Round 3. Panelists reached consensus on most core responsive feeding behaviours, particularly those emphasizing children's autonomy, self-regulation, and educator responsiveness. Behaviours such as "supporting children to decide what and how much to eat," "establishing consistent and responsive routines," and "limiting pressure to eat" achieved the highest agreement across domains of effectiveness and equity ($M > 6.5$, $SD < 0.8$). Lower consensus was observed for context-dependent behaviours, such as "facilitating play related to food" and "discussing cultural food practices," reflecting more variability in their contribution to responsive feeding.

Conclusion: The Delphi process achieved strong consensus on key behaviours underpinning responsive feeding in ECE contexts, offering a strong foundation for the *CELEBRATE Feeding Approach*. Findings provide clarity for implementation to support educators and policymakers, contributing to responsive food environments for young children.

AA.04-6

The Longitudinal Associations of Early Childhood Movement Behaviours with Muscle Health in Adolescence: A Compositional Analysis

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Purpose: Skeletal muscle health (strength, thickness, quality) in adolescence is closely linked to metabolic function. Daily movement behaviours, including sleep, sedentary time, light physical activity (LPA), and moderate-to-vigorous physical activity (MVPA), together form the 24-hour movement behaviours (24h-MB) and may be associated with muscle health. However, limited evidence exists. Therefore, this study examined the longitudinal association of childhood 24h-MB with muscle strength, thickness, and intramuscular adipose tissue (IMAT) in early adolescence in Singapore.

Methods: In the Growing Up in Singapore Towards healthy Outcomes (GUSTO) birth cohort study, movement behaviours were assessed using ActiGraph (GT3x) accelerometry at ages 5.5, 8, 10, and 12 years. A subset of participants had comprehensive muscle health assessments at 13.5 years (n=212); muscle strength (quadriceps and biceps) was assessed using Biodex dynamometer, and muscle thickness [rectus femoris, vastus lateralis] and IMAT were assessed using Ultrasound Imaging. Compositional multivariable linear regression and isothermal reallocation were used to examine associations between each 24h-MB composition and muscle outcomes, adjusting for child sex, ethnicity, maternal age, maternal education and children's BMI at age 13.5 years.

Results: Children with at least one time point of accelerometer data and muscle health information were included in the analyses, n=198 (49.5% girls). Our preliminary analysis showed that higher MVPA, relative to the remainder of the 24h-MB composition, was associated with a more favourable muscle profile. This included greater muscle strength [thigh peak torque at 240°/s: $\beta = 13.05$, 95% CI: (6.95, 19.14) Nm], larger muscle thickness [rectus femoris: 0.93 (0.03, 1.83) mm; vastus lateralis: 0.98 (-0.19, 2.16) mm], and lower IMAT [vastus lateralis: $\beta = -1.44$ (-2.61, -0.26) %; rectus femoris: -0.92 (-2.18, 0.34) %]. Overall, reallocations of time favouring MVPA were associated with healthier muscle profiles, whereas LPA was linked to less favourable muscle-profiles. Sleep and SB were not associated with muscle health indicators.

Conclusion: Our findings suggest that the reallocations of time between various movement behaviours during childhood plays an important role in shaping muscle health during early adolescence. These findings suggest that increasing opportunities for MVPA within the day may help support healthy muscle development and metabolic resilience.

AA.05-1

How Do Policy Makers and Practitioners in Australia Respond to the Challenge of Sustaining Public Health Programs? A Qualitative Study

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AA.05: Awards 5: Implementation and Systems Science

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Purpose: Sustaining effective public health programs is crucial to reach population health impacts such as obesity reduction and to make efficient use of resources invested in initial adoption. However, it remains a persistent challenge with review evidence showing that less than a quarter of public health programs continue after two years. We conducted a qualitative study with policy makers and practitioners across Australia to explore: (A) the key challenges to sustainment and (B) how they respond to these challenges.

Methods: We conducted a pragmatic exploratory qualitative study with a purposeful sample of Australian policy makers (based in government health departments or statutory body) and practitioners (those delivering government/donor funded health programs). Consenting participants participated in one-on-one or group interviews conducted online and recorded. Data were transcribed, checked for accuracy and analysed in NVivo. Two researchers applied Framework Analysis, inductively coding the data set using a codebook based on the research aims (A: Challenges B: Responses). Final themes were collaboratively developed with a third researcher. As a final step, each theme for 'Response' was mapped to a corresponding 'Challenge' to explore how challenges were being addressed in real-world conditions, and where gaps remained.

Results: A total of 35 individuals participated (23 policy makers and 12 practitioners), representing every state and territory in Australia. Participants worked across diverse health areas, e.g., nutrition policies, maternal health, water safety, community walking programs, and child physical activity. Aim A: Four broad themes (encompassing 13 subthemes) were identified as challenges for sustaining programs: Funding and resources, Political landscape, Demonstrating impact, and Implementation context. Aim B: Five broad themes (encompassing 20 subthemes) were identified as responses: Adapt, Harness implementing context, Evaluate and monitor, Navigate the decision point, and Early intentional efforts. Challenge-response mapping found Funding remains a persistent challenge with few responses.

Conclusion: Policy makers and practitioners must respond to complex challenges to sustain health programs. Future research needs to focus on testing what strategies work to sustain programs under dynamic conditions. Such evidence could guide decision makers in program selection and resource allocation to give the best chance of effectively sustaining programs and creating long-lasting impact on public health.

AA.05-2

Implementation and Systems Impact of a Systems-based Health Promotion Programme at Danish Vocational Schools: Results after 2-years Follow-up

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AA.05: Awards 5: Implementation and Systems Science
Room 5, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Vocational schools represent important settings for health promotion among young people from lower socioeconomic backgrounds, who are at increased risk of engaging in health-compromising behaviours. However, health promotion interventions are rarely sustained in school settings. Systems thinking has been proposed as a promising approach to health promotion but remains unexplored in vocational school settings. The aim of this study was to examine the implementation and systems impact of a systems approach to health promotion in Danish vocational schools, and to elucidate the overarching pathways through which such impacts may emerge in schools.

Methods: This longitudinal qualitative study was conducted as a part of the Data Health programme, a systems-based initiative implemented across eight Danish vocational schools and four municipalities. Quarterly interviews (n = 59) were analysed using Ripple Effect Mapping to visualise evolving actions and impacts over a two-year period and to identify enablers and barriers to systems impact. Systems impact was analysed in accordance with "the six conditions of systems change", providing a conceptual framework for interpreting patterns of transformation within and across the schools. A cross-case analysis was then conducted to identify key pathways enabling systems impact.

Results: At two-year follow-up, 42 actions had been implemented, and systems impact (structural, relational, and/or transformative change) was observed at six out of eight schools. Two reinforcing systems impact pathways emerged: (1) internally driven change via committed staff and distributed leadership, and (2) externally supported change through collaboration with community actors. Key enablers included dedicated change agents, financial resources, student participation, external networks and backbone support. Barriers included staff turnover, time constraints, and fluctuating student groups due to practical training outside the schools.

Conclusion: A systems approach to health promotion, as developed through the Data Health Programme, holds

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considerable potential to create impactful and sustainable systems changes in Danish vocational schools. Moreover, by identifying key pathways across sites, the study enabled us to go beyond isolated case descriptions and begin developing more generalisable theories of change for a systems approach to health promotion in schools.

AA.05-3

Acceptability of Scale-up Strategies to Increase Adoption of a School-based Nutrition Program in Four Australian Jurisdictions

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AA.05: Awards 5: Implementation and Systems Science
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Purpose: Scaling up effective school-based nutrition programs is crucial to achieve population-level health impact. Developing evidence-based scale-up strategies (SUS) may achieve increased uptake of such programs. However, it is important to understand acceptability of SUS for stakeholders since this may influence SUS effectiveness.

Methods: We conducted a multi-method process evaluation following four parallel-randomised controlled trials in four Australian state jurisdictions. These trials assessed the effectiveness of an evidence-based scale-up intervention to increase adoption of an effective primary school-based healthy lunchbox program ('SWAP IT'). The scale-up intervention included six, principal-targeted SUS delivered by preventive health agencies in each jurisdiction (implementers). Online surveys assessed intervention group principals' recall and acceptability of receiving each SUS. Online surveys assessed implementers' perspectives on the acceptability of developing, tailoring, and implementing each SUS, how this aligned with their usual way of working, and likelihood of using these SUS for other scale-up activities. We conducted semi-structured interviews and focus groups with implementers in each jurisdiction to further assess acceptability of SUS. We analysed survey data using descriptive statistics and qualitative data using deductive framework analysis to identify themes.

Results: Overall, 104 (32%) intervention school principals provided acceptability data. Sixty (58%) recalled receiving at least one SUS. On average, 92% (range: 70-100%) of principals rated the SUS as highly acceptable/acceptable. Forty-four implementers provided survey acceptability data. All implementers rated the process of developing and tailoring the SUS as "highly acceptable" and would use the process again. SUS implementation was rated highly acceptable/acceptable by 85% (range: 80-93%), 77% (range: 49-88%) indicated alignment with their usual way of working, and 77% (range: 56-88%) indicated they would use the SUS for future scale-up activities. Implementers identified factors that influenced acceptability of SUS ('alignment with usual practice', 'ease to implement', and 'effectiveness'). SUS deemed less acceptable to implementers required higher intensity to deliver or were less aligned with their usual way of working.

Conclusion: Overall, the SUS were highly acceptable to school principals and implementers within four Australian jurisdictions. Minimising SUS delivery intensity and adapting to jurisdictional organisational ways of working may further improve acceptability.

AA.05-4

Using Systems Archetypes in Public Health: A Scoping Review Exploring their Potential for Bridging the Gap between System Structure and Leverage Points

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AA.05: Awards 5: Implementation and Systems Science
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Purpose: In systems approaches in public health, it remains challenging to progress from understanding the current

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system structure producing undesired health outcomes, to identifying how this structure – and the resulting system behaviour – could be changed. Systems archetypes, originating from system dynamics (SD), represent combinations of system structure and system behaviour that can be ‘diagnosed’ across different systems (e.g. Tragedy of the Commons). Each suggests potential ‘treatments’, referred to as leverage points, to improve system outcomes (e.g. turning future collective losses into immediate individual costs). While promising, archetypes have also been criticised for encouraging premature conclusions, where researchers could start perceiving archetypes everywhere, without supporting evidence that an archetype might be at play in a certain system.

Methods: We reviewed foundational methodological SD literature (19 papers/books) to assess how archetypes could bridge the gap between system structure and leverage points and to identify key methodological benefits and pitfalls. We then reviewed 29 public health studies applying archetypes to examine how these applications align with the methodological literature.

Results: The SD literature suggests that archetypes can help connect understanding of system structure with insight into (1) leverage points and (2) unintended consequences of interventions, by making the link with system behaviour. Both purposes are reflected in the public health applications. Two main methodological benefits and pitfalls emerged. First, archetypes can provide a structured and reproducible approach for exploring leverage points, but should be used as hypothesis-generating tools requiring further testing. All 29 public health studies acknowledged this hypothesis-generating function. Second, archetypes can support transparent reasoning and integration of empirical data, but omitting evidence and testing risks unsubstantiated conclusions. Only six public health studies used graphs over time, reflecting system behaviour, to support archetype identification, and only three cross-checked hypotheses about system structure and system behaviour with existing empirical data.

Conclusion: When applied as hypothesis-generating tools for diagnosing system behaviour and exploring leverage points, archetypes could help bridge the gap between understanding system structure and developing change strategies in public health. Greater integration of empirical data, evidence and testing would enhance the rigour of archetype-based approaches to understanding and transforming systems in public health.

AA.05-5

A Matter of Luck? Determinants and Strategies for Successful Scale-up of Health Interventions in the Netherlands

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AA.05: Awards 5: Implementation and Systems Science

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Purpose: Scaling evidence-based health interventions to widespread implementation can be challenging, and failure to do so can significantly limit their population-wide impact. While various tools exist to support scale-up processes and some interventions are known to have achieved successful scale-up, limited knowledge is available on what drives successful scale-up in practice. This provides a window of opportunity to learn from those experiences to inform future scale-up processes. This study aimed to identify key determinants and scale-up strategies that contributed to successful scale-up of health promotion interventions in the Netherlands.

Methods: A mixed-methods approach was used, starting with 21 semi-structured interviews with intervention owners (i.e. the individual or team taking the responsible for several aspects related to implementation and scale-up) involved in the scale-up of 23 health interventions (implemented across various health behaviours and different settings in the Netherlands), followed by a survey completed by 117 interventions registered in national intervention databases to assess scale-up experiences. Guided by the WHO ExpandNet framework, insights from interview data were used to identify determinants and strategies, which informed the survey to validate and refine insights about these aspects of scaling.

Results: Key determinants for successful scale-up included: committed intervention ownership, funding, right timing, perceived value, and sufficient time for scale-up. Scaling strategies involved lobbying, PR and communication activities to engage policymakers, stakeholders, implementers and target groups. Securing funding for development, research, and overhead costs was frequently emphasized. Organizational strategies such as adapting to local or national demand and continuous development, as well as monitoring and evaluation for intervention improvement and database recognition, were commonly employed.

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Conclusion: Scaling up interventions is not a matter of luck; it requires sustained effort from a driving force, often the intervention owner/team. Scaling strategies are different from implementation strategies and underexplored in the literature. There is no one-size-fits-all strategy; success depends on context, timing, funding, and added value. Sustainable scaling requires coordinated efforts from local, regional, and national levels to reduce reliance on individual champions and ensure long-term success.

AA.05-6

Making Evidence Go Further: Leveraging the ACTIVE Agent-based Model and the GROW Trial to Inform the Design of Novel Interventions for Childhood Physical Activity

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Purpose: Gain insight into promising new approaches to increase physical activity in young children using a validated simulation model based on data from a randomized control trial.

Methods: We used the ACTIVE Agent-based Model (ABM) which is grounded in high-quality data from the GROW RCT. GROW was a community-based obesity prevention intervention with 610 parent-child pairs. Accelerometers were used to measure physical activity. The ABM model allows us to make the RCT evidence go further by uncovering mechanisms driving results and evaluating counterfactual scenarios representing potential novel interventions that go beyond those studied originally.

Results: Using the simulation model, we identified promising approaches with projected substantial positive improvement in MVPA (measured as mean daily MVPA). The biggest overall population effect we found came from combining built environment investments with creation of new gathering places, which increased MVPA by about 48 minutes per day over baseline. Targeting this intervention at disadvantaged (lowest quality built environment) neighborhoods can close persistent MVPA gaps.

We also found combinations of several individually effective interventions are fully additive. These included:

- Increased parental support: increased MVPA by about 14 minutes per day.
- Built environment investments: increased MVPA by about 14 minutes per day, while reducing MVPA differences between boys and girls by about 6 minutes.
- Broad cultural changes representing shifts in social norms around PA: increased MVPA by 26 minutes per day.
- Creating gathering places: increased MVPA by about 33 minutes per day.

For each of these intervention approaches, we link our results to recent evidence from program implementation and evaluation to ensure meaningful, actionable interpretation of findings.

We also investigated a wide range of other commonly proposed policies or interventions such as school-based, afterschool, or summer programs which had much less projected impact.

Conclusion: Our ABM sheds light on the system of influences driving childhood PA and identified interventions that, alone or in combination, can increase overall PA or reduce persistent gaps. With data collection guided by the model's requisite inputs, this ABM can be applied to other community settings, thus acting as a tool to prospectively guide the design and implementation of context-specific, high-potential interventions.

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AA.06-1

Effectiveness of a Green Physical Exercise Program in Improving the Balance of Institutionalized Healthy People in Moçambique-Africa

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AA.06: Awards 6: Ageing and Young Adults

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Purpose: Promoting physical exercise in natural environments has proven to be a promising strategy for improving physical function and mental health in older adults. This study evaluated the effectiveness of a green exercise program in improving balance among institutionalized older adults.

Methods: Intervention study with 54 subjects, of which 31 (57.4%) were female and 23 (42.6%) were male, aged 73.0 ± 8.38 years, divided into Intervention Group (IG) and Control Group (CG), consisted of two intervention moments and one moment of observation of adherence (control of interest in continuing in the PAFV), each moment lasting 7 weeks, the evaluations were carried out at four different moments, namely (M1) Initial evaluation before the intervention, (M2) after the first moment of intervention, (M3) after the second moment of intervention and (M4) after the adherence period, the intervention included multicomponent exercises, muscular strength and flexibility, three times a week, the moments were evaluated using the Short Physical Performance Battery (SPPB). The data were analyzed using descriptive statistics and repeated measures ANOVA with Sidak's post hoc test, observing the 95% CI. The study was approved by the Institutional Committee of Bioethics in Health of the Faculty of Medicine of UEM/Hospital Central de Maputo (Registration: CIBS FM&HCM/41/2024).

Results: A positive variation in the mean balance values of the IG throughout the intervention period, showing at all times of the evaluation significant statistical differences compared to the CG ($p < 0.001$), whose means assumed stability (M1: $F=11.716$, $p=0.01$; M2: $F=16.511$, $p=0.00$; M3: $F=9.823$, $p=0.03$; M4: $F=11.006$, $p=0.02$), except for the intragroup interaction, which did not present significant statistical differences.

Conclusion: The results suggest that PAFV is likely to model balance indicators, prevent falls, improve functional capacity and quality of life of institutionalized elderly people.

AA.06-2

Co-designing a WhatsApp-based Healthy Eating Intervention with Young Adults in Jamaica and the United Kingdom

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AA.06: Awards 6: Ageing and Young Adults

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Purpose: Young adults are influenced by food-related content on digital platforms, yet few digital healthy eating interventions are co-designed with them or tackle food affordability. To address this gap, we co-designed a theory-driven digital intervention to be tested starting in January 2026. This co-designed intervention is innovative in combining digital engagement with affordability support to promote healthy eating among young adults (18-25) in Jamaica and the United Kingdom.

Methods: Our intervention was informed by (1) ten youth-generated recommendations from a mixed-methods systematic review on digital food communication, (2) consultations with Young People Advisory Groups (YPAGs) in Jamaica and the UK, and (3) qualitative research in Jamaica and the UK exploring young adults' experiences with food-related videos and their proposed digital solutions to support healthy eating in their population. Insights informed a COM-B diagnosis, mapping to Behaviour Change Wheel intervention functions, and specific Behaviour

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Change Techniques (BCT) mapped to the validated BCT Taxonomy v1. Two YPAG co-design workshops were held to review the intervention concept and decide on message tone, format, and content.

Results: Young adults prioritised realistic meal ideas, cost-saving tips, non-judgmental messaging, relatable influencers, and appropriate intervention group sizes. The co-design process yielded a WhatsApp intervention that will deliver daily messages (including recipes, short-form videos, and simple healthy food swaps), peer support, and affordability support using weekly supermarket vouchers. The 8-week pilot and feasibility trial will have 75 participants in each country, randomised (2:2:1) to: (1) WhatsApp group only; (2) WhatsApp group + weekly supermarket voucher; or (3) control (printed materials). Primary outcomes include the feasibility of research procedures and intervention components. The secondary outcome will assess changes in self-reported diet quality using the Mini-Eating Assessment Tool. Quantitative data will be analysed descriptively, and qualitative data will be analysed using thematic analysis. The APPEASE criteria will be used to assess the feasibility and scalability of the intervention.

Conclusion: The participatory development of this intervention demonstrates the value of youth engagement in creating relevant, theory-driven, cross-national nutrition interventions. The process enhanced the potential for social validity, which highlights how co-design approaches can strengthen the development of dietary interventions.

AA.06-3

Associations between the Dose-response of Active Commuting to/from Work and All-cause Mortality and Incidence of Cardiovascular Disease; Evidence from UK Biobank

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Purpose: To examine the dose-response association of active commuting to/from work with all-cause mortality and incidence of cardiovascular disease (CVD), and secondly, to explore whether these associations differ across environments with varying levels of air pollution.

Methods: A total of 203,113 employed individuals from the UK Biobank who provided complete information on transport mode, commuting weekly frequency, and distance to work were included. The dose of active commuting was calculated as weekly energy expenditure in METs. Outcomes were defined algorithmically by UK Biobank and included all-cause mortality and incident CVD. Splines were used to assess the dose-response associations between active commuting with each outcome, adjusting for sociodemographic, lifestyle, health-related, and environmental covariates, including air pollutants.

Results: An inverse dose-response association was observed between METs and all-cause mortality, with risk reductions starting around 1,600 METs-min/week and reaching a minimum at 5,000 METs-min/week (HR: 0.37; 95% CI: 0.20–0.71). For CVD, risk declined progressively, with statistically significant associations from approximately 1,500 METs-min/week and a lowest risk at 5,000 METs-min/week (HR: 0.45; 95% CI: 0.28–0.74). Sensitivity analyses excluding the first two years of follow-up yielded consistent results across all outcomes. Additional analyses stratifying by air pollutant levels (PM_{2.5}, PM₁₀, and NO₂) did not materially alter the associations.

Conclusion: There is a dose-response association between active commuting to and from work and long-term health benefits for all-cause mortality, cardiovascular disease. These associations appear to be robust and independent of air pollution levels. Future research should aim to capture more precise and objective measures of active commuting dose, such as through the integration of accelerometry and GPS data.

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AA.06-4

Promoting Healthy and Sustainable Eating Behavior in Higher Education Students: A Multicomponent Co-created Intervention

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Purpose: This study performed an effect- and process evaluation of a co-created multicomponent intervention promoting healthy and sustainable eating behavior among higher education students.

Methods: A quasi-experimental design was used to investigate intervention effectiveness. One university and one university college participated in the study, each delivering one intervention and one control campus. The intervention campuses received three components: a social media campaign, canteen nudges, and interactive workshops focusing on healthy and sustainable eating behavior. The control campuses did not receive any intervention. Students from intervention and control campuses completed an online questionnaire pre and post the eight-week intervention. Outcomes were eating behavior and its socio-cognitive determinants. Furthermore, a comprehensive process evaluation was performed using questionnaires, interviews and focus groups. At this time, only data on eating behavior have been analyzed but results on its determinants as well as on the process evaluation will be presented. Generalized linear mixed models assessed differences in daily intake of fruit, vegetables, water, whole grains, red meat, legumes, dairy products, and discretionary foods between intervention and control campuses over time. Analyses were performed in R Studio with p -values <0.05 considered statistically significant.

Results: A total of 383 students (mean age 20.1 ± 1.7 years; 76% women) were included. No significant differences in change over time were found between intervention and control campuses: fruit (intervention: +0.0195; control: +0.0167, $p_{\text{interaction}}=0.899$), vegetables (+0.0379; +0.0181, $p_{\text{interaction}}=0.493$), water (+0.0911; +0.0011, $p_{\text{interaction}}=0.233$), whole grains (-0.0880; -0.0764, $p_{\text{interaction}}=0.859$), red meat (-0.0246; -0.0168, $p_{\text{interaction}}=0.706$), legumes (-0.0015; -0.0004, $p_{\text{interaction}}=0.309$), dairy products (-0.0203; -0.0195, $p_{\text{interaction}}=0.809$), and discretionary foods (-0.0249; -0.0293, $p_{\text{interaction}}=0.790$).

Conclusion: These findings suggest that the co-created intervention did not lead to measurable changes in eating behavior. However, given that the intervention also targeted socio-cognitive determinants of eating behavior, further analyses and extensive process evaluation will yield more insights into the lack of effects.

AA.06-5

Major Depressive Disorder and Social Frailty among Indian Older Adults: Evidence from LASI Wave-1

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AA.06: Awards 6: Ageing and Young Adults

Room 6, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Older adults are increasingly recognized for their vulnerabilities, as aging often brings declining health, functional limitations, and weakening social networks. Social frailty, characterized by reduced resources, support, and participation, undermines social capital that is vital for well-being in later life. In India, rapid demographic transition and changing family structures further intensify these challenges. Against this backdrop, major depressive disorder (MDD) has emerged as a critical public health concern, projected to become the leading cause of disease burden by 2030. This study aims to examine the relationship between social frailty and MDD among older adults in India.

Methods: Using data from the Longitudinal Ageing Study in India (LASI) Wave-1 (2017-2018) we considered a total of 66606 older adults aged 45 and above. Major Depressive Disorder (MDD) is defined using DSM-5 criteria and measured with the CIDI-SF. Social frailty was measured using the Social Frailty Index (SFI) and categorized into five groups (Very Low to Very High). Several socio-demographic and health-related factors were considered in the study. We applied Bivariate analysis, logistic regression to evaluate the associations with MDD.

Results: MDD prevalence declined sharply with stronger social resources: 8.96% in the Very Low SFI group compared

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to 1.35% in the Very High group. Regression findings confirmed that female sex, marital disruption, chronic disease, disability, poor self-rated health, and sleep disturbances were associated with greater risk of MDD. Age, current marital status, region, religion, MPCE quintile, number of chronic conditions, number of Activities of Daily Living (ADL), and Instrumental Activities of Daily Living (IADL), involvement in physical activity, involvement in yoga/meditation, number of social networks, participation in social activities, and involvement in leisure activities like reading books, watching TV, using computer were found to be significantly associated with MDD.

Conclusion: Not being in a marital union, having more than two chronic conditions, more than two ADL and IADL difficulties, being physically inactive, non-involvement in Yoga, and small social network are associated with higher MDD. social frailty is inversely associated with MDD among older Indians. Addressing social frailty through community engagement and supportive networks should be prioritized as part of healthy aging strategies in India.

AA.06-6

Digital Marketing Techniques and Food Choice Drivers: Real-time Insights into Young People's Online Food Delivery Service Use in Australia

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Purpose: The Online Food Delivery (OFD) sector has experienced unprecedented growth since the pandemic began. In Australia with a market size of \$1.3bn in 2023, over three billion consumers used OFD services in 2024. Very little is known on the public health impact of OFD service use and what actions are needed to ensure that OFD services offer healthy foods. The aim of this study was to describe young people's exposure and engagement with digital marketing techniques and how this influences food purchasing decisions in real-time.

Methods: Using a screen capture method followed by in-depth semi-structured interviews (n=50), we gathered data on young Victorians (aged 15-35 years) exposure to digital marketing techniques and factors influencing their food choice decisions on OFD services, in real-time. Screen recordings were analysed using content analysis, guided by the marketing mix framework. Qualitative data were deductively coded, guided by the socio-ecological model, using thematic analysis.

Results: Analysis of screen recordings of food purchases on OFD services revealed that over 90% of young consumers were exposed to a wide range of discretionary foods (e.g. pizza, chips) promoted through diverse digital marketing techniques such as price discounts, promotion on food items, gamification and personalised strategies (e.g., "only for you"). Similar factors driving food choices on OFDS were observed for both the age groups, guided by the socio-ecological model: individual motivations to seek comfort food, convenience (time- and cost-saving), social and sensory influence, to platform-level factors such as price promotions on unhealthy food, quick delivery and appealing food images. Notably, consumers aged 15-24 years had limited concern and knowledge about the health impacts while those aged 25-35 years of acknowledge health considerations but did not prioritise health when purchasing food using OFD services.

Conclusion: Multiple factors influence young consumers' food purchasing decisions on OFD services- ranging from individual and social circumstances to digital marketing techniques. Our research underscores an urgent need for coordinated policy action to transform OFD services into health-promoting environments, empowering young people to make informed and healthier food choices.

AA.07-2

Co-creation of Nutrition Interventions in Higher Education Settings: Proposals from a Student Citizens' Assembly

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AA.07: Awards 7: Policies and Environments and Participatory research

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Purpose: Improving higher education students' diet is a public health priority, yet interventions often fail to address the structural barriers students face, particularly in socioeconomically disadvantaged settings. This study aimed to explore whether student citizens' assemblies may represent a valuable approach to co-creating interventions intended to support healthier, climate-friendly and economically affordable diets among students.

Methods: This participatory research took place at a French university (Sorbonne Paris Nord) located in socioeconomically disadvantaged suburbs of Paris. A student citizens' assembly was conducted with the aim to co-create concrete proposals that would enhance students' access to sustainable diets and physical activity. The assembly involved 27 students randomly selected among a pool of volunteers. Over three days in November 2024, students received awareness-raising and training, deliberated among themselves then with institutional and local stakeholders, and formulated proposals. For each proposal, students were asked to rate anonymously their approval on a 10-point scale. Proposals related to diet (i.e. not physical activity) were analysed using two complementary frameworks: the DONE framework classifying determinants of diet (individual, interpersonal, food environment and policy) and the FAO dimensions of sustainable diets (health, environmental, socioeconomic, cultural).

Results: Overall, 31 proposals were formulated, of which 77% targeted food environment and policy determinants of diet (e.g. institutional regulations, university policies, food assistance solutions, food affordability, availability and labelling). Other proposals referred to individual (19%) and interpersonal determinants (3%). In addition, 39%, 29%, 23% and 10% proposals addressed the health, socio-economic, environmental and cultural dimensions, respectively. Mean approval ratings (SD) from the students ranged from 6.7 (4.0) to 9.7 (0.9), with a mean (SD) value for all proposals of 8.6 (0.7). Proposals addressing the socio-economic dimension received the highest approval ratings (mean [SD] 9.0 [0.6], vs 8.4 [0.6], 8.4 [0.8] and 7.9 [0.4] for the health, environmental and cultural dimensions, respectively).

Conclusion: The predominance of environmental and policy measures targeting economic access to food highlights the importance of co-creation and its value to align interventions with participants' needs and expectations. One major challenge that warrants further investigation is the capacity of stakeholders to implement such proposals, and to evaluate their effectiveness.

AA.07-3

Sustaining Healthy Food Retail: Do Australian and New Zealand Government Policies Consider Long-term Change?

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Room 7, May 27, 2026, 3:00 PM - 4:00 PM

Purpose: Healthy food retail policies are government instruments designed to encourage healthier food and drink purchases by regulating aspects of retail settings that influence consumer purchasing behaviour. It remains unclear how these policies assign responsibility for sustaining healthy food retail practices or whether they reflect evidence-based strategies for long-term sustainment. This study applies implementation science theory to policy analysis to address a critical knowledge gap by exploring how national and jurisdictional policies in Australia and New Zealand conceptualise and support the long-term sustainment of health-promoting food retail practices, the strategies they include to enable long-term change, and where gaps remain between theory and practice.

Methods: A qualitative, interpretive policy analysis was conducted. A purposive sample of government „policy cases“ was compiled, each comprising a main policy document and accompanying materials (e.g., implementation guidelines) published or updated between 2014 and 2025. These were identified using documents from the publicly available Healthy Food Environment Policy Index assessments, followed by systematic searches of government websites. Policies were analysed using a multi-theory coding framework informed by problematisation theory, the Integrated Sustainability Framework (outlining factors influencing sustainment), and sustainment-explicit Expert

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Recommendations for Implementing Change strategies. Thematic analysis was used to identify how sustainment was represented in policies.

Results: Thirty-three policy cases were included. Most policies were designed for public settings, with school and healthcare food outlets being the most common. Four key themes were constructed: (1) explicitly (directly) framing sustainment as a formal, complex process; (2) implicitly (indirectly) problematising sustainment through 'sustainment strategies' (e.g., compliance monitoring); (3) acknowledging top-down institutional responsibility for sustainment; and (4) underplaying retailer responsibilities and sustainment challenges.

Conclusion: Australia and New Zealand's healthy food retail policies rely largely on top-down strategies, placing responsibility for sustained change on public institutions (e.g. healthcare organisations, schools). Limited attention is given to broader systemic or contextual factors, such as the profitability of healthy options and the capacity of retailers or public institutions to maintain changes. To better support healthier consumer food and drink purchases in the long term, policies should adopt more comprehensive approaches that promote flexibility, capacity-building, and shared responsibility across key actors.

AA.07-4

Co-Designing a Multi-component Intervention to Promote Healthy Diet and Physical Activity among Adolescents in Urban Ghana and Kenya: The Generation H Study

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AA.07: Awards 7: Policies and Environments and Participatory research
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Purpose: Adolescents in urban Sub-Saharan Africa (SSA) are increasingly likely to have unhealthy diets and low levels of physical activity. Interventions to address these are often designed in non SSA populations and thus fail to account for adolescents lived experiences and local context. We aimed to co-design a theory- and evidence- informed multi-component intervention to promote healthy diets and physical activity among adolescents in urban Ghana and Kenya.

Methods: A multi-stage co-design participatory process engaged key stakeholders (adolescents, parents, teachers, community leaders, health and education professionals, and policy actors) in urban Ghana and Kenya. Guided by the UK Medical Research Council framework for developing and evaluating complex interventions, the process combined formative research and interactive co-design activities: (1) Engagement with 362 stakeholders through focus groups or in-depth interviews to understand underlying influencing factors of the unhealthy behaviours using the COM-B model and a socio-ecological framework ; (2) Evidence synthesis (realist) to formulate intervention programme theory from 93 articles that informed intervention components; (3) Prioritisation of intervention target behaviours; (4) Intervention development group using four co-design workshops (per country) to brainstorm design ideas for the identified core intervention components in step 2; and (5) Mapping 'Intervention function' and 'behaviour change techniques' from the Behaviour Change Wheel to the co-designed intervention.

Results: Intervention programme theory comprised three core components (education provision, increasing availability of fruit, vegetables and water, and enabling physical activity equipment use) and three supporting components (leveraging peer influence, engaging parents and community leaders, and incorporating cultural relevance). Specific target behaviours selected by stakeholders were increasing fruit, vegetables, water consumption and restricting sugary foods/drinks; and promotion of moderate to vigorous physical activity. Bespoke ideation sessions led to a context specific design concept: the content (the 'what'), format (mode of delivery) and delivery (by whom) for the three core components, which encompassed eight 'intervention functions' (Education, Persuasion, Incentivisation, Training, Restriction, Environmental restructuring, Modelling and Enablement).

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Conclusion: The co-design process generated an evidence- and theory-informed intervention. By integrating evidence synthesis with participatory insights, the Generation H intervention development demonstrates a feasible process for developing contextually relevant behavioural interventions for adolescents in urban Ghana and Kenya.

AA.07-5

Understandings of Ultra-processed Foods: A Qualitative Interview Study of UK Adults with Responsibility for Household Food Activities

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Purpose: Despite growing public discussion, little is known about how individuals understand and act on the idea of ultra-processed foods (UPFs). This study explored public perceptions of UPFs and their relationship to health, how these are shaped by information sources and food environments, whether perceptions influence purchasing and consumption, and participants' views on possible solutions for reducing UPF intake.

Methods: Semi-structured interviews were conducted with 30 adults aged 22–65 years across the UK, recruited using social media to capture diversity in gender, age, ethnicity, and education. Data were transcribed verbatim and analysed using reflexive thematic analysis in NVivo, with coding refined through team discussions and input from a Public Involvement and Engagement (PIE) group to enhance interpretive depth.

Results: Five themes captured how participants understood and navigated UPFs: (1) understanding of the concept; (2) influences shaping these understandings; (3) decision-making around UPFs; (4) barriers and enablers to reducing consumption; and (5) proposed solutions. Participants expressed uncertainty about what qualifies as a UPF, often equating “processing” with chemical additives, industrial production, or loss of naturalness. UPFs were commonly contrasted with “real” or “home-made” foods and associated with value-laden and health-related judgements. Food processing was described as a continuum, with confusion about where the boundary lies between processed and ultra-processed foods. Understanding was shaped more by trust, personal experience, and perceived credibility of information sources than by nutritional knowledge. Industry-sponsored information was viewed sceptically, while relatable voices such as social media influencers who shared similar personal stories were often seen as more trustworthy. While some participants avoided foods they perceived as ultra-processed, purchasing and consumption were more strongly driven by cost and convenience, with taste and family preferences playing a lesser role.

Conclusion: Public understandings of UPFs differ markedly from scientific and policy classifications, reflecting conceptual ambiguity and the influence of everyday information sources. Improving communication about food processing should go beyond increasing knowledge to help people navigate conflicting information and uncertainty. Policy efforts should combine clearer communication with structural measures that make less processed options more accessible and appealing.

AA.07-6

LifeLab Dublin: Co-creating a Health Literacy Intervention with and for Young People

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Purpose: LifeLab Dublin is a health literacy intervention co-designed with and for young people from disadvantaged communities in Ireland. Since 2019, the project has engaged diverse stakeholders (students, teachers, health professionals, and community partners) in collaboratively shaping LifeLab's educational content, delivery models, and research priorities. By embedding co-design at the core of intervention development and iterative refinement, the intervention has sought to enhance relevance, accessibility, and long-term behavioural impact among young participants while generating evidence for participatory practice in health literacy promotion.

Methods: Using a participatory approach, a range of methods have been utilised including questionnaires, focus groups, interviews, and co-design workshops, Photovoice, and stakeholder consultations. To date, participants have included over 500 secondary school students, over 50 teachers, approximately 30 LifeLab facilitators, and representatives from local health and education sectors. Activities focused on exploring young people's lived experiences of health, identifying barriers to engagement, and collaboratively designing curriculum materials, resources, and outreach strategies. Data were gathered through Photovoice, reflective journals, and audio recordings. Reflexive thematic analysis and collaborative sense-making has been used to identify shared priorities and emergent themes.

Results: The co-design process led to the development of a series of Vignettes, the identification of prioritised health topics, and the co-creation of activities and resources. Participants have provided insight on what, and how they would like to learn about health literacy. This includes the need for practical hands-on experiences, providing choice, and relating the content and learnings to real life. These findings have been reflected by research with class teachers, who emphasised the importance of authentic role models, and cited the LifeLab Facilitators (trained undergraduate students) as key factors in the intervention's success. These outcomes have informed the refinement of the LifeLab intervention.

Conclusion: This work demonstrates the value of participatory methodologies in bridging health literacy education and real-world application for young people, particularly those from traditionally underserved communities who can stand to benefit most from improved health literacy. Ongoing evaluation and capacity-building efforts continue to expand the model, offering a scalable framework for embedding youth voice and co-design in health literacy research and practice.

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O.1.01-1

Longitudinal Associations between Screen Time Patterns and Cognitive Development among Preschool Children

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Major gaps limit the comprehensive understanding of ST and cognitive development associations in preschoolers. The objectives of this study were to examine longitudinal: 1) ST patterns (i.e., type, device, content, context) and 2) associations between ST patterns and cognitive development in preschool children.

Methods: Data from the TEChnology and Development in Early Childhood (TECH) project was used. Participants included 359 preschool children (baseline: 3, 3.5, or 4 years $\pm$ 2 weeks) and their parents from Western Canada. ST patterns (type: show/movie/video, electronic game, communication [video calls]; content: parent-defined educational or entertainment, researcher-defined educational or entertainment; device: television, mobile [tablet/smartphone]; context: co-use with adult, evening) were parent-reported using a 2-week online daily diary at baseline and 6- and 12-month follow-ups. Cognitive development (language, response inhibition, working memory, self-control) was assessed at baseline and 6- and 12-month follow-ups via four established short games administered by researchers during a recorded virtual meeting. Generalized Estimating Equations and Linear Mixed Models adjusted for covariates were conducted.

Results: Across the three time points (13,435 days of data), total ST did not significantly increase, however, educational content (2.9-4.5 min/day change) and communication (14.3% change in >0 min/day) ST significantly decreased, whereas, electronic game (5% change in >0 min/day), entertainment content (4.5-6.9 min/day change), and evening (1.9 min/day change) ST significantly increased. With time held constant, higher show/movies/video, parent-defined educational and entertainment content, and evening ST were significantly associated with less advanced response inhibition. Higher show/movie/video, mobile device, and parent-defined entertainment content ST was significantly associated with less advanced self-control. The opposite was observed for communication ST and response inhibition and electronic game ST and working memory. For language, significant age by ST pattern interactions were observed for electronic game and parent-defined educational content ST. For response inhibition, significant age by ST pattern interactions were observed for researcher-defined educational content and evening ST. For working memory, a significant age by researcher-defined entertainment content ST interaction was observed.

Conclusion: Some ST patterns appeared more detrimental to cognitive development than others. Findings can inform more nuanced ST recommendations and interventions aiming to minimize harm and maximize benefits of this societal reality.

O.1.01-2

Food Avoidant Profiles in Early and Middle Childhood: The Role of Temperament, Sensory Sensitivity, and Food Neophobia in the APPETITE Cohort

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Food avoidance is a persistent problem for some children and affects dietary quality. While temperament, sensory sensitivity, and food neophobia are each linked to food avoidance, these child characteristics are likely to interact in complex ways that shape how food avoidance manifests across children. Examining profiles provides a person-centred approach to understanding the diverse pathways that underlie food avoidance, rather than assuming a single pattern of behaviour. This study aimed to identify food avoidant profiles and examine how incorporating child characteristics enhances understanding of these profiles over time.

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Methods: This study analysed secondary data from the APPETITE study; a longitudinal investigation of UK children's eating behaviours. At Time 1 (T1; n = 995, child ages 3-6, M= 4.4 years, 52% girls), parents completed an online survey including subscales from the validated Child Eating Behaviour Questionnaire (CEBQ) and Children's Behaviour Questionnaire - Very Short Form (CBQ-VSF). Two years later (T2; n = 514, child ages 5-8, M= 6.8 years, 52% girls) parents completed the Child Food Neophobia Scale (CFNS, short form) and the Reduced Glasgow Sensory Questionnaire (rGSQ). Latent Profile Analyses were conducted at T1 and T2, with model fit evaluated using AIC, BIC, and minimum class size (>5%).

Results: At T1, five profiles were identified, including two food avoidant profiles: moderately food avoidant (16%) and food avoidant (10%). At T2, four profiles emerged, with one food avoidant profile (29%). Compared with Time 1, the Avoidant profile increased in proportion, indicating that food avoidance remained stable or even became more pronounced for some children as they got older. Including sensory sensitivity and food neophobia at T2 revealed five distinct profiles, with two food avoidant profiles: moderately food avoidant (19%) and food avoidant (28%), differing significantly in food neophobia and sensory sensitivity.

Conclusion: Food avoidant profiles vary across childhood, with avoidance becoming more delineated when sensory and neophobia traits are considered. These findings suggest that incorporating child characteristics provides a richer understanding of food avoidance profiles that may inform tailored interventions to support children at risk of poorer dietary quality.

O.1.01-3

Longitudinal Associations between General Parenting in Early Childhood and Eating Competence in Adolescence

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Parents shape children's eating habits, including what, when, and how they eat. General parenting refers to the overall approach to raising children, creating a family emotional climate. It has been associated with children's food consumption but also with other aspects of eating behavior, such as emotional and disordered eating. However, longitudinal research remains limited, and associations with eating competence have not yet been examined. Eating competence describes a positive and flexible approach to food and eating, encompassing attitudes, food acceptance, internal regulation, and management of the food context. We explored whether general parenting in preschool age was associated with eating competence in early adolescence.

Methods: The sample comprised 218 child-parent dyads from the DAGIS study in Finland. Baseline data was collected in 2015–2016 (children aged 3–6 years) and follow-up data in 2023 (10–14 years). At baseline, parents completed a 29-item version of the Comprehensive General Parenting Questionnaire (CGPQ) assessing five constructs: nurturance, structure, behavioral control, inappropriate control, and overprotection (items rated on five-point Likert scale). At follow-up, adolescents completed a preliminary Finnish translation of the Satter Eating Competence Inventory 2.0 (possible score 0–48). Data were analyzed using linear mixed-effects models, adjusted for child sex, baseline age, and parental education.

Results: Higher parental nurturance (B=2.66, 95% CI= 0.13, 5.18) and structure (B=4.58, 95% CI= 1.92, 7.24) when children were preschoolers were associated with higher eating competence score in early adolescence. By contrast, behavioral control, inappropriate control and overprotection were not associated with eating competence. Parents generally reported high nurturance, structure, and behavioral control, and low inappropriate control and overprotection.

Conclusion: Our findings suggest that parenting characterized by responsiveness to the child's needs and autonomy support (nurturance), and by a consistent organization of the child's environment to foster child development (structure) in early childhood may predict higher eating competence in adolescence. Similar parenting dimensions have also been linked to healthier food consumption and lower levels of maladaptive eating behaviors in previous research. Future studies should confirm these findings in larger, more diverse samples and explore how combinations of the five CGPQ constructs relate to eating competence.

ORAL ABSTRACT SESSIONS

O.1.01-4

Food Parenting in Motion: A Latent Transition Analysis of Stability and Change in a Daily Diary Study

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity
Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Most studies examine food parenting practices (FPP) as stable, independent behaviors. In reality, parents combine and adjust multiple practices from day to day. Capturing how FPP configurations unfold over time is crucial to understand the balance between feeding consistency and flexibility.

Objective: This Daily Diary identified daily FPP typologies, estimated typology transitions across nine days, and examined predictors of predominant typology and day-to-day stability/instability among families with 2.5-6-year-olds.

Methods: Parents (n=306; age 40yrs; 60% mothers) completed a 9-day Daily Diary using a validated FPP tool measuring child involvement, autonomy support, nondirective support, meal routines, healthy opportunities, rules and limits, and coercive control. Latent Class Analysis identified distinct daily typologies. Latent Transition Analysis estimated probabilities of remaining in or switching between typologies across days. Linear and logistic regressions examined predictors of predominant typology, stability, and change.

Results: Two time-invariant typologies emerged: *Consistent Guidance* (45%), combining multiple structured and autonomy-supportive practices, and *Basic Structure* (55%), emphasizing routines and limits only. Day-to-day *stability* (probability of remaining in the same typology) ranged from 79-95%, with 42% of parents never switching typologies. Transitions were asymmetric, more often shifting from *Basic Structure* to *Consistent Guidance*. At baseline, mothers (OR=1.88) and families whose children had higher fruit and vegetables intake (OR=1.09) were more likely to use *Consistent Guidance*, and higher income families spent less time using *Consistent Guidance* ($\beta=-0.18$ to -0.34). Across days, *instability* (number of switches) was greater for older parents ($\beta=0.13$), families with less food-responsive children ($\beta=-0.15$) and those with lower fruit and vegetables intake ($\beta=-0.13$). Conversely, *stability* (longest consecutive run) was greater for younger parents ($\beta=-0.15$) and parents with children with higher fruit and vegetables intake ($\beta=0.13$), food responsiveness ($\beta=0.11$), and emotional overeating ($\beta=0.12$).

Conclusion: Daily FPP clustered into two typologies that were largely stable yet showed meaningful day-to-day variation. Greater instability among higher-income and older parents, and when children were less responsive to food, suggests that busy schedules or concern about insufficient eating may prompt shifts in strategies. Identifying who sustains structured, autonomy-supportive practices clarifies predictors of consistency and informs future work on its role in fostering healthy family environments.

O.1.01-5

Mothers Practising, Fathers Encouraging. A Structural Equation Modelling Analysis of Parental Support for Physical Activity

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity
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Purpose: This study aimed to examine how maternal and paternal physical activity (PA) and supportive parenting behaviours predict moderate-to-vigorous physical activity (MVPA) among children and adolescents, and whether these associations vary according to child age and parental gender in a Latin American context.

Methods: This Chilean cross-sectional study included 780 parents (390 mothers, 390 fathers) and 390 school-aged children (193 boys, 197 girls), with 61.8% (n=241) of the sample composed of adolescents. PA levels were self-reported for children using the Youth Activity Profile (YAP) questionnaire, and parental support was measured using a 5-item Likert scale. The analysis followed a three-step approach: (1) Exploratory Factor Analysis (EFA) to identify the underlying factor structure of parental support behaviours, (2) Confirmatory Factor Analysis (CFA) to validate the factor structure

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and assess model fit, and (3) Structural Equation Modelling (SEM) to test predictive relationships. Analyses were stratified by age group (children/adolescents) and gender (girls/boys). The analysis was conducted with SPSS V25 and JASP statistical package V0.18.3. Missing data were imputed using the missForest package in R.

Results: Five factors were identified in mothers associated with encouragement, logistical support, and Co-activity, which explained 61.3% of the variance. Three factors were identified in fathers (62.4% of variance) related to encouragement and parental regulatory support, as determined by the EFA and CFA. Parental support predicted MVPA in age-specific ways: among children, maternal encouragement was positively associated with MVPA ($\beta=4.17$, $p<.05$), while combined co-activity/regulation showed a negative association ($\beta=-7.42$, $p<.05$). Among adolescents, co-activity/parental PA behaviour and encouragement/regulation were associated with MVPA ($\beta=10.98$ and $\beta=12.39$, respectively; $p<.05$). Fathers' encouragement was $\beta=3.54$ ($p<.05$) for children's MVPA and $\beta=13.89$ ($p<.05$) in adolescents' MVPA.

Conclusion: These findings reveal a gendered and developmentally sensitive pattern of parental influence. Maternal support strongly predicts adolescents' MVPA, while paternal support remains modest and stable. Since mothers often serve as primary promoters of children's PA, interventions for adolescents should particularly engage mothers, whereas child-focused programs should involve both parents. Encouraging greater paternal participation during adolescence and co-designing age- and gender-specific public health strategies may enhance PA promotion among youth.

O.1.01-6

Harnessing Youth Storytelling to Reduce Sugary Drink Intake and Prevent Childhood Obesity: Results from the H₂GO! Cluster Randomized Trial

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Excess sugar-sweetened beverage (SSB) consumption remains a leading contributor to childhood obesity worldwide. H₂GO! is a narrative-based behavioral intervention co-developed through an academic-community partnership with Boys & Girls Clubs (BGCs) to reduce youth SSB intake and obesity risk. This cluster randomized controlled trial tested the efficacy of H₂GO! on child body mass index z-scores (zBMI) and beverage intake compared with usual care. We hypothesized that participants in H₂GO! sites would show greater reductions in zBMI and SSB intake and greater increases in water intake than those in control sites. The study advances research by integrating *youth-created narratives*—a novel motivational approach to enhance engagement and parental involvement—and testing a scalable delivery model within trusted community settings.

Methods: Between 2020 and 2025, 11 BGC sites in Massachusetts were randomized to the intervention or usual care. Participants were 437 parent-child dyads (mean child age = 10.0 ± 1.0 years; 68% eligible for free/reduced-price lunch; 42.6% Hispanic/Latino, 29.5% non-Hispanic White, 15.8% non-Hispanic Black, 10.8% non-Hispanic Other, 1.5% non-Hispanic Asian). The 6-week, in-person intervention was delivered by trained BGC staff and included interactive sessions, youth-created narratives, and take-home activities targeting SSB reduction and water promotion. Primary outcome: child zBMI derived from staff-measured child height and weight; secondary outcomes: SSB and water intake (beverage intake questionnaire). Assessments occurred at baseline, 2, 6, and 12 months. Multilevel mixed-effects models accounted for clustering by site and adjusted for covariates.

Results: At 12 months, intervention youth demonstrated significantly greater reductions in zBMI compared with controls ($\beta = -0.19$, SE = 0.09; $p = 0.036$). Within-group analyses showed reductions in SSB intake (-3.7 fl oz/day; $p = 0.024$) and increases in water intake ($+6.6$ fl oz/day; $p = 0.003$) among intervention participants; control sites showed no significant changes.

Conclusion: Participation in H₂GO! was associated with reduced child zBMI and improved beverage behaviors among ethnically diverse, low-income youth. Embedding youth-driven narratives in community settings demonstrates promise as a theory-informed approach to motivation and behavior change. Findings advance behavioral nutrition and implementation science by leveraging community infrastructure for sustainable delivery and may inform future efforts to promote nutrition and health.

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O.1.01-7

BMI Percentile Is Consistently Associated with Adiposity across Racial/Ethnic Groups in U.S. Children

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Body mass index (BMI) is widely used to assess child adiposity, but concerns have been raised about its accuracy across racial and ethnic groups. This study evaluated whether race and ethnicity modify the association between BMI percentile and objective adiposity measures.

Methods: We analyzed data from the National Health and Nutrition Examination Survey (NHANES) from 2011 through 2018, focusing on children 8 through 19 years old with BMI percentile and dual-energy X-ray absorptiometry (DEXA) data. Adiposity measures included fat mass index and android/gynoid fat ratio. We used unweighted proportional odds regression models stratified by sex, with restricted cubic splines and interactions between age, race/ethnicity, and BMI percentile. Model-based outcomes were plotted across BMI percentiles for various age and racial/ethnic combinations. Due to model complexity, individual coefficients and p-values were not reported.

Results: The analysis included 6,835 children (48% girls), with a median age of 13.3 (IQR 10.5, 16.4) and median BMI percentile of 74.2 (IQR 42.8, 93.2). Racial/ethnic distribution was 21.1% Mexican American, 24.3% non-Hispanic Black, 27.1% non-Hispanic white, and 27.5% other. As expected, higher BMI percentiles were associated with higher measures of adiposity at all ages. When comparing across different racial and ethnic groups, there were not clinically meaningful differences in associations between BMI percentile and either fat mass index or android/gynoid ratio. For example, among 12-year-old boys at the 95th BMI percentile, predicted fat mass index was 9.5 (95% confidence interval 9.2, 9.7) for Mexican American children, 9.1 (8.7, 9.4) for non-Hispanic Black children, and 9.4 (9.1, 9.7) for non-Hispanic white children. Among 16-year-old girls at the 95th BMI percentile, predicted android/gynoid ratio was 0.99 (0.98, 1.00) for Mexican American children, 0.96 (0.94, 0.97) (95% CI) for non-Hispanic Black children, and 0.97 (0.96, 0.98) for non-Hispanic white children. Similar patterns were observed across all groups.

Conclusion: Race and ethnicity did not modify the relationship between BMI percentile and objective adiposity measures in a clinically meaningful way. Despite any potential limitations of BMI in approximating total fat mass or fat mass distribution, BMI percentile showed consistent associations across racial and ethnic groups.

O.1.01-8

Nutritional and Glycemic Disparities in Gestational Diabetes: Insights from a Swedish Randomized Controlled Trial

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O.1.01 Children and families: Developmental Trajectories: Longitudinal Perspectives on Child Nutrition and Activity Auditorium, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Gestational diabetes mellitus (GDM) is rising globally and disproportionately affects socioeconomically vulnerable populations. While Sweden is a high-income country with universal healthcare, little is known about disparities in dietary behaviors and glycemic control among women with GDM. Understanding these differences is essential for tailoring interventions and promoting equitable maternal health outcomes.

Methods: Data were drawn from an ongoing multicenter randomized controlled trial in Sweden evaluating a mobile health (mHealth) solution for GDM management. We analyzed data collected at gestational week 37 and baseline questionnaires. Three social determinants of health (SDOH) were examined: country of birth (foreign-born vs. Swedish-born), education (no university degree vs. university degree), and food security status (food-insecure vs. food-secure). Primary endpoints included daily dietary intake (energy, carbohydrate, fat, and protein) and daily continuous glucose monitoring (CGM)-derived metrics (time in range [TIR], mean glucose, and variability). Associations were assessed using linear regression models adjusted for intervention group, clinic, parity, BMI, and age.

Results: Among 264 participants, 30% were foreign-born, 39% had no university degree, and 4.7% were food-insecure.

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Dietary intake data were available for 207 participants; mean daily intake was 1,842 kcal, 171 g carbohydrates, 89 g fat, and 80 g protein. Foreign-born and food-insecure women tended to have lower energy and fat intake (adjusted β for energy: foreign-born -149 kcal [$p = 0.086$], food-insecure -354 kcal [$p = 0.087$]; for fat: foreign-born -15.8 g [$p = 0.004$], food-insecure -24.5 g [$p = 0.057$]). Educational attainment showed no association with dietary measures. CGM data were available for 72.7% of participants; mean TIR was 96.8%, mean glucose 5.0 mmol/L, and variability 16.6%. Women with a university degree had higher TIR (adjusted β 1.82% [$p = 0.010$]) and a trend toward lower variability (-1.23% [$p = 0.056$]); other SDOH showed no association with CGM indicators.

Conclusion: We observed a gap in glucose management by education level, despite no significant dietary differences. Foreign-born and food-insecure women showed trends toward lower energy and fat intake. These findings highlight the need to integrate SDOH into precision GDM management to improve care and equity. Future analyses will explore additional factors such as physical activity.

O.1.02-1

Policy Instruments for Promoting Sport and Physical Activity among Women and Girls: A Review of International Policy Documents

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity
Room 1, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Policy plays a critical role in shaping population-level sport and physical activity behaviours. However, there's limited understanding of the specific measures recommended for promoting sport and physical activity among women and girls in international policies. This study aimed to collate international policy documents that include measures to enhance participation among women and girls, and analyse the policy instruments mentioned in these documents.

Methods: We searched the websites of ten international organizations relevant to the promotion of sport and physical activity (e.g., UNESCO, Women Sport International, and International Olympic and Paralympic Committees), particularly among women and girls, for potential documents. The resulting documents were reviewed by stakeholders in the fields of sport policy and gender equality, and 62 documents were included for analysis. Content analysis was employed, combining deductive and inductive approaches to structure and interpret the data. Schneider and Ingram's typology of policy instruments, which differentiates between authority, incentive, learning, capacity, symbolic and hortatory tools, provided the theoretical framework for this analysis. Sub-themes within each category were then generated inductively, to capture the specific tools emerging from the texts.

Results: Half of the recommended policy instruments were categorized as capacity tools (e.g., embedding gender equity in training sport professionals), with symbolic and hortatory tools (e.g., delivering education campaigns) also common. Learning tools were suggested slightly more than incentive tools, while authority tools were mentioned the least. Overall, the policies emphasised creating enabling environments (e.g., adapting facilities and equipment to be gender-sensitive), promoting inclusivity for diverse subgroups (e.g., indigenous women and girls), advancing women's roles within the sport system, embedding gender-specific needs (e.g., accommodating dress options), raising the visibility of women in sport, fostering cooperation (e.g., partnership between governments, non-governmental organizations, and private sector), supporting targeted resource allocation, and improving the evidence base to address gender inequalities in sport and physical activity participation.

Conclusion: International policies recommend a diverse set of policy instruments to promote women and girls' participation, yet the level of emphasis given to each instrument type differs. Future work should assess the extent to which recommended instruments are implemented in practice and their impact on participation outcomes.

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O.1.02-2

The Green Gap Framework: Understanding Non and Low Use of Urban Greenspaces

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity
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Purpose: Greenspaces are recognised as important for promoting physical activity and supporting mental wellbeing. Yet around 25% of the UK population rarely visit their local greenspaces. These non and low frequency users are disproportionately women, older adults, people with long-term conditions or disabilities, and those from minority ethnic groups. They are also less likely to engage in physical activity and face higher rates of cardiovascular disease, obesity, and mental health conditions. This is despite evidence that these are the people who could derive the most significant health benefits from engaging with greenspaces.

Methods: This research aimed to develop a novel theoretical framework to guide academic, practitioner and policymaker thinking and action to identify and map the modifiable multilevel factors influencing non and low use of greenspace. The framework was iteratively developed through literature reviews, expert consultations, and collaboration with stakeholders across research, policy, and practice.

Results: The output, *The Green Gap Framework*, conceptualises barriers and facilitators across four interconnected domains: Individual, Social & Community, Physical Environment, and Political & Societal. It illustrates how these domains interact to influence engagement (or lack of), providing a tool for better understanding the complex reasons behind low urban greenspace use. To evaluate its relevance and applicability, we mapped policy and research activity against the framework domains. This revealed a predominant focus on individual and physical domains, with less emphasis on systemic and social influences that could have the greatest population-level impact on greenspace use.

Conclusion: The Green Gap Framework has been developed as a dynamic tool that evolves with ongoing empirical research and real-world applications. It can inform future strategies in policy, practice, and urban planning by supporting better understanding and more holistic approaches to greenspace provision and promotion. The ultimate goal is to increase greenspace use, promote physical activity and mental wellbeing, and reduce health inequalities.

O.1.02-4

Examining Variations in Household Food Insufficiency Profiles Following the Termination of Supplemental Nutrition Assistance Program (SNAP) Emergency Allotments in the United States

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity
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Purpose: The Supplemental Nutrition Assistance Program (SNAP) provides monthly benefits to eligible low-income United States (U.S.) households for food purchases. The SNAP Emergency Allotments (EA), introduced in March 2020, temporarily increased benefits during the COVID-19 pandemic. Their national termination in March 2023 reduced most recipients' benefits. In this study, we hypothesized that the distribution of latent food insufficiency profiles among SNAP households with children would vary following EA termination. This study provides insight into how household characteristics cluster across levels of food insufficiency, highlighting families most affected by benefit reductions and informing targeted policy responses.

Methods: Latent class analysis was used to identify unobserved subgroups of households with similar profiles of

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food insufficiency severity and socioeconomic characteristics using nationally representative, repeated cross-sectional data from the U.S. Census Bureau's Household Pulse Survey (June 2022-October 2023). The analytical sample included SNAP households with at least one child from states that maintained EA until national termination, excluding states that ended EA earlier. The pre-termination period spanned June 2022-February 2023 (n=9,688), and the post-termination period spanned March-October 2023 (n=9,327). Model selection was based on Akaike Information Criteria (AIC), Bayesian Information Criteria (BIC), and entropy values.

Results: A three-class solution was favored pre-termination (AIC=153,223; BIC=153,819; entropy=0.64) and a four-class solution post-termination (AIC=149,161; BIC=149,954; entropy=0.60), indicating moderate separation. Pre-termination classes represented food-sufficient (16.2%), moderately insufficient (37.8%), and severely insufficient (46.0%) profiles. Food-sufficient households were more likely to be higher income, college educated, and married, whereas severely insufficient households were lower income, less educated, and unmarried. Post-termination classes included food-sufficient (11.0%), mildly insufficient (31.3%), moderately insufficient (19.5%), and severely insufficient (38.2%) profiles. Post-termination profiles showed greater variation in income, education, and marital status, though socioeconomic disadvantage remained concentrated in classes reflecting greater food insufficiency.

Conclusion: These findings demonstrate how EA termination shaped food insufficiency profiles among households with children. The emergence of new intermediate classes in the post-termination model may reflect greater stratification of food hardship rather than improvement. Policymakers should address the impacts of policy termination and systemic inequities that heighten households' risk of food insufficiency. This study offers insights to inform equitable public health policies and targeted interventions.

O.1.02-5

The Role of the Energy-adjusted Dietary Inflammatory Index in the Relationship between Metabolic Syndrome and Acculturation among U.S. Immigrants: Results from NHANES 2005–2018

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity
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Purpose: Metabolic syndrome (MetS) represents a growing public health concern among U.S. immigrants. Acculturation has been linked to diet-related health outcomes, yet the mechanisms connecting acculturation and MetS remain unclear. The primary objective of this study is to examine the association between acculturation and MetS among immigrants and evaluate whether diet quality (energy-adjusted Dietary Inflammatory Index (e-DII)), functions as a mediator, effect modifier, or confounder in this relationship. The secondary objective is to evaluate the association of acculturation with individual components of the MetS.

Methods: A cross-sectional study of 6,160 adult immigrants (age ≥18 years, born outside the U.S.) participating in the 2005–2018 National Health and Nutrition Examination Survey (NHANES). Acculturation was assessed using nativity and language-related variables. MetS was defined using standard criteria, including central obesity, blood pressure, glucose, high-density lipoprotein, and triglycerides. Multivariate linear and logistic regressions were conducted in SAS 9.4 to test mediation, moderation, and confounding effects of e-DII on the acculturation–MetS relationship. This method was also used to examine association with individual components of MetS. All analyses accounted for NHANES's complex survey design and adjusted for demographic covariates (education and race/ethnicity.)

Results: The sample mean age was 45.3 years (51% female). Significant univariate associations we found between acculturation and MetS ($\beta = 0.445$, $p < 0.0001$) and acculturation and e-DII ($\beta = -0.241$, $p = 0.0096$); e-DII was not significantly associated with MetS ($\beta = 0.027$, $p = 0.0685$). The e-DII did not satisfy the Baron and Kenny's mediation assumptions and was not a significant effect modifier ($p = 0.230$). When examined as a confounder, e-DII minimally altered the acculturation–MetS association (magnitude of change in estimate = 2.2%). Systolic blood pressure, waist circumference, and fasting glucose were most strongly associated with acculturation status.

Conclusion: Among immigrants in the United States, there was no evidence that e-DII mediated or modified the association between acculturation and MetS. In this study e-DII was not associated with MetS. Since e-DII was a significant confounder, future research should consider including e-DII as a confounder in the associations between acculturation and MetS among immigrants in the US.

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O.1.02-6

Tool for Assessing Food Industry Commitments and Practices to Address the Double Burden of Malnutrition: A Delphi Study

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity
Room 1, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Many low- and middle-income countries face a double burden of malnutrition (DBM), characterized by the simultaneous presence of undernutrition along with overweight, obesity, and/or other diet-related noncommunicable diseases. The BIA-Obesity tool (Business Impact Assessment on Obesity and Population-level Nutrition) was developed by INFORMAS (International Network for Food and Obesity / Non-communicable Diseases Research, Monitoring and Action Support) for a systematic assessment and benchmarking of private sector commitments and practices for addressing obesity and unhealthy diets. However, it does not fully account for issues related to the DBM, particularly undernutrition. Therefore, this study aimed to extend the BIA-Obesity tool for use in contexts characterized by a DBM.

Methods: We followed the DELPHISTAR reporting guideline and conducted a three-round Delphi study with 30 international experts on private food industry policies and the commercial determinants of health, from April to October 2024. We implemented two rounds of online assessments, with an optional 2-hour collaborative workshop in between (held twice, online and in-person), to gather feedback from participants on 16 potential indicators addressing undernutrition and/or the DBM, previously identified through a systematic review. Likert scales were used for the assessments of indicators, and the data were analyzed descriptively and presented in the form of histograms. Qualitative feedback was thematically summarized and informed the (re)phrasing of indicators.

Results: Consensus (i.e., group agreement of 75% or higher) was reached for eight indicators covering i) food fortification, ii) use of traditional foods, iii) use of discounts and donations, iv) healthy diets at work, v) breastfeeding support, vi) parental leave for employees, and the production, distribution and marketing of vii) breastmilk substitutes and viii) complementary foods. One overarching indicator on corporate strategy was additionally included by the author team, despite marginally lower agreement (68%).

Conclusion: Food industry action may complement other efforts to address the DBM, such as public policies and investments. Through a three-stage Delphi process, we extended the BIA-Obesity tool to include new indicators related to undernutrition and/or the DBM. The expanded tool enables a comprehensive and resource-efficient assessment and benchmarking of the food industry's voluntary commitments and practices in countries with high prevalences of both under- and overnutrition.

O.1.02-7

The Healthiness and Environmental Sustainability of Food and Beverages Price Promoted by a Major Australian Supermarket

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity Room 1, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Unhealthy diets increase the risk of non-communicable disease and adversely impact the natural environment through food system activities, including food production, packaging, and retail. Food environments shape dietary behaviours and offer opportunities to promote both healthy and environmentally sustainable diets. This study evaluated the healthiness and environmental sustainability of price promoted food and beverages within a major Australian supermarket chain in 2024.

Methods: Two databases on the monthly price promotion strategies applied to packaged foods by a major supermarket retailer in Australia in 2024 ('PriceTracker') and the healthiness and environmental sustainability metrics of such products ('FoodSwitch'/'EcoSwitch') were used to assess: (1) the yearly average percentage of products on price promotion, (2) the average healthiness (using the Health Star Rating - HSR score) and the environmental impact (using the Planetary Health Rating - PHR score) of price and non-price promoted products, and (3) the magnitude of discounts. Analyses were conducted overall and by 'Core' vs. 'Discretionary' products.

Results: A total of 111,441 observations (9,287 unique products) were analysed. On average, 28.4% of the packaged foods available for sale each month were price promoted. Overall, 60.3% of price-promoted products were classified as less healthy ($HSR \leq 3$) and 87.0% as less sustainable ($PHR \leq 3$). The proportion of price-promoted foods and the magnitude of discounts were significantly higher for products classified as less healthy (versus healthier), discretionary (versus core), and less sustainable (versus more sustainable). When combined, healthier and more sustainable products were promoted about half as often as less healthy and less sustainable products and received smaller discounts.

Conclusion: Our findings highlight that current price promotion strategies in a major supermarket chain in Australia tend to favour less healthy and less sustainable food products. Retail initiatives and food policies that limit price promotion strategies on these items, and incentivise healthier and more sustainable purchases, should be considered to deliver benefits for both human and planetary health.

O.1.02-8

Does Walkability Explain Inequalities in Active Mobility? Findings from Curitiba, Brazil

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O.1.02 Policies and environments: Food Systems, Governance and Equity in Nutrition and Physical Activity Room 1, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Active transportation (walking, cycling, and public transit) benefits public health and sustainability, but its uptake is often uneven across gender and socioeconomic groups. The built environment may also influence inequalities in active travel. However, evidence is limited on how gender, educational, and socioeconomic disparities in active transportation vary across life stages and neighborhood contexts in Low and Middle-Income Countries. This study examines these inequalities across adolescents, adults, and older adults in Curitiba, Brazil, and their variation by neighborhood walkability and by income at the area level.

Methods: We conducted three cross-sectional household surveys in Curitiba, with samples of adolescents (n=503), adults (n=699), and older adults (n=620) (2010, 2013-14, and 2017-18, respectively). Neighborhoods were classified into four quadrants based on deciles of built environment walkability (land-use mix, household density, and street connectivity) and area-level income (high/low walkability × high/low income) from the 2010 census data. Active mobility (walking, bicycling, or public transit use ≥ 1 time/week) as examined through the inequality framework to analyze differences by gender, education level, and socioeconomic status. The Slope Index of Inequality (SII) quantified absolute inequalities across the socioeconomic spectrum for each age group and quadrant.

Results: Walking and bicycling were more prevalent among adolescents and adults, while public transit use was more common among older adults. Marked inequalities in active transportation emerged, especially in low-walkability, low-income areas. Gender gaps in cycling were significant among adolescents and adults, with males far more likely to bicycle than females. Socioeconomic and educational disparities were most pronounced in adults, particularly for public transit and walking, with lower-SES and less-educated adults more reliant on these modes. In contrast, high-walkability or higher-income neighborhoods showed more equitable participation in active transportation

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(smaller SII values). Inequality patterns for older adults varied by neighborhood context, indicating that supportive environments (high-walkability areas) were associated with smaller active transportation gaps in this group.

Conclusion: In Curitiba, Brazil, gender, educational, and socioeconomic inequalities in active transportation are evident across all age groups and are exacerbated in under-resourced, less walkable neighborhoods. Equity-focused urban planning and transport interventions are needed to promote equitable active transportation for all groups.

O.1.03-1

Solo or Team? A Meta-analysis Comparing Individual vs. Group-based Approaches on Physical Activity, Functional, Psychosocial, and Health Outcomes

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health
Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: To update and extend existing evidence, quantitatively comparing the effectiveness of group-based (in-person and online) versus individual physical activity (PA) interventions on behavioral (PA), functional, psychosocial, and health outcomes, and test whether formats are meaningfully different or equivalent. Key innovations include inclusion of online/virtual group formats, three-level meta-analytic modeling, and equivalence testing (TOST).

Methods: Records (N=16,779) were screened, resulting in the inclusion of 71 studies (N=523 effect sizes) across 18 countries (adults ≥18 y; experimental, quasi-experimental, and observational designs). Outcomes included PA (primary), plus functional (e.g., strength, balance), psychosocial (e.g., QoL, loneliness), and health (e.g., VO₂max, BMI). Effects were standardized (Hedges *g*) and synthesized with three-level random-effects models. Prespecified moderators included group type (e.g., “true” groups using group-dynamics principles), delivery mode (online vs in-person), leader type, sample characteristics, frequency, duration, and study quality. Sensitivity analyses addressed outliers and publication bias; TOST probed equivalence when main effects were non-significant.

Results: For PA, pooled effects slightly favored groups but were non-significant ($k=125$; $g=0.086$; 95% CI $-0.061, 0.233$). After outlier checks, effects remained small and non-significant; TOST indicated statistical equivalence between formats ($z=-1.667$, $p=0.048$). For functional outcomes, groups showed a small, significant advantage after outlier removal ($k=151$; $g=0.164$; $p=0.015$) and in analyses limited to experimental/quasi-experimental studies ($g\approx0.175$, $p=0.044$). Psychosocial ($k=104$; $g=0.292$; $p=0.214$) and health outcomes ($k=137$; $g=0.125$; $p=0.096$) favored groups but were non-significant overall. “True” groups showed larger health effects compared to standard classes; online groups performed comparably to in-person groups. Study quality was moderate-to-high; GRADE certainty was low to moderate.

Conclusion: Overall, group and individual formats produce equivalent PA changes, suggesting both are viable, scalable routes to behavior change. Group-based formats may confer additional functional benefits. Given comparable effects for online groups, virtual delivery may extend reach and equity without sacrificing effectiveness. Practitioners and policymakers might offer choice-based or hybrid models tailored to preference, context, and outcome targets, and prioritize “true” group processes when functional or health gains are the goal. Future trials should improve reporting of group processes, standardize outcome measures, and test mechanisms (e.g., need support, social identity) to optimize format selection and implementation.

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O.1.03-2

Experiences and Perceptions of Food Bank Use among Racial and Ethnic Minority Groups in High-income Countries; A Qualitative Systematic Review

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Food insecurity (FI), defined as inadequate access to sufficient, safe and nutritious food for a healthy and active lifestyle, is a growing public health issue in high-income countries (HICs). FI disproportionately affects racial and ethnic minority groups and is associated with negative health outcomes, including increased risk of chronic diseases, mental health disorders, and poorer development and academic outcomes among children. Food banks are widely relied upon to alleviate FI, yet evidence suggests services may be underutilised or experienced differently by racial and ethnic minority groups due to cultural, social, and systemic factors. Despite a growing body of research, no systematic review has synthesised qualitative evidence to examine these experiences specifically. This review aims to explore how racial and ethnic minority groups in HICs experience, perceive, and engage with food banks, and to identify the socio-cultural and structural factors influencing food bank access and use.

Methods: This qualitative systematic review follows the Joanna Briggs Institute (JBI) methodology and will report according to PRISMA guidelines. Electronic searches were conducted in MEDLINE, Embase, Web of Science, CINAHL, ASSIA, and PubMed, supplemented by hand-searching. Eligible studies (1) focused on racial or ethnic minority groups in HICs; (2) used qualitative methods; (3) examined experiences or perceptions of food bank use; and (4) were published from 2008 onward. Records were screened independently by two reviewers. Quality appraisal is being conducted using the JBI Critical Appraisal Checklist for Qualitative Research. Thematic synthesis will be used for analysis.

Results: 5,064 records were screened at title and abstract stage, with 4,923 excluded. After full text screening, 34 studies met the inclusion criteria. Data extraction, quality appraisal, and thematic synthesis are ongoing and expected to be completed by January 2026. Preliminary observations indicate recurring themes related to stigma, cultural appropriateness and acceptability of food banks and barriers in referral pathways and access.

Conclusion: This is the first systematic synthesis focused specifically on racial and ethnic minority groups' experiences of food bank use in HICs. The findings are expected to support the development of more inclusive, culturally responsive, and equitable food aid policy and practice.

O.1.03-3

Influence of Diet Quality on Body Composition, Cardiometabolic Health and Weight Gain in Pregnancy

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Diet is key for a healthy lifestyle. However, evidence on how diet quality affects body composition and cardiometabolic health during pregnancy is insufficient. The aims of this study were to examine associations of diet quality (Swedish Healthy Eating Index [SHEI]) with body composition, cardiometabolic health in early and late pregnancy (gestational weeks 14 and 37) and gestational weight gain (GWG).

Methods: This observational study used cross-sectional and longitudinal data from the HealthyMoms trial at two timepoints: early (n=302) and late pregnancy (n=134). Exposure was diet quality (SHEI), and outcomes included body composition (body fatness, BMI, fat mass index [FMI]), cardiometabolic health (homeostatic model assessment for insulin resistance [HOMA-IR], metabolic syndrome [MetS] score, glycemia), and GWG. Linear regression was used to

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investigate associations between SHEI and outcome measures.

Results: In the cross-sectional analyses, higher SHEI was associated with lower body fatness, BMI, FMI and MetS score in early pregnancy (all $b \leq -0.14$; all $P \leq 0.02$). Similar results were seen in late pregnancy, with the addition of an association with HOMA-IR (all $b \leq -0.23$; all $P \leq 0.008$). Longitudinally, a high SHEI in early pregnancy was associated with lower body fatness, BMI, FMI, glycemia, HOMA-IR and MetS score in late pregnancy (all $b \leq -0.22$, all $P \leq 0.01$). There were no statistically significant associations of change in SHEI with GWG or any other outcome ($P \geq 0.09$).

Conclusion: A healthy diet, especially in early pregnancy, seems beneficial for body composition and cardiometabolic health. Focusing on key dietary advice, as captured by SHEI, could therefore be advantageous and a feasible target within maternity care.

O.1.03-4

Supporting Physical Literacy at School and Home (SPLASH): A Randomized Controlled Trial of a Multilevel Intervention Increases Child Physical Activity Levels

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health
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Purpose: To report a main outcome of the SPLASH trial, an innovative multilevel intervention combining school-based physical literacy (PL) programming with family engagement strategies, on children's moderate-to-vigorous physical activity (MVPA) and sedentary behavior.

Methods: We conducted a group randomized controlled trial across three socioeconomically disadvantaged school districts in Massachusetts and Virginia (N=164 children, grades 3-5), USA. Districts were randomized to SPLASH intervention (n=111 children, 4 schools from two districts) or delayed-intervention control (n=53 children, 1 school from 1 district) over one academic year. The SPLASH intervention included the Rising New York Road Runners Program inclusive of a: (1) school-based PL programming delivered through physical education, (2) Social Cognitive and Self-Determination theory-informed family engagement program including emails, text messaging, and online resources, and (3) school technical support and promotional materials. Preliminary results for objectively measured minutes of PA/day (ActiGraph over 7 days) at baseline and post-intervention (8 months) are reported. Linear mixed-effects models with two-level (students nested within district) random intercepts tested intervention effects, modeled as intervention*timepoint interaction, adjusted for child age, sex, and race/ethnicity.

Results: The SPLASH intervention significantly increased children's daily MVPA by 8.07 minutes/day compared to control (95% CI: 0.16-15.97, $p=0.046$). Out-of-school MVPA demonstrated similar gains ($\beta=8.37$ min/day, 95% CI: 1.92-14.83, $p=0.011$), while during-school MVPA demonstrated similar but statistically non-significant patterns ($\beta=2.03$ min/day, 95% CI: -0.97-5.03, $p=0.185$). Notably, weekend sedentary time decreased significantly in intervention versus control groups ($\beta=-77.3$ min/day, 95% CI: -132.8 to -21.8, $p=0.006$), representing a reduction of approximately 1.3 hours of sedentary behavior on weekends.

Conclusion: SPLASH demonstrates that multilevel PL interventions integrating school and family components can effectively increase children's MVPA and reduce sedentary time in socioeconomically disadvantaged populations. Findings provide empirical evidence that theory-informed PL-focused programming can address the well-documented decline in PA during elementary years and offer a scalable approach for promoting lifelong physical activity habits in underserved communities. Future analyses will assess the impact of the intervention on PL constructs.

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O.1.03-5

Does Habits Attenuate the Relationships between Affective Judgements and Physical Activity Behaviour in a Longitudinal Study

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Positive affective judgements about physical activity are associated with both repeated behaviour and formation of habits. Habits may attenuate the impact of variations in affect and behaviour. As behaviour becomes more habitual it may blunt some of the influence of affective-based motivation. The purpose of this study was to assess if habit attenuates the relationship between affect and physical activity.

Methods: A total of 185 participants (66% female, mean age 45 years $\pm$ 13.95) were enrolled into a 4-week randomised trial (with a 12 week follow up) where they were assigned to either one of three intervention groups (implementation intentions, implementation intentions and imagery, or imagery) or a control group. Participants completed a bi-polar scale of affective judgements, the Godin Leisure Time Questionnaire, and the Self-Report Behavioural Automaticity index to measure habits, pre and post intervention, and during the follow up. Two mediation models were conducted using PROCESSv5 macro (model 4) to assess if habit strength mediated the relationship between affect and physical activities (while controlling for intervention group); one at post intervention and one at follow-up.

Results: Both the post intervention ($R=.32$, $p<.001$) and follow-up models ($R=.19$, $p=.010$) were significant. At post intervention habit partially mediated the relationship between affective judgments and physical activity with the impact of affective judgments on physical activity ($\beta=2.28$, $p<.001$, CI 1.34-3.21) significantly attenuated when habit was added as a mediator ($\beta=1.78$, $p=.001$, CI .78-2.73) with a mediation effect of $\beta=.52$ (CI .15-1.00). However, at follow up, habit fully mediated the relationship between affective judgments and physical activity ($\beta=.73$, $p=.27$, CI -.57-2.05) with a mediation effect of $\beta=1.01$ (CI .41-1.79).

Conclusion: These findings suggest that habit attenuates the relationship between affective judgements and physical activity, as people may no longer be as responsive to affective motives for being active. The influence of habit on variations between affect and physical activity behaviour become stronger over time as habit forms. Thus, developing a habit may help negate the negative variations in affective processing on behaviour, helping people to continue to engage in physical activity regardless of affective judgements of the behaviour.

O.1.03-6

Leisure-time Sedentary Behaviour, Physical Inactivity and 12-year Kidney Function Decline in Australian Adults with and without Type 2 Diabetes

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Television-viewing (TV), a common leisure-time sedentary behaviour, is associated with kidney dysfunction; however, the longitudinal associations and moderating roles of physical inactivity and type 2 diabetes (T2D) remain underexplored. We examined relationships with 12-year declines in estimated glomerular filtration rate (eGFR – kidney function) of changes in TV time (and potential joint associations with physical inactivity) in middle-aged and older Australians with and without T2D.

Methods: Australian Diabetes, Obesity and Lifestyle Study (AusDiab) data from 6220 baseline participants (age=51±13 years; waist circumference=90.3±13.7cm; women=54.2%) with 5-year or 12-year follow-up data, or both, were analysed; eGFR, TV-viewing time, physical inactivity (<150min/week self-reported physical activity), and glucose metabolism status (normal glucose metabolism – NGM, prediabetes, and T2D) were assessed at each time-point. Multilevel modelling used age (centred at 50 years) as the time metric to estimate the rate of eGFR decline and the effects of TV-viewing time, adjusting for potential sociodemographic and clinical confounders and stratifying by physical activity status.

Results: Participants' mean eGFR decreased, and mean TV time increased over 5 and 12 years. Those with T2D had lower eGFR and higher TV time at each time point compared to those without T2D. At the 50-year age point, the estimated mean eGFR was 97.6 (95%CI: 97.2 to 98.2) mL/min/1.73m², which declined yearly by 0.78 (95%CI: 0.80 to 0.77). Increasing TV time was significantly associated with eGFR decline, and the association was stronger in those with T2D [-0.05 (95%CI: -0.08 to -0.02)] compared to those without. For those who were inactive at any given time-point, higher TV time was associated with a significantly greater eGFR decline [-0.23 (95%CI: -0.45 to -0.01)] compared to physically active participants.

Conclusion: Among adult Australians, increasing TV time over 12 years was associated with an increased rate of kidney function decline. This relationship was heightened in the presence of T2D and in those who were physically inactive. These longitudinal findings strengthen the evidence base for kidney health on the detrimental effects of excessive sedentary behaviour and physical inactivity, particularly in those with T2D. They further reinforce the clinical and public health importance of meeting recommended sedentary behaviour and physical activity guidelines.

O.1.03-7

Internalized Weight Bias and Physical Activity in Higher-weight Canadian Adolescents: A Three-year COMPASS Study

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Internalized weight bias—devaluation of self due to higher body weight—is a well-established barrier to physical activity behaviour, although existing evidence is largely cross-sectional and exclusive to adult samples. By focusing on aerobic activity, research has also overlooked how internalized weight bias may relate to participation in less controllable and more socially evaluative environments such as sport. This study is the first to examine the between- and within-person associations between internalized weight bias and physical activity modalities (moderate-to-vigorous physical activity, resistance training, sport) in a cohort of adolescents with higher-weight perceptions over time.

Methods: Participants were Canadian adolescents from the prospective COMPASS study. Adolescents who perceived themselves as higher-weight ($N = 2,485$; $M_{\text{age}} = 13.8$ (1.1) years; 53.4% cis-girls) annually completed self-report surveys during the 2021/22 (T1), 2022/23 (T2), and 2023/24 (T3) school years. Assessments included internalized weight bias, resistance training (days/week), MVPA (minutes/day), and organized sport participation (yes/no). Data were analyzed using a linear mixed-effects model (MVPA) and generalized linear mixed models (resistance training, sport), while controlling for gender, age, and province.

Results: The sample reported high average daily MVPA ($T1 = 87.2 \pm 66.1$, $T2 = 90.9 \pm 65.7$, $T3 = 90.2 \pm 71.7$), and over 60% of participants engaged in resistance training at least once a week. Approximately 1 in 4 adolescents participated in organized sport ($T1 = 29.8\%$, $T2 = 27.7\%$, $T3 = 23.1\%$). Adolescents with higher average levels of internalized weight bias over time reported lower MVPA ($\beta = -4.6$, 95% CI = -6.9, -2.2) and lower odds of resistance training at least once a week (compared to no days; OR = 0.9, CI = 0.8, 0.9). The between-person association between internalized weight

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bias and sport participation was not significant. Contrary to hypotheses, there were no significant within-person associations across physical activity modalities.

Conclusion: These findings suggest that individual differences in internalized weight bias, rather than variation over time, are most relevant in predicting physical activity. Understanding individual differences in internalized weight bias development across adolescence may elucidate critical periods during which interventions to reduce internalized weight bias could be most effective, in turn supporting MVPA and resistance training.

O.1.03-8

Nine-year Evolution of Sustainable Food Choice Motives in Food Purchases and their Association with Sociodemographic Characteristics among French Adults

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O.1.03 Motivation and behavior change: Drivers of Change: Examining Habits, Motives, and Interventions in Health Room 2, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Food sustainability increasingly interests French consumers and could influence their food choices, but the evolutions of sustainable motives during food purchases has been little explored. This study aimed to estimate potential changes in food choice motives over 9 years, in a French cohort; and to identify associated sociodemographic characteristics.

Methods: This study included 16,184 adults who responded twice to a food choice motive questionnaire (2013 and 2022) with a focus on sustainability. This questionnaire consisted of 63 items covering 8 dimensions: ethics and environment, traditional and local production, taste, price, health, convenience, innovation and absence of contaminants. A score between 0 and 10 was computed for each motivation for all food groups and meat. The participants were classified into three groups based on changes in their scores: « increase », « decrease » and « stable », using the Minimal Important Difference, which represented the smallest significant variation in scores (based on 2013 scores as a threshold). Polytomous logistic regressions were used to assess the association between these groups and sociodemographic characteristics, mutually adjusted.

Results: Across all food groups, ethics and environment motive had the highest increase: from a mean score of 5.7 in 2013 (S-d : 2.2) to 6.6 (S-d :2.2) in 2022 ($p < 0.001$). Participants with a higher level of education were more likely to present an increase for this motive (OR : 1.59 ; 95% CI = 1.09 ; 2.32, $p = 0.02$), as well as younger participants (18-30 than >30 years old ($p < 0.001$)). Men were more likely to present a decrease for this motive than women (OR: 1.25 ; 95% CI = 1.05 ; 1.50, $p = 0.01$). Men and younger participants were more likely to present an increase in health motives than women and people over 30 years old.

Conclusion: This study brings new knowledge on the evolution of food choice motives over time in specific groups. In view of the challenges of transition of food sustainability, it's important to know which population groups to target in order to promote sustainable eating.

O.1.04-1

Handgrip Strength Levels Have Declined: Evidence from 2.2 Million Adults Aged 20 to 100+ Years Across 30 Countries

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O.1.04 Ageing: Integrating physical activity, urban design, and nutrition to support healthy ageing and cognition
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Purpose: Examination of trends in handgrip strength (HGS) can improve insights into trends in population health and help evaluate the impact of implemented public health policies. This study quantified national (country-level) and international (pooled global data) temporal trends in adult handgrip strength (HGS).

Methods: Six databases/web search engines (MEDLINE, SPORTDiscus, Embase, Web of Science, CINAHL, and Google Scholar) and other sources (reference lists of included studies and topical reviews) were systematically searched up to 24 October 2024. Full-text, refereed, observational studies reporting HGS norms for adults (aged 20+ years) by sex and age were included. Countries (i.e., studies/datasets) were included if available data spanned 10+ years. Monte Carlo simulated pseudodata were generated following harmonisation for methodological variation. International sex- and age-specific norms, normalized by height (Ht) in metres (m) squared (i.e., HGS/Ht² in kg/m²), were used to convert HGS values into z-scores for all countries. Population-weighted linear regression models were used to calculate temporal trends.

Results: Temporal trend meta-analyses were conducted on a dataset representing 2,209,557 adults from 30 countries between 2000 and 2021. Internationally, there was a small (per decade) decline in normalised HGS (effect size [ES]: -0.24 [95%CI: -0.24, -0.24]), with the decline 1.6-fold larger after the year 2010. Sex- and age-specific temporal differences were negligible (ES < 0.10). Trends differed by country, with most (60% [18 of 30]) experiencing declines. National trends ranged from a small (per decade) decline in Lithuania (ES: -0.36 [95%CI: -0.39, -0.32]) to a large improvement in Singapore (ES: 0.97 [95%CI: 0.89, 1.06]) and Ireland (ES: 0.97 [95%CI: 0.94, 1.00]).

Conclusion: The recent international decline in normalised HGS among adults is suggestive of a corresponding decline in strength capacity and general health. Growing recognition of the importance of muscle strength as a population health marker highlights the need for continued tracking of temporal trends, especially among low- and lower-middle-income countries for which repeated cross-sectional survey data are few.

O.1.04-2

Bi-directional Associations between Physical Functioning and Trajectories of Five Physical Activity Components in Community Dwelling Older Adults

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O.1.04 Ageing: Integrating physical activity, urban design, and nutrition to support healthy ageing and cognition
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Purpose: Physical activity (PA) and physical functioning influence each other throughout life. When functioning declines during aging, it becomes harder to stay active, and when activity decreases, functioning often worsens. However, this bi-relationship is usually studied through a focus on one of these directions, rather than *accounting for both directions of the association*. Building on findings from the Longitudinal Aging Study Amsterdam (LASA), which identified long-term trajectories in each of five PA components (duration, intensity, strength, mechanical strain, and turning actions), this study is the first to examine the bi-directional association between ten-year activity trajectories of multiple PA components and physical functioning.

Methods: Longitudinal Aging Study Amsterdam data includes a representative cohort of older Dutch adults. Previously identified PA trajectories were linked to measures of physical functioning (self-reported functional limitations and objective physical performance tests) for 4,963 participants (52% women; mean age = 66 years, SD = 8.6). Analyses were performed in two steps: first it was studied whether baseline physical performance and baseline functional limitations are associated with membership of PA trajectories with multinomial logistic regression; second, it was studied whether PA trajectory membership were associated with later-life physical performance with linear regression and functional limitations with multinomial logistic regression. All analyses were stratified by sex and adjusted for demographic, health, and lifestyle factors.

Results: Preliminary results show that higher baseline physical performance increased the odds of belonging to a more active PA trajectory, while higher baseline functional limitations decreased these odds. These associations held after adjustment for confounders and did not show marked differences between sex or PA components. After ten years of follow-up, membership in more active trajectories for duration, intensity, and strength predicted higher physical performance scores, except for intensity in men and strength in women. Trajectories for mechanical strain and turning actions were not associated with physical performance.

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Conclusion: These findings support a bidirectional relationship between physical activity and functioning. Better functioning increases the likelihood of remaining active, while maintaining higher intensity, strength, or longer activity duration is linked to better functional outcomes. Understanding these two-way associations can help refine strategies to promote independence and healthy aging.

O.1.04-3

Understanding Influencing Factors in Physical Activity Promotion for Older Men: A Capability Approach Perspective

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O.1.04 Ageing: Integrating physical activity, urban design, and nutrition to support healthy ageing and cognition
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Purpose: Promoting physical activity is a key strategy to support healthy ageing, yet older men remain an underrepresented target group in physical activity promotion. To develop physical activity promotion strategies, it is crucial to understand how individual, social, and structural factors shape physical activity behavior in this population. The capability approach provides a promising framework for capturing these dynamics by introducing capabilities as an intermediate level between conversion factors and actual behavior, thereby emphasizing individuals' freedoms to engage in an active lifestyle. However, its empirical application remains limited. This study applies the capability approach to explore how individual and socio-structural conversion factors relate to perceived capabilities for an active lifestyle and actual physical activity behavior among men aged 50 years and older in a community setting.

Methods: A cross-sectional survey was conducted with 316 men (age: $M = 64.87$, $SD = 9.70$). Partial least squares structural equation modeling (PLS-SEM) was employed to assess associations between individual conversion factors (e.g., individual barriers, self-efficacy), socio-structural conversion factors (e.g., social support, structural barriers), perceived capabilities for an active lifestyle, and actual physical activity behavior. The explanatory and predictive power were evaluated, and alternative model specifications were compared.

Results: Individual ($r = -.38$, $f^2 = .17$) and structural ($r = -.26$, $f^2 = .07$) conversion factors were significantly associated with perceived capabilities ($R^2 = .28$). Higher perceived capabilities were positively related to higher actual physical activity levels ($r = .32$, $f^2 = .12$). However, the explained variance in actual physical activity behavior was modest ($R^2 = .10$). The estimated model demonstrated good predictive power and superior fit compared to alternatives.

Conclusion: Findings emphasize the importance of considering the interplay of diverse conversion factors and perceived capabilities in promoting physical activity among older men. As social conversion factors showed no significant associations in this sample, future research should further examine different profiles of conversion factors and how they interact across subgroups. In doing so, the capability approach offers a comprehensive perspective that goes beyond behavior change, highlighting that promoting equitable capabilities can be considered a meaningful goal in itself within physical activity promotion.

O.1.04-4

Longitudinal Associations between 24-hour Movement Behaviours and Cognitive Function in Adults Aged 55 and Above

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O.1.04 Ageing: Integrating physical activity, urban design, and nutrition to support healthy ageing and cognition
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Purpose: Age-related cognitive decline poses challenges to healthy ageing. Physical activity (PA), sedentary behaviour (SB) and sleep have been linked to cognitive health, yet much evidence is cross-sectional and fails to account for the interdependent nature of these 24-hour movement behaviours. This observational study applied a compositional approach to investigate longitudinal associations between 24-hour movement behaviours and cognition in healthy adults aged 55+.

Methods: Community-dwelling adults aged ≥ 55 years were assessed at three time points, each one year apart (baseline $n=233$; 51.1% women; 68.3 ± 7.7 years). Each time, 7-day wristworn accelerometry data (ActiGraph wGT3XBT) were acquired and processed with GGIR to derive time spent in PA, SB and sleep. Additionally, cognition was measured using the Cambridge Neuropsychological Test Automated Battery (CANTAB), yielding composite z-scores for executive function (EF), short-term memory (STM), long-term memory (LTM) and processing speed (PS). Linear mixed-effects models tested longitudinal associations between time-use composition (i.e. 24-hour movements behaviours expressed as isometric log-ratios) and cognition, including an interaction term between time-use composition and time, and were adjusted for sociodemographic and health covariates. Posthoc compositional isotemporal substitution estimated cognitive differences associated with time reallocations between behaviours.

Results: No significant associations were observed between time-use composition and STM, LTM or PS. After adjusting for age, sex, educational level and social isolation, EF was significantly associated with time-use composition ($p = 0.005$) and time ($p < 0.001$), with no significant interaction effect, suggesting a stable relationship over time. Post-hoc analyses indicated that moderate-to-vigorous PA (MVPA) was the primary driver of the EF association. While reallocating time from light PA (LPA) to SB showed some positive EF differences, reallocations from LPA or sleep to MVPA were associated with better EF z-scores. Conversely, reallocating time away from MVPA related to lower EF, underscoring its central role.

Conclusion: In adults aged ≥ 55 , 24-hour movement behaviours were associated with EF but not memory or PS, and these associations remained stable over time. Maintaining or increasing time in MVPA may support cognitive health, highlighting the need for intervention studies to confirm these findings. Future research should also examine the context of behaviours.

O.1.04-6

Retention of Dietary Behaviors and Cardiometabolic Outcomes 12 Months after a Plant-forward Dietary Intervention in Older Adults

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O.1.04 Ageing: Integrating physical activity, urban design, and nutrition to support healthy ageing and cognition
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Purpose: While many nutrition-based interventions have reported positive results, it is unknown if intervention focused behaviors are maintained long-term. The purpose of this study was to examine if dietary intake, body composition, and cardiometabolic health from the end of a plant-forward feeding trial were retained ~12 months post-trial.

Methods: This study assessed participants at the end of the PRODMED2 feeding trial (Post Feeding Phase, PFP) and a 12-month follow-up (Feeding Sustainability Phase, FSP) to evaluate maintenance of healthy lifestyle behaviors post-trial. Older adults 65 years+ ($n=32$) who completed both the PRODMED2 feeding trial and follow-up visit were analyzed at the end of trial (PFP) and at an average of 12-month follow up (FSP). Dietary intake, body composition (weight, height, BMI, waist circumference (WC), fat mass (FM), lean mass, and cardiometabolic health (total cholesterol (TC), high-density lipoprotein (HDL) cholesterol, low-density lipoprotein (LDL) cholesterol, non-HDL, and glucose) were analyzed. Paired t tests or Wilcoxon signed-rank tests compared values between the two phases. Statistical significance was defined as a $p < 0.05$.

Results: Energy (+375 kcal), protein (+16g), fat (+31g), and sugar (+26g) all increased ($p < 0.0002-0.05$), while fiber decreased (-11g) ($p = 0.0002$) and carbohydrates remained the same ($p = 0.599$). Multiple micronutrients (vitamin A, -208.2mcg; thiamin, -0.4 mg; vitamin B12, +1.1mcg; vitamin C, -58.8mg; vitamin D, +117.4 IU; vitamin K, -75.7 mcg, and sodium, +506.1mg) changed significantly from PFP to FSP ($p < 0.0001 - 0.0498$). DBP (+6.2mmHg), TC (+11.6mg/dL), HDL (+6.4mg/dL), TC:HDL (-1.7), glucose (+9.7mg/dL), weight (+3.8kg), BMI (+0.9kg/m²), android fat (+376.3g), gynoid fat (+532.4g), visceral fat (+205.6g), and total FM (3.4kg) increased by FSP ($p < 0.0001 - 0.0393$), with a decrease in WC (-3.4cm, $p = 0.0228$) and no change in TG, non-HDL, LDL, and lean mass ($p > 0.05$).

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Conclusion: In this cohort of older adults, most dietary, body composition, and cardiometabolic measures worsened during the 12 months following the PRODMED2 feeding trial. Given the substantial resources required for feeding trials, incorporating strategies such as behavior change-based education is critical to support long-term adherence and sustain the health benefits achieved during interventions, ultimately promoting healthier aging.

O.1.04-8

A Randomized Controlled Trial Promoting Physical Activity in Acute Care

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O.1.04 Ageing: Integrating physical activity, urban design, and nutrition to support healthy ageing and cognition
Room 3, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: We examined whether implementing a program that promotes movement in acute care would lead to improved physical activity and frailty levels during hospitalization.

Methods: The Breaking Bad Rest study is a randomized, two-arm controlled trial. A total of 50 participants over 60y were randomized into either the physical activity intervention group or the control group within 24 hours of admission to a geriatric acute care unit; we used a six-block design and stratification by pre-hospital mobility. Intervention participants were visited twice daily by a researcher to set step goals, provide feedback, and walk with the participant if needed. A target of up to ~20% increase in step counts from the previous day was initially used. The control group received usual care and was visited twice daily for brief conversations to ensure the same level of social engagement as the intervention group. The primary outcome was a frailty index derived from a health questionnaire at admission, weekly for the first month, monthly thereafter, at discharge and one-month post-discharge. Both groups wore activity monitors (activPAL and StepWatch) to measure daily steps, upright time, and sit-to-stand transitions. Descriptive statistics, between-group mean comparison, and mixed effects models were used to examine group and time effects on frailty and physical activity levels.

Results: Participants were 78.7±8.3 years old and 50% were female. The baseline characteristics of each group was not significantly different. Frailty was not different at each time point during hospitalization; admission frailty was 0.35±0.10 for the control group and 0.33±0.11 for the intervention group ($p=0.415$). Average daily upright time (control: 48.59±55.00; intervention: 30.01±30.85; $p<0.001$) and sit-to-stand transitions (control: 20.46±24.28; intervention: 14.46±11.78; $p<0.001$), but not steps (control: 347.33±606.76; intervention: 305.59±469.54; $p=0.279$) were different between groups. Mixed models demonstrated no significant differences in group ($\beta=0.004$; $p=0.863$), time ($\beta=0.000$; $p=0.820$) or interaction effect ($\beta=[-0.001]$; $p=0.078$) on frailty. Similarly, group did not effect steps ($\beta=2.389$; $p=0.072$), upright time ($\beta=[-0.074]$ $p=0.633$), and sit-to-stand transitions ($\beta=0.088$; $p=0.053$), differently over time.

Conclusion: The Breaking Bad Rest study failed to increase physical activity and correspondingly, improve frailty levels in acute care.

O.1.05

4 - TRACE: Development of a Consensus-based Reporting Framework for Accelerometry in Health Research

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health
Room 4, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Accelerometers are widely used to objectively assess physical activity, sedentary behaviour and sleep in health research. Despite widespread use, reporting of accelerometer-based research remains inconsistent, limiting transparency, comparability, reproducibility, and preventing data harmonisation across studies. We aimed to develop TRACE, the first international, consensus-based reporting guidance to standardise and improve accelerometry reporting.

Methods: We conducted a multi-phase project following the EQUATOR Network's framework for developing reporting guidelines. First, a scoping review was conducted to identify existing reporting guidance, which informed candidate reporting items. We then conducted a two-stage eDelphi survey, with an international, multidisciplinary panel of researchers, clinicians, journal editors and device manufacturers, who rated the importance of the proposed items. Items achieving a pre-defined consensus threshold of $\geq 70\%$ as critically important were retained. An online consensus meeting was then held to finalise the reporting guidance.

Results: The scoping review identified 47 publications containing reporting guidance, from which 124 unique reporting items were extracted and synthesised. A refined set of items was presented in the eDelphi survey based on team discussions. Round 1 was completed by 111 participants and round 2 by 93 participants, representing over 25 countries. Forty-one items reached consensus for inclusion; 11 items did not. The consensus meeting added five items and excluded six, resulting in 46 items forming the TRACE checklist. TRACE emphasises transparent reporting of device setup, wear protocols, data processing and analytic decisions. An accompanying explanation and elaboration document provides detailed rationale and examples of good reporting practice to support implementation by researchers, reviewers, and journals.

Conclusion: TRACE delivers the first international, consensus-based framework to standardise accelerometry reporting in health research. By promoting transparent and consistent reporting, TRACE enhances opportunities for data harmonisation, replication and evidence synthesis. Ultimately, TRACE aims to strengthen methodological rigour, facilitate cross-study comparisons and improve the translation of accelerometry-derived evidence into public health and clinical practice.

O.1.05

7 - Phenotyping of Environment-physical Activity Dynamics in Youth during the Summer: A Multilevel Dynamic Structural Equation Modeling Approach

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health
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Purpose: To identify distinct phenotypes characterizing heterogeneous patterns in how social and built environments are associated with future physical activity (PA) among youth during summer. Summer represents a critical period when youth lose access to structured supports and peer networks that facilitate PA during the academic year. Understanding individual differences in environment-PA responsiveness during this vulnerable period can inform just-in-time interventions for youth.

Methods: Ecological momentary assessment was used to collect data from 36 youth in Texas, USA (aged 11-15 years; 1,260 within-day observations) during summer months in May to July 2025. Participants responded to prompts six times daily over seven days, reporting current social environment characteristics (emotional closeness, perceived PA norms, susceptibility to influence from others) and built environment perceptions (perceived safety, pleasantness, PA space availability). Accelerometer-derived moderate-to-vigorous PA in the subsequent 30 minutes was measured. Person-specific coefficients representing individual environment-PA relationships were extracted and subjected to hierarchical cluster analysis using Ward's method to identify distinct digital phenotypes. Multilevel dynamic structural equation modeling (DSEM) was used to examine temporal relationships between environmental perceptions and subsequent PA within the following 30 minutes.

Results: DSEM revealed significant associations between PA space availability ($\beta=0.24$, $p<0.001$) and social influence ($\beta=0.18$, $p<0.01$) with future PA. Cluster analysis identified three distinct phenotypes: Built Environment Responsive ($n=16$, 44%), showing high responsiveness to physical environmental cues; Environment Resistant ($n=5$, 14%), demonstrating minimal responsiveness to environmental factors; and Social Environment Responsive ($n=15$, 42%),

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exhibiting strong sensitivity to social network characteristics. Five of six clustering parameters showed significant between-phenotype differences after Bonferroni correction (all $p < .001$), with adequate clustering validity (Dunn index=0.28).

Conclusion: Youth in this sample demonstrated heterogeneous patterns in environment-PA dynamics, supporting the existence of phenotypes. Digital phenotyping of EMA and sensor-based data may enable just-in-time adaptive interventions tailored to individual environment-PA dynamics during summer. For example, these phenotypes could potentially be used to suggest optimal interventions based on sensitivity to social and built environment factors improving effectiveness and sustainability of behavior change programs.

O.1.05

5 - Toward Sustained Engagement in Digital Lifestyle Recommender Systems: Understanding the Role of Emotional Context

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health
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Purpose: Digital lifestyle recommender systems hold significant potential to promote healthier behaviours through personalized interventions, such as suggesting physical activities or supporting healthy dietary choices. Yet, user engagement with these systems often declines rapidly. This study examined how momentary emotions affect user engagement with health recommendations delivered via smartwatches, considering contextual and demographic factors.

Methods: A three-week wearable ecological momentary intervention (EMI) was conducted to deliver health recommendations and collect self-reports alongside sensor data. Thirty participants (M age = 25 ± 3.8 years; M BMI = 23 ± 3.6 kg/m²) received up to ten daily prompts, triggered by time or location. Each prompt included a behavioural nudge for healthy activities in situ, followed by a brief survey capturing momentary emotions and recommendation acceptance using the Pleasure-Arousal-Dominance (PAD) model. Engagement was assessed through compliance rates, response times, and recommendation acceptance. Given the longitudinal and nested data structure, mixed-effects modelling was applied to analyse the relationships between emotional states and user engagement metrics.

Results: Participants engaged for an average of 16 ± 2.5 days, with a consistent mean daily response rate of four prompts per individual. The predominant emotional state when engaging with recommendations was excited (45%), followed by bored (27%), relaxed (20%), and stressed (8%). Recommendation acceptance was negatively affected by low-valence states (stressed: $\beta = -0.54$, $p = .008$; bored: $\beta = -0.68$, $p < .001$). Although response latency and daily compliance did not vary significantly by emotion, participants being bored responded on average more frequently and faster to recommendations. Conversely, individuals with more lower arousal states showed reduced long-term system engagement (relaxed: $\beta = -0.53$, $p = .033$, bored: $\beta = -0.74$, $p < .001$). Social context emerged as a significant influencer, with participants more likely to feel excited when not alone.

Conclusion: Momentary emotional states, influenced by social context, meaningfully shape engagement with digital health recommendations. These findings emphasize the importance of emotional and contextual factors in designing personalized interventions for digital health systems. By leveraging emotional-context patterns, future recommender systems and just-in-time adaptive interventions (JITAIs) can dynamically tailor content and timing to enhance engagement and promote healthier behaviours in everyday life.

O.1.05

6 - Co-designing DESI-heart: Conversational Agent Based Self-care Intervention for People with Cardiovascular Disease

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health
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Purpose: Cardiovascular diseases (CVDs) are a leading cause of morbidity and mortality worldwide and in Australia. Although effective self-care is essential for CVD management, many individuals face barriers such as complex treatment regimens, limited health literacy, and a lack of culturally appropriate support. Conversational agents (CAs) offer a promising solution by providing AI-driven, voice-based support that enables human-like interaction. However, most existing CAs primarily target mainstream populations, overlooking the unique needs of culturally and linguistically diverse (CALD) communities. This study aimed to co-design and develop the Diaspora Engaged Self-care Intervention (DESI-Heart), a culturally tailored CA to support self-care among individuals with CVDs from the Indian diaspora living in Australia.

Methods: A participatory co-design study was conducted with members of the Indian diaspora in Australia living with CVDs ($n = 15$, aged ≥ 18 years). Three Zoom-based workshops (~1–2 hours each) were held across different phases, using established design methods such as the ‘think-aloud’ approach, ‘bento-box reflections,’ and the ‘MoSCoW’ method to capture user preferences and inform culturally responsive intervention features. Workshop recordings were transcribed and analysed using Braun and Clarke’s reflexive thematic analysis approach through NVivo.

Results: Overall, six themes identified through the co-design process informed the design and key features of the DESI-Heart program, ensuring it was culturally relevant and responsive to the needs of the Indian diaspora community. The identified themes were: (1) cultural context of self-care and unique ideas for the DESI-Heart program, (2) medication management features, (3) culturally appropriate dietary support, (4) physical activity support, (5) mental wellbeing support, and (6) user experience and implementation considerations.

Conclusion: This study provided insights into the needs of CALD populations, helping address cultural and linguistic barriers and inform the development and feasibility testing of the DESI-Heart program

O.1.05

2 - Prompting Large Language Models to Recognize Behavior Change Techniques in Physical Activity Promotion Messages: Development of AI-generated Intervention Messages for AIM4Active

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health
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Purpose: Scaling up theory-based behavior change interventions and implementing them across diverse populations remains challenging because of the intensive resources required to develop intervention content that is personally and contextually relevant to individuals. We aim to develop an AI tool, AIM4Active, which leverages generative large language models (LLMs) to produce intervention messages based on the behavior change techniques (BCTs) and tailored to individual characteristics, behavior patterns, and environmental contexts. We present initial findings on our first development step about how well LLMs identify and interpret BCTs in existing physical activity (PA) promotion messages.

Methods: To determine whether LLMs can understand how a message employs a BCT, we provided a message, its coded BCT, and definition from BCT Taxonomy v1 to LLMs. We tasked LLMs with determining how the technique was present in the message. We allowed LLMs to disagree with the coded technique and provide its reasoning. We analyzed 286 messages and coded BCTs from published PA interventions using two LLMs: a quantized version of Meta’s Llama 3.1 70B Instruct model and a reduced-precision version of OpenAI’s gpt-oss 20B model, both provided by Unsloth. We analyzed these two models to compare agreement levels across different model sizes and reasoning abilities.

Results: Out of the 286 messages, there were 35 messages where one LLM disagreed, and 30 messages both LLMs disagreed with coded technique exhibited in the message. The most disagreed BCT was Goals and Planning techniques that had insufficiently detailed planning prompts. The fewest disagreements came from BCTs Comparison of Outcomes, Regulation, and Covert Learning.

Conclusion: For LLMs to generate theory-based intervention messages aligned with BCTs, they will need to understand each BCT. Findings suggest that feeding LLMs the BCT Taxonomy alone is insufficient for them to fully comprehend

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all BCTs. Further training is needed to operationalize LLMs to generate messages specific to BCTs. Human perspective is needed to determine whether BCTs were correctly represented in generated messages. With proper training and prompting techniques, LLMs show great promise for generating theory-based PA-promoting messages and can further incorporating real-time behavioral data (e.g., from fitness trackers) and contextual data (e.g., location-based information like weather).

O.1.05

1 - Evaluation of a Context-aware GenAI JITAI System for Lifestyle Support in Type 2 Diabetes

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Purpose: Lifestyle modification, comprising physical activity and healthy eating, is central to Type 2 diabetes (T2D) self-management, yet scalable and personalised guidance remains challenging. Advances in generative artificial intelligence (GenAI) offer opportunities to generate context-aware, real-time recommendations to support daily self-care. We evaluated our context-aware, GenAI-enabled just-in-time adaptive intervention (JITAI) system for lifestyle support in people with T2D by experimentally comparing the quality, personalisation, and guideline-concordance of GenAI-generated lifestyle recommendations with those provided by human experts.

Methods: Ten simulated T2D self-management scenarios for five personas were developed to represent common contexts (e.g., pre-meal planning, post-exercise recovery, sedentary alerts), yielding 50 contexts. For each context, two recommendations were generated, one by our JITAI system and one by an expert team (accredited dietitians and exercise physiologists). All recommendations (n=100) were de-identified, source-masked, and randomised. Another expert panel independently rated each item using an adapted Artificial Social Agent Quality Scale (ASAQ-S) covering five constructs: coherence, intentionality, believability, attentiveness, and actionability. Ratings used 5-point Likert scales (1 = poor to 5 = excellent). Mean domain scores and inter-rater reliability (Cohen's κ) were calculated.

Results: Inter-rater reliability was acceptable ($\kappa = 0.72$). On average, human recommendations received higher total ASAQ-S scores (4.3 ± 0.4) than GenAI outputs (3.8 ± 0.5). Our proposed system approached human performance levels for coherence (4.2 vs 4.3) and guideline-concordance (4.6 vs 4.7), with lower scores for personalisation (3.5 vs 4.6) and contextual appropriateness (3.7 vs 4.4). Approximately 80% of AI recommendations were rated "acceptable" (≥ 3.0), and raters did not identify material risk concerns in this pilot set. Qualitative comments indicated that AI advice was generally sound but sometimes generic, with limited tailoring for individual circumstances (e.g., comorbidities) and cultural food practices, particularly in more complex scenarios.

Conclusion: In simulated scenarios, our JITAI system for T2D self-management generated recommendations that were broadly aligned with expert guidance, demonstrating strengths in coherence and guideline-concordance and room for improvement in nuanced personalisation. These preliminary findings support the feasibility of GenAI systems as context-aware adjuncts to expert care. Future work will involve iterative refinement with end-users to evaluate usability, acceptability, and behavioural impact in real-world settings.

O.1.05

3 - Machine Learning Model Development for Glucose Prediction and Just-in-Time Adaptive Interventions

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health
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Purpose: Glucose excursions (GEs), including postprandial spikes, are linked to cardiometabolic risks, even in non-diabetic individuals. GEs are more frequent in people with overweight or obesity, likely due to impaired regulation and greater glycemic variability. While prior research emphasized dietary and metabolic factors, the influence of real-world behavioral and physiological states on glucose dynamics remains unclear. This study developed a machine learning model using EMA, CGM, and Fitbit data to predict GEs and examine individual-level feature importance for tailored interventions.

Methods: Data were collected from 84 adults with overweight or obesity who wore CGM and Fitbit devices and completed EMA over 14 days. We developed a regression model to predict glucose levels at 15, 30, and 60 minutes, and a random forest classifier to predict GEs (≥ 1.5 SD above individual mean) within a 2-hour window, 1–3 hours ahead. Performance was evaluated using R^2 /MSE (regression) and accuracy/recall (prediction). SHAP values and hierarchical clustering were used to identify key predictors and behavioral subgroups.

Results: The regression model showed strong performance in predicting glucose levels: $R^2 = .92$ at 15 minutes (MAE = 3.72), .68 at 30 minutes, and .55 at 60 minutes. For GE prediction, accuracy was 0.65 and recall 0.52, supporting timely intervention. SHAP analysis revealed key predictors: recent activity intensity, time of day, prior glucose patterns, and momentary hunger. Hierarchical clustering identified three behavioral subgroups: (1) meal-time hunger with low glucose and hunger, (2) rising glucose in the late evening without hunger and (3) evening glucose stability with low activity and no hunger. Each cluster aligned with tailored messaging strategies for just-in-time adaptive interventions (JITAs) delivery.

Conclusion: Machine learning models integrating real-world behavioral, physiological, and glucose data can effectively predict short-term glucose patterns and GE risk. Identified behavioral subgroups offer actionable insights for message tailoring, supporting the development of precision JITAs to promote metabolic health in individuals with overweight or obesity.

O.1.05

8 - Evaluating and Refining CHIPS: An AI-powered Food Classification App for Enhancing Nutrition Literacy and Reducing Ultra-processed Food Intake

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O.1.05 E- & mHealth: AI, Machine Learning, and Advanced Methodologies in Digital Health

Room 4, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Excessive consumption of ultra-processed foods (UPFs) contributes substantially to the global metabolic disease burden. However, identifying UPFs can be challenging due to inconsistencies in existing classification systems. This work aimed to develop and evaluate an artificial intelligence (AI)-powered mobile application, originally based on a refined adaptation of the NOVA framework, termed the *Human Interference Scoring System* (HISS), and now rebranded as **CHIPS (Combining Health, Intuition, Processing and Science)**. CHIPS extends NOVA by integrating both food processing and health impact, recognising that some processed foods may confer positive health attributes. The app classifies foods using AI-driven image recognition, providing real-time visual feedback on dietary patterns. This research evaluated the accuracy, usability, and cultural relevance of CHIPS across diverse user groups in New Zealand.

Methods: In this mixed-methods study, thirty-one participants were recruited across three target groups: adolescents (n=13), tertiary students (n=8), and Māori/Pacific health coaches (n=9). Participants used the app for three days to log foods and beverages via photographs. Quantitative analyses assessed AI accuracy by comparing 203 user-submitted images with dietitian-verified classifications. Usability was measured through in-app metrics and a five-item Likert-scale survey. Qualitative data were collected via semi-structured focus groups and analysed inductively to identify key themes related to engagement, usability, and cultural responsiveness.

Results: CHIPS achieved 93% accuracy in food classification. Participants reported high usability (mean 4.4/5) and usefulness (4.5/5). Across groups, participants valued the app's visual simplicity, real-time feedback, and cultural inclusivity, which encouraged reflection on food choices and improved awareness of UPF intake. These features improved CHIPS' accessibility for users with lower nutrition literacy. Thematic analysis identified three categories: *Positive Experiences* (intuitive design, reliable AI, enhanced awareness, cultural inclusivity), *Challenges* (minor technical issues, limited depth for advanced users), and *Suggested Improvements* (expanded database, educational feedback, gamification, nutrient tracking).

Conclusion: CHIPS demonstrated strong accuracy, usability, and cultural relevance, supporting its potential as a scalable tool to improve nutrition literacy and reduce UPF intake. By refining and operationalising an adapted NOVA

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model through AI, CHIPS offers an innovative approach to food classification and dietary behaviour change. The latest version of CHIPS will be demonstrated during the session.

O.1.06-1

Dietary Amino Acid Intake and Colorectal Cancer Risk in Seven European Countries: Results from the EPIC Prospective Cohort Study

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities
Room 5, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Colorectal cancer (CRC) often develops asymptotically and is largely preventable through lifestyle modification and early detection strategies, emphasizing the importance of identifying key modifiable risk factors. Emerging evidence suggests that circulating and dietary amino acids (AAs) may influence CRC risk; however, data remain limited, with inconclusive findings. We aimed to investigate how dietary AAs intake is associated with subsequent CRC risk in a European population.

Methods: Associations between dietary AAs intake and CRC risk were examined among 367,463 adults from seven European countries participating in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort, all free of cancer at baseline. Dietary intake of 18 AAs was assessed at recruitment using validated, country-specific dietary questionnaires. AAs intake (grams/day) was standardized by multiplying by 1,000 and dividing by body weight (in kilograms). AAs were grouped into essential (n=9; histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine), non-essential/conditionally essential (n=9; alanine, arginine, aspartic acid, cysteine, glutamic acid, glycine, proline, serine, and tyrosine), and total (n=18). Participants were classified into sex-specific quartiles according to their intake levels for each AAs group. Associations between AAs intake and incident CRC were evaluated using multivariable Cox proportional hazards models to estimate hazard ratios (HRs) and 95% confidence intervals (CIs). Models were adjusted for educational level, body mass index, total energy intake, smoking status, diabetes, physical activity, height, and alcohol, red, and processed meat consumption.

Results: During a median follow-up of 13.9 (SD=3.8) years, 4,918 participants were diagnosed with CRC. In multivariable-adjusted models, higher total dietary AAs intake was inversely associated with CRC risk when comparing the highest versus lowest quartiles [HR (95% CI): 0.85 (0.73–0.97); *p*-value= 0.019]. The association was stronger and statistically significant for non-essential/conditionally essential AAs [HR (95% CI): 0.84 (0.73–0.97); *p*-value = 0.017], while a weaker and borderline association was observed for essential AAs [HR (95% CI): 0.88 (0.77–1.01); *p*-value = 0.071].

Conclusion: Higher dietary AAs intake was associated with a lower risk of CRC, with stronger associations observed for non-essential/conditionally essential AAs. Further research is needed to elucidate the biological mechanisms and molecular pathways underlying these associations.

O.1.06-2

Temporal Trends of Physical Behavior Patterns and Socio-demographic Correlates in Germany between 2014 and 2023

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities Room 5, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: High sedentary time and physical inactivity are linked to adverse health outcomes, with evidence showing that very high levels of moderate- to vigorous-intensity physical activity (PA) can offset some of the risks associated with prolonged sitting. Monitoring population trends in combined physical behavior is essential for understanding changing risk patterns and guiding interventions. This study therefore examined the temporal trends and their sociodemographic correlates of different physical behavior patterns among adults in Germany between 2014 and 2023.

Methods: Data were obtained from five cross-sectional, population-representative telephone surveys conducted in Germany in 2014, 2016, 2018, 2021, and 2023, comprising a total of $N = 14,417$ adults aged ≥ 18 years. Participants completed the Global Physical Activity Questionnaire and the Marshall Sitting Questionnaire. Participants were classified into four physical behavior profiles based on sitting time ($<$ or > 8 hours/weekday) and PA level ($<$ or > 600 MET-minutes/week). Descriptive statistics and logistic regression analyses examined temporal trends and their sociodemographic and health-related correlates of physical behavior profiles.

Results: The proportion of adults with high sitting time (> 8 h/weekday) and insufficient PA (< 600 MET-min/week) increased from 5.3% (4.4-6.4%) in 2014 to 8.8% (7.4- 10.4%) in 2023, peaking at 10.5% in 2021 (9.0-12.2%). The share reporting high sitting with higher PA (> 600 MET-min/week) increased from 36.9% (34.7-39.1%) to 46.8% (44.2-49.4%), while the proportion with low sitting and higher PA declined from 50.3% (48.0-52.5%) to 37.4% (35.0-39.9%). Over time, the likelihood of belonging to the low sitting/high PA group decreased (OR = 0.94, 95% CI: 0.92–0.95, $p < .001$), while odds for high sitting profiles increased (high sitting/low PA: OR = 1.06, 95% CI: 1.03–1.09, $p < .001$; high sitting/high PA: OR = 1.06, 95% CI: 1.04–1.08, $p < .001$). Men, younger age, higher education, higher income, and urban residence were associated with high sitting/high PA patterns. In contrast, higher BMI was associated with high sitting and low PA.

Conclusion: Population trends show an increase in sitting time, even among active adults, and a decline in the optimal low-sitting/high-activity profile. These findings highlight the need to target sedentary behavior as a public health priority.

O.1.06-3

Participatory Design and Implementation of School-based Healthy Habits Interventions in Chile: Experience from Reactiva Tu Escuela

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities Room 5, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: The Reactiva Tu Escuela project aimed to promote healthy eating and physical activity habits in educational communities in Temuco, Chile, through a child-centered participatory approach. This study examines the participatory design and implementation experience, focusing on two specific objectives: improving skills, capabilities, and practices of educational communities at individual, family, and organizational levels; and creating and adapting school and community environments that promote healthy habits.

Methods: Reactiva Tu Escuela was implemented in 2023 across six schools. The project established representative committees (7-22 members) comprising students, families, teachers, and administrators. Participatory methodologies (i.e., photovoice, flowcharts, reflective analysis) facilitated collaborative situational diagnoses across 7-8 committee meetings per school. Each committee identified context-specific barriers, prioritized problems, and co-designed tailored action plans addressing both capacity-building and environmental adaptation requirements. The research team delivered customized interventions, including skill-building and educational sessions in physical activity and healthy eating, and infrastructure improvements. Outcomes were assessed through attendance records, satisfaction surveys, accelerometry, and qualitative evaluations from students, families, and school staff.

Results: Each school successfully designed unique intervention portfolios. Across six schools, 132 skill-building and educational sessions in physical activity and healthy eating were implemented, comprising workshops in emerging sports, circus arts, healthy eating, and school gardens, which reached 700 children and involved their families. Physical activity sessions totaled 85 (1,132 participants); healthy eating sessions comprised 47 sessions (157 participants). Environmental adaptations included infrastructure improvements and optimization of physical spaces

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based on photovoice diagnoses. Accelerometry revealed increases of 23-34% in moderate-to-vigorous physical activity during recess. Workshops enabling food preparation received the highest ratings. Communities valued that student-identified environmental and capacity needs differed from the assumptions of adults. Implementation challenges included staff workload, delayed starts, and limited duration, constraining deeper capacity development and environmental changes.

Conclusion: This experience shows that participatory co-design successfully generates contextually appropriate interventions addressing physical inactivity and unhealthy eating across diverse school settings. Meaningful child participation enhanced relevance by identifying environmental barriers and capacity gaps adults overlooked. This experience offers a replicable framework for developing locally relevant interventions that simultaneously strengthen community capabilities and transform school environments, prioritizing participatory processes over standardized approaches.

O.1.06-4

Predictors of Adherence to a Community-based Physical Activity Program in Castilla-La Mancha: A Real-world Evaluation of the Regional Exercise Referral Model

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities
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Purpose: Sustained engagement is a critical implementation challenge for community-based physical activity programs, particularly when scaled beyond pilot settings. This study examined participant characteristics associated with early retention in the Unidad Activa de Ejercicio Físico (UAEF), a region-wide exercise referral program in Castilla-La Mancha (Spain). We identified sociodemographic, clinical, and functional-fitness predictors of continuation after the initial assessment, providing practice-based evidence to guide implementation strategies and inform scalable models of exercise referral.

Methods: We analysed baseline data from 827 UAEF participants (73.6% women; 13 municipalities). The implementation outcome was early retention (completing ≥ 1 follow-up visit vs. dropout after baseline). Measures included demographics, province, BMI, health-related quality of life (EQ-5D-3L, VAS), categorized chronic conditions, and functional fitness (SPPB, 5-times sit-to-stand, sit-and-reach, 6-min walk test, resting heart rate). Analyses used chi-square tests, risk ratios, odds ratios, t-tests, and effect sizes to identify predictors relevant to program adoption/continuation at scale.

Results: Overall, 54.8% of participants completed at least one follow-up visit. Retention differed significantly by sex (men 61.5% vs. women 52.4%; OR = 1.45, $p = .021$) and province ($p < .001$), with dropout highest in Toledo (61.6%) and lowest in Cuenca (6.1%), indicating strong contextual variation. Higher BMI (specifically Obesity I/II) was associated with greater retention ($p = .0047$). Participants who remained showed better baseline functional fitness (SPPB total score; 8.20 vs 6.39; $p < .001$; (Sit and Reach; 25.12 vs 20.39; $p = .001$) and lower overall perceived health (VAS scale; 67.7 vs 71.4; $p = .003$). Moreover, clinical needs was also a key retention factor, retention was significantly higher among participants reporting chronic pain (61.6% vs 50.9%; $p = .003$), respiratory or sleep conditions (70.8% vs 53.8%; $p = .021$), and moderate/severe mobility limitations (EQ-5D-3L; $p = .019$).

Conclusion: Sex, province, BMI, functional status, and specific clinical needs predicted early retention. Tailored engagement strategies are needed, particularly supporting women and addressing provincial inequities. UAEF seems to be a good strategy for those sedentary people with lower perceived quality of life, with obesity and clinical needs. Therefore, UAEF are highly recommended.

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O.1.06-5

Effectiveness of a National Implementation Program to Improve Physical Activity and Screen Time Practices in Outside School Hours Care: Results from a Randomised Controlled Trial

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities
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Purpose: Around 20 percent of Australian children attend Outside School Hours Care (OSHC), yet this setting is often overlooked in efforts to improve children's physical activity and reduce recreational screen time. Although national OSHC guidelines exist, practice varies widely and many services struggle to implement and sustain evidence-based approaches.

This study examined the effectiveness of the Activated OSHC program in:

- i) increasing the proportion of OSHC services meeting the national OSHC physical activity and screen time guidelines;
- ii) improving children's physical activity and recreational screen time during OSHC; and
- iii) increasing staff behaviours that promote physical activity.

Methods: The Activated OSHC program includes staff training, development of a physical activity and screen time policy, family communication materials, posters and accreditation resources. We conducted a Type 2 hybrid effectiveness-implementation RCT to evaluate the program across 197 OSHC services in Australia, randomised 1:1 to intervention or control, with 12 month follow-up. Primary outcomes were the proportion of services meeting all four guideline components. Effectiveness outcomes were children's moderate-to-vigorous physical activity (MVPA), recreational screen time and staff enabling behaviours, measured through coordinator surveys and SOPLAY/SOSPAN observations. Intention-to-treat analyses used mixed-effects logistic and negative binomial models, with per protocol sensitivity analyses.

Results: 182 OSHC services were retained at 12-months (92%). Intention-to-treat analyses showed no significant differences for guideline adherence or children's behaviour, although staff enabling behaviours were higher in the intervention group at 12 months. Per protocol analyses showed clearer effects among services that completed Activated OSHC accreditation: at 12 months, they were seven times more likely than controls to meet guidelines (OR 7.35; 95%CI 1.39 to 38.86; $p = 0.019$); children's MVPA increased (IRR 1.23; 95%CI 1.05 to 1.43; $p = 0.010$), screen-device availability was lower OR = 0.82, 95% CI = 0.68, 0.99; $p = 0.037$), and staff enabling behaviours trebled (OR 3.00; 95%CI 2.10 to 4.28; $p < 0.001$).

Conclusion: The Activated OSHC program showed clear benefits when implemented as intended. As the largest after-school physical activity trial internationally, this study demonstrates the value of structured policy and training support. Further work is needed to strengthen implementation and sustainment.

O.1.06-6

Key Events in the Implementation Process of an Adaptable Intervention Approach in the ECEC Setting: A Case Study of SuperFIT

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities
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Purpose: Implementing multi-component interventions is complex because context-sensitivity and adaptability are required. It is important to highlight whether implementation challenges arise from the intervention itself (*the thing*) or from the strategies required for effective implementation (*the stuff*). This study aimed to identify barriers and facilitators for the implementation of the SuperFIT approach, from the implementers' perspective, to develop strategies to support implementers and to identify key events in the implementation process.

Methods: A case study design with an action-oriented approach was used. The study was underpinned by the CFIR implementation framework. SuperFIT, which promotes energy-balance related behaviours in 2–4-year-olds, is primarily implemented in early childhood education and care (ECEC) settings. Data were collected through semi-structured interviews (n=20), focus groups (three sessions, total n=6), meeting notes and a timeline session (n=6). Participants included the implementers (i.e., the SuperFIT coach) as well as operational and management stakeholders.

Results: Facilitating characteristics of a SuperFIT coach were enthusiasm, the ability to listen, and empathy. However, coaches themselves struggled to deal with the resistance they encountered and not all believed to have the necessary knowledge or skills. Within the inner setting, willingness and resources to implement SuperFIT were facilitators. Partnerships or collaborations within the outer setting were rarely mentioned as facilitator. Furthermore, adaptability of the intervention (*the thing*) was mentioned as both a facilitator and a barrier. Coaches were positive about the ongoing development of the intervention as a whole. Focus groups emphasised this finding and identified the use of local consensus discussions, training of implementers, development of educational materials and monitoring implementation progress as successful implementation strategies (*the stuff*) used over time. Interestingly, the support that the coaches received from within and outside their organisation (*the stuff*) was rarely identified as a key event. Instead, unanticipated challenges were mentioned more often and served as a prompt to take action.

Conclusion: Adopting the implementer's perspective provides valuable insights into whether improvements are needed in the intervention (*the thing*) or implementation strategies on multiple levels (*the stuff*). Implementing an adaptable intervention requires higher level skills, and recognising or taking ownership of this process takes time.

O.1.06-7

Physical Activity Promotion in Outpatient Hospital Care: Implementation Strategies Delivered in the PROMOTE-PA Study

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O.1.06 Implementation and scalability: Implementation Science in Practice: Strategies for Schools and Communities
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Purpose: PROMOTE-PA is a hybrid type I effectiveness-implementation cluster randomised controlled trial evaluating implementation support for health professionals to promote physical activity (PA) within clinical practice. This abstract reports on adoption, dose, reach and acceptability of implementation support provided.

Methods: Four implementation strategies were co-designed with health professionals in PROMOTE-PA Part I - 1) education and training, 2) community PA referral, 3) experts and mentors and 4) system and local champions. Clinical teams were randomised to receive support immediately (intervention) or after recruiting patients (control). Teams could select preferred implementation strategies. Measures of implementation strategy adoption, dose and reach were collected in the intervention group through routine monitoring and program implementation data. Acceptability data were collected using a 5-point Likert scale.

Results: Thirty clinical teams (n=156 health professionals) were recruited from 17 hospitals and four physiotherapy practices in Sydney, Australia. Most health professionals were female (75%) and most were physiotherapists (75%). Fourteen clinical teams were randomised to intervention and 16 to control. Data are available for 10 intervention teams (n=50 health professionals).

All 10 teams received education and training through the learning hub, the community PA directory, community PA referral pathways and clinical mentors. A health coaching service (9 teams), transition to exercise programs (3 teams) and clinical champions (2 teams) were also utilised.

Implementation adoption –Eighty-five teams were approached and 30 (35%) recruited. Implementation dose-implementation support averaged 4 sessions and 9.6 hours of direct support. Implementation reach was broad with

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11 musculoskeletal teams, 4 cardiopulmonary, 6 geriatric, 3 paediatric, 3 neurological, 2 medical clinics and 1 pain team recruited. Acceptability scale was completed by 38 out of 50 (76%) health professionals. Most, 82% agreed/strongly agreed that implementation support improved their knowledge about how to have PA conversations with patients, 79% agreed/strongly agreed it had given them skills to have a conversation about PA and 79% agreed/strongly agreed it made it easier to identify PA opportunities.

Conclusion: Tailored approaches to support PA promotion within clinical care are acceptable to health professionals. Co-designed implementation strategies can be adapted to different clinical contexts and patient populations.

O.1.06-8

Multi-strategy Support Sustains Classroom Physical Activity Delivery at 12 Months: Results from a Cluster Randomised Controlled Trial (cRCT)

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Purpose: Sustaining delivery of school-based physical activity programs once implementation support ends is a major challenge. This study aimed to assess whether a multi-strategy intervention sustained teachers' scheduling of classroom energisers (brief bouts of physical activity) and their adherence to a mandatory physical activity policy.

Methods: Following a 12-month implementation intervention, we conducted a cluster randomised controlled trial with 25 primary schools (12 intervention, 13 control) in New South Wales, Australia. Intervention schools received a 12-month package of sustainment strategies targeting both organisational and teacher levels. These included centralised technical assistance, principal endorsement, champion preparation, teacher reminders, educational resources and parent communication. Teachers completed daily logbooks recording the scheduling of energisers, physical education, sport, and integrated lessons at baseline and 12 months. The primary outcome was mean daily minutes of energisers; secondary outcomes were total weekly minutes of physical activity and adherence to the 150-minute mandatory policy. We used mixed-effects linear and logistic regression models to account for clustering by school.

Results: There was a statistically significant difference between intervention and control schools in the mean change from baseline to 12 months in teachers' scheduling of daily energisers, with intervention schools increasing by approx. 6 minutes per day (95% CI: 3.15 to 8.82; $p < 0.001$). Intervention schools also recorded a greater increase in total weekly minutes of scheduled physical activity by approx 35 minutes (95% CI: 13.35 to 57.65; $p = 0.002$). More teachers in the intervention group met the 150-minutes-per-week policy requirement (OR 9.56; 95% CI: 1.96 to 46.57; $p = 0.005$). No significant effects were observed for physical education, sport, or integrated lessons.

Conclusion: This is the first randomised controlled trial to test strategies specifically designed to sustain teacher-led classroom physical activity. Low-intensity strategies sustained teachers' scheduling of energisers and improved compliance with the school physical activity policy at 12 months. A 24-month follow-up will assess longer-term effects on delivery and policy adherence.

O.1.07-1

Mapping Drivers and Levers of the Double Burden of Malnutrition in Cape Town, South Africa through Group Model Building

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O.1.07 Systems Science: Leveraging Nutrition Systems: From Policy to Population Health

Room 6, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: South Africa is experiencing a double burden of malnutrition (DBM), the coexistence of underweight, micronutrient deficiencies, and overweight/obesity. The DBM stems from complex interactions among individuals, food environments, and the broader socio-economic landscape. To explore these dynamics and understand shared drivers of undernutrition and overweight, we used group model building with multi-sectoral stakeholders in Cape Town, South Africa, to develop a causal loop diagram mapping the drivers of the DBM at individual, household (micro-), and community and local policy (meso-) levels.

Methods: We conducted 35 in-depth interviews with stakeholders representing the micro-level (community health workers and their coordinators) and meso-level (researchers, civil society representatives, and city and provincial government employees) to develop a preliminary list of drivers of the DBM. This data formed the basis for our group model building workshops, with two workshops each at micro- (n=13) and meso-level (n=8).

Results: Two causal loop diagrams were developed with stakeholders and then iteratively refined and merged into one model by the research team. The model contains eight central themes: food environment domains, access to resources, policy development, social and equity awareness, governance principles, commercial determinants of health, barriers to food security, and interpersonal relationships. At the micro-level, stakeholders recommended leverage points focused on strengthening food and nutrition literacy of community health workers and advocacy to limit alcohol sales in townships; increase food safety inspections at informal shops, and increase access to food gardens. At meso-level, leverage points included: mobilizing civil society, supporting evidence uptake in agenda setting, enable a healthier food environment through updated zoning laws, increasing transparency in interaction with the corporate sector, and regulating unhealthy food marketing.

Conclusion: A participatory approach is valuable to understanding the complex dynamics driving the DBM in Cape Town and to recommending double-duty actions across socioecological levels that address both undernutrition and overweight.

O.1.07-2

Unpacking the Impact of the Birmingham Food System Strategy: Insights from a Ripple Effect Mapping Study

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O.1.07 Systems Science: Leveraging Nutrition Systems: From Policy to Population Health

Room 6, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: An increasing number of cities worldwide have adopted formal food strategies to transform urban food systems. Birmingham's Food System Strategy (2022–2030) aims to create a “sustainable, healthy, and thriving” food system. Emerging from three years of collaboration with local stakeholders, the strategy adopts a whole-systems approach and is coordinated by the Council's Food System (FS) Team. This study explored the perceived impacts of the strategy and identified key mechanisms that have enabled or constrained progress so far.

Methods: We employed Ripple Effect Mapping (REM), a participatory qualitative evaluation method designed to capture intended and unintended outcomes within complex systems. Data were collected through five REM workshops with six FS Team members and eight stakeholders active in the delivery of the strategy (e.g. from third sector, food retail, research). Impacts were mapped along a timeline, grouped into impact pathways, and thematically analysed to identify clusters of impacts and enabling mechanisms.

Results: From the stakeholder perspective, 17 impacts and enabling mechanisms were identified, grouped into two clusters: 1) How co-production helped shape an inclusive strategy, even though some stakeholders felt overlooked, 2) How the strategy's funding and support mechanisms enabled stakeholder-led action and fostered a wider movement, within a context of financial precarity.

From the FS Team perspective, 26 impacts and mechanisms were grouped into four clusters: 1) How the Team built legitimacy and fostered collaboration, 2) How funding supported stakeholder action but also increased dependency on municipal support, 3) How procurement became a systemic lever for change and 4) How the Team navigated emotional strain and institutional barriers while building institutional memory and research-policy partnerships.

Conclusion: The findings show how co-production and the dedicated coordination role of the FS Team strengthened inclusivity and legitimacy of the strategy. Funding streams mobilised local initiatives but also revealed the fragility of

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short-term resources. Procurement emerged as a powerful institutional lever, while the Team's bridging role fostered collaboration and trust yet generated emotional strain. Future strategies should prioritise stable coordination for implementation, secure long-term funding, and embed continuous learning to enable sustained transformation of urban food systems.

O.1.07-3

Coordinating the Governance of Food and Nutrition Surveillance Systems in Canada: A Mixed Methods Network Analysis

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O.1.07 Systems Science: Leveraging Nutrition Systems: From Policy to Population Health
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Purpose: Policy- and decision-makers have conventionally used food and nutrition surveillance data and indicators (e.g., fruit and vegetable consumption) to inform policy. However, complex structural pressures of the food system are driving the need for surveillance systems to be highly coordinated across sectors to better monitor health, climate, and equity drivers of the food system. To inform a coordinated governance approach to surveillance, there is a need to understand who is engaged in the surveillance process, how surveillance actors are connected, and potential facilitators and barriers for collective action.

Methods: A mixed methods network analysis was conducted to examine the system of institutional actors involved in food and nutrition surveillance in Canada. Participants were recruited through a purposive sampling strategy and include representatives of organizations and institutions that engage in surveillance of health-, climate-, or equity-related drivers of the food systems. Quantitative surveys mapped the structure of the network, where participants were asked which organizations they conduct surveillance activities with and how often. Centrality was used to identify highly connected organizations within the network. Qualitative interviews provided a deeper understanding of the functions and processes that underly the structure of the network, including efforts to coordinate surveillance across sectors.

Results: The Canadian food and nutrition surveillance network is diverse, including a range of actors from government and non-government organizations, research institutions, academic networks, and industry. Organizations spanned health, nutrition, environment, food and agriculture, social justice, and trade sectors. Participants emphasized collaborative and collective action is essential to understand the inter-sectoral nature of food systems, including how indicators from different surveillance systems can be linked. Strategies for inter-sectoral coordination of surveillance activities are needed to help minimize duplication of resources for data collection and analysis. Barriers include conflicting mandates and agendas, funding for data collection, and data access.

Conclusion: A systems-informed evaluation of the network of surveillance actors is essential for understanding how governance processes and structures can be improved to better inform policy for food systems. This study will contribute to a series of reports with practical, sector-specific strategies for a coordinated approach to surveillance of food and nutrition systems.

O.1.07-4

Reflections on a Collaborative Interdisciplinary Systems Approach to Urban Food Transformation: The Mandala Research Consortium

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O.1.07 Systems Science: Leveraging Nutrition Systems: From Policy to Population Health
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Purpose: The urgency to transform food systems intensifies as externalised health, environmental and societal costs mount. However, the complex, systemic nature of food systems makes them notoriously difficult to change. The Mandala research consortium offers a case study of how interdisciplinary science, systems thinking and stakeholder collaboration can be integrated as a coherent research approach to identifying and developing interventions capable of instigating sustainable food system change. Using an established conceptual framework examining the ‘conditions’ for interdisciplinary collaboration, this paper identifies the challenges and opportunities of combining these three methodological principles.

Methods: Freeth and Caniglia’s (2020) framework was used to interrogate the case study and reflect on the challenges and opportunities of its methodological approach across two research phases: (1) Understanding the urban food system in Birmingham, UK, and identifying places to intervene; (2) Envisioning and prioritising food system interventions. Reflections were organised across epistemic, social, symbolic, spatial and temporal dimensions and considered whether the case study achieved ‘integrative interdisciplinarity’ or ‘additive multidisciplinary’.

Results: A complex systems approach enabled identification of food system interventions, overcoming epistemic differences inherent in interdisciplinary teams and epistemic, social, spatial and temporal challenges which varied across stakeholder groups. Interdisciplinary science and stakeholder collaboration provided opportunities to work across the full breadth of an urban food system. However, ‘integrative interdisciplinarity’ was not achieved in every aspect of the research.

Progress towards a collaborative interdisciplinary systems approach was supported by the tailoring of the research process to accommodate different stakeholder groups; the development of written internal guidance to support stakeholder collaboration and systems thinking; a pluralistic approach to data collection and evidence synthesis; and a pluralistic approach to evidence generation to incorporate modelling as well as evaluation.

Conclusion: A collaborative interdisciplinary systems approach to urban food system transformation was articulated using the Mandala consortium as a real-world case study. While identified opportunities support the funding and design of research using a similar methodological approach, we also documented challenges. We suggest practical solutions for researchers and funders to overcome these challenges.

O.1.07-5

Increasing Knowledge and Engagement for Policy, Practice and Environmental Change to Promote Child Health Equity: Results from Seven Catalyzing Communities Sites across the US

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O.1.07 Systems Science: Leveraging Nutrition Systems: From Policy to Population Health
Room 6, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Childhood obesity remains a major public health issue rooted in systemic inequities. Whole-of-community interventions that engage diverse partners in coalitions are a promising approach to prevention by impacting policy, practice, and environments (PPE). The Catalyzing Communities Initiative is a multi-site trial that deploys the Stakeholder-Driven Community Diffusion (SDCD) theory-informed participatory systems modeling intervention with coalition members to drive PPE change. This study evaluates changes in knowledge and engagement among participants across seven study sites.

Methods: Longitudinal survey data were collected from 363 stakeholders across seven US communities between 2019 and 2024. Participants were classified as coalition committee members who were directly involved in the intervention (n = 97), or community members (n = 266) within a committee member’s social networks. Knowledge and engagement were measured at baseline, mid-point, and follow-up using the validated SDCD Survey. The two domain scores were averaged (ranging 0–1) and then analyzed with mixed effects regression models to assess changes over time, adjusting for demographic variables and clustering by individual within communities.

Results: Knowledge scores increased significantly overall (+0.047 at mid-point, +0.067 at follow-up; scale: 0-1; p < 0.01), with larger gains among coalition committee members (+0.096 at mid-point and +0.118 at follow-up; p < 0.01). The largest improvements were in domains related to knowledge of intervention strategies, roles and resources, and implementation and sustainability; knowledge of the problem rose more modestly. Engagement increased modestly overall (+0.029 and +0.022; p < 0.05), driven by coalition committee members (+0.057 and +0.063; p < 0.01), particularly in leadership and stewardship, influence and power, and dialogue and mutual learning. Community members

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showed minimal change in knowledge and a significant decline in engagement. Among committee members, more years of professional experience was associated with larger gains in knowledge and engagement; no moderation was observed by sector affiliation or demographics.

Conclusion: The Catalyzing Communities Initiative can significantly increase stakeholder knowledge and engagement among intervention participants. Domain-specific gains highlight which aspects of knowledge and engagement may be most responsive to the intervention. These findings underscore the potential of whole-of-community interventions to build foundational capacities in community leaders for systems-level child obesity prevention.

O.1.07-6

Sex-specific Associations of Ultra-processed Food Consumption with Metabolic Syndrome among Adults in Korea: Evidence from the Prospective Health Examinees Cohort

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O.1.07 Systems Science: Leveraging Nutrition Systems: From Policy to Population Health
Room 6, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Emerging evidence suggests that ultra-processed food (UPF) intake may increase cardiometabolic risk, but sex-specific evidence in Asian populations remains limited. This study aimed to examine sex-specific associations between UPF consumption and the risk of metabolic syndrome (MetS) among Korean adults using data from a large-scale prospective cohort.

Methods: A total of 46,945 adults (15,225 men and 31,720 women) aged 40–69 years from the Health Examinees (HEXA) study were included. Dietary intake was assessed using a validated 106-item food frequency questionnaire, and foods were categorized according to the NOVA classification. Incident MetS was defined by the modified National Cholesterol Education Program Adult Treatment Panel III criteria. Cox proportional hazards regression models estimated hazard ratios (HRs) and 95% confidence intervals (CIs) for MetS and its components across quartiles of UPF consumption. Models were adjusted for sociodemographic, lifestyle, and health-related covariates; in women, additional reproductive factors (parity, age at first birth, menopausal status, age at menopause, and age at menarche) were included to account for hormonal influences.

Results: During follow-up, higher UPF consumption was positively associated with the risk of MetS and its components. Compared with the lowest quartile (Q1), participants in the highest quartile (Q4) had higher risks of central obesity (HR: 1.27; 95% CI: 1.20–1.33), elevated blood pressure (HR: 1.23; 95% CI: 1.16–1.29), elevated triglycerides (HR: 1.14; 95% CI: 1.07–1.22), and MetS (HR: 1.20; 95% CI: 1.11–1.29; all p-trend <0.0001). Associations were evident in both sexes but were more pronounced among women, who showed stronger relationships for central obesity, blood pressure, and triglycerides even after accounting for reproductive and hormonal factors.

Conclusion: Higher UPF intake was prospectively associated with an increased risk of metabolic syndrome among Korean adults, with women exhibiting greater vulnerability than men. These sex-specific differences suggest that biological and behavioral factors may contribute to differential susceptibility to the metabolic effects of ultra-processed foods. Public health interventions should consider sex-specific strategies to mitigate the growing metabolic burden associated with UPF consumption.

O.1.07-8

Thriving Teens: A Whole Systems Approach to Benefit Preadolescent Mental Wellbeing in Amsterdam

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Purpose: “If many children are struggling with the same issues and falling outside the ‘normal’ system, we need to examine the circumstances and structures in which they grow up—rather than focusing solely on the child.” This statement by Amsterdam’s Alderman Moorman reflects a growing movement in public health to apply systems thinking to complex societal challenges. The Thriving Teens project builds on this approach to uncover how interrelated factors—the *system dynamics*—shape preadolescent mental wellbeing. The goal is to provide a foundation for developing integrated, context-specific actions and driving system change across three Amsterdam neighbourhoods.

Methods: A causal loop diagram (CLD) was iteratively developed by integrating scientific and community-based insights. The scientific base drew on an umbrella review of 143 systematic reviews and seven focus groups with scientific experts (N=18). This was expanded with lived experiences from preadolescents (N=233), caretakers (N=83), and professionals (N=56), collected through a co-created conversational tool (“The Tree”) and semi-structured interviews. The resulting multi-actor CLD—comprising 62 factors, 50 feedback loops, and 11 subsystems—was analysed using system archetypes to reveal recurring behavioural patterns that sustain or hinder wellbeing.

Results: The analysis revealed interconnected dynamics ranging from livelihood insecurity and parental headspace to social comparison, performance pressure, and the 24/7 online norm. Eleven subsystems—including *Always online*, *Increasing pressure*, *Parenting challenges*, and *Lost in the system*—capture how social norms, institutional structures, and local contexts interact to influence wellbeing.

Seven system archetypes were identified, such as *Fixes that Fail* (short-term poverty relief creating long-term complexity) and *Success to the Successful* (resource-rich schools advancing faster than underresourced ones). These archetypes illustrate how well-intentioned policies can reinforce, rather than resolve, underlying inequalities.

Conclusion: Understanding both the structure (how factors connect) and the behaviour (how the system acts over time) of preadolescent mental wellbeing highlights that there are no simple fixes. Instead, effective strategies require multi-level, preventive, and equity-oriented approaches that disrupt reinforcing patterns—such as fragmented policies or societal norms around individualism and 24/7 connectivity—and strengthen supportive environments for children to thrive.

O.1.08-1

Testing the Physical Activity Transition Model among Children and Adolescents in Low- and Middle-income Countries: A Systematic Review and Meta-analysis

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O.1.08 Children & Families: Youth Movement Behaviors and Health Outcomes: From Measurement to Intervention
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Purpose: The Physical Activity Transition model suggests that urbanization and economic growth lead to decreased physical activity (PA) levels, especially in urban areas. Currently, low- and middle-income countries (LMICs) are urbanizing rapidly, which can influence PA levels. However, existing evidence is based on individual country studies, limiting broad conclusions about the PA transition. This systematic review summarizes current research on the PA transition among children and adolescents in LMICs.

Methods: Two independent reviewers screened 5,147 potentially relevant articles from six databases. Data were extracted from 84 studies across 29 LMICs, involving 530,908 participants aged between 3 and 19 years. Study quality was assessed using the AXIS and JBI tools. The GRADE approach was used to evaluate the quality of the evidence. Data were synthesized narratively or meta-analyzed where appropriate. Meta-analyses compared device-based moderate-to-vigorous physical activity (MVPA) estimates between urban and rural participants, further stratified by World Bank income classification, continent, and age group.

Results: Overall, 68% of significant differences in PA levels favored rural participants, while 32% favored urban participants. The main meta-analysis indicated that, on average, children in urban areas accumulated ten fewer minutes of MVPA daily compared to those in rural areas, representing about one-sixth of the WHO PA guidelines. Stratified analyses revealed that children and adolescents in urban areas of low-income countries, (MD = -16.08, 95% CI: -31.69, -0.47) lower-middle income countries (MD = -9.48, 95% CI: -17.28, -1.67), Africa (MD = -12.29, 95% CI: -21.77, -3.94) and the Americas (MD = -8.45, 95% CI: -11.24, -5.65), accumulated fewer MVPA minutes per day than their rural counterparts. Lower PA levels in urban areas were also observed for those <6 years (MD = -12.25, 95% CI: -22.39, -2.10) and ≥6 years (MD = -9.15, 95% CI: -16.21, -2.09).

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Conclusion: Urbanization is associated with lower PA levels among children and adolescents in LMICs, with a small effect size (Cohen's d : -0.38 , 95% CI: -0.58 to -0.18). The qualitative and quantitative analyses findings support the PA transition model. As urban growth accelerates in LMICs, policymakers, public health professionals, and urban planners should prioritize designing cities that foster active living and support healthy lifestyles

O.1.08-2

Outdoor Time Patterns Among U.S. Youth: Findings from NHANES 2011-2014

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Purpose: Outdoor time supports child health by promoting physical activity, better sleep, and healthier lifestyles, while reflecting children's interaction with the surrounding environment. Surveillance of outdoor time patterns provides important context for health promotion and environmental planning. However, existing evidence relies on self- or parent-reported measures. Nationally representative estimates using device-based, population-level data are needed to better understand outdoor time among U.S. youth. This study aims to establish nationally representative estimates of youth's outdoor time using the National Health and Nutrition Examination Survey (NHANES) data.

Methods: In NHANES 2011-2014, participants wore an ActiGraph GT3x accelerometer on their non-dominant wrist, with the ambient light sensor enabled. Minute-level light intensity data were extracted for participants 3-18 years old. Participants were included with daily wear time ≥ 10 hours for ≥ 4 days. Data identified for poor quality or as outliers (4SD from the mean) were excluded. Outdoor time was defined as minutes with light intensity ≥ 240 lux, a value distinguishing indoor from outdoor time. Survey weights were applied to estimate mean daily outdoor time overall and by sex, age, race/ethnicity, season, and weekday.

Results: A total of 4,783 youth met inclusion criteria. The mean outdoor time was 29.5 min/day (SE: 1.7). Mean outdoor time did not differ significantly between male (29.1 min/day) and female (29.9 min/day) participants (95% CI: -2.6, 4.1). Non-Hispanic White youth had the highest mean outdoor time (32.6 min/day, SE: 2.4), followed by Non-Hispanic Black (28.1 min/day, SE: 2.5) and Hispanic youth (27.7 min/day, SE: 2.8). Mexican American youth had significantly lower mean outdoor time compared to Non-Hispanic White youth (-7.4 min/day, 95% CI: -12.7, -2.0). Compared to youths aged 3-5 years (11.7 min/day, SE: 1.4), youths aged 6-11 (24.4 min/day, SE: 1.5) and 12-18 (40.5 min/day, SE: 2.6) years had significantly higher mean outdoor time ($P < 0.001$). Youth had higher mean outdoor time during May-October compared to during November-December ($p = 0.01$), and more outdoor time Wednesdays-Saturdays compared to Sundays ($P < 0.001$).

Conclusion: This study developed a national reference for daily outdoor time among U.S youth. Findings provide essential evidence to inform public health strategies that promote outdoor activity and healthier environments for youth.

O.1.08-3

Children's Anthropometric Changes during the Summer: Preliminary Findings from the Healthy Seasons Study

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Purpose: BMI reflects weight relative to height. Children often gain BMI faster during summer, but it's unclear whether this results from slower height growth or increases in weight. Further, it is unclear if BMI increases are related to increased body fat. This study explored monthly height, weight, BMI, and percent body fat (%BF) change during

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school and summer to better understand what is driving accelerated summer BMI.

Methods: Children's (N=437, M=6.8 years) height, weight, and %BF (InBody 270 Body Analyzer) were measured monthly from January 2023 to August 2025. Age- and sex-specific zBMI was calculated using the United States Centers for Disease Control growth charts. Monthly percent change in children's height and weight and monthly change in BMI, zBMI, and %BF were estimated via multilevel mixed effects regression. Differences in mean monthly change in percent height and weight and monthly change in BMI, zBMI, and %BF between school (Aug-May) and summer (May-Aug) were explored.

Results: Monthly BMI change was 0.12 (95CI=-0.05, 0.29) during summer and 0.04 (95CI=-0.10, 0.17) in school (difference in change=0.09, 95CI=0.01, 0.16), while zBMI change during summer was 0.06 (95CI=-0.03, 0.14) and 0.02 (95CI=-0.04, 0.09) during school (difference in change=0.03, 95CI=-0.00, 0.07). Monthly %BF change during summer was 0.60 (95CI=0.09, 1.11) and 0.17 (95CI=-0.17, 0.52) during school (difference in change=0.43, 95CI=0.18, 0.68). Monthly percent height change was 0.13 (95CI=-0.15, 0.40) during summer and 0.13 (95CI=-0.08, 0.34) during school (difference in change=0.00, 95CI=-0.12, 0.12), while percent weight change during summer was 0.95 (95CI=0.25, 1.65) and 0.49 (95CI=-0.06, 1.04) during school (difference in change=0.43, 95CI=0.15, 0.77).

Conclusion: Monthly change in height was not different in the summer compared to the school year while changes in weight and %BF accelerated in the summer compared to the school year. These findings suggest that accelerated increases in BMI and zBMI during the summer were unhealthy as they are driven by accelerated increases in weight and %BF. Thus, interventions targeting unhealthy weight gain in the summer are warranted.

O.1.08-4

Move, Cruise, or Snooze? Compositional Data Analysis of 24-hour Movement Behaviours and Physical Fitness at Different Stages across Childhood and Adolescence

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Purpose: Efforts to improve childhood physical fitness, an indicator of current health and predictor of future disease risk, are crucial. With competing demands on daily time-use, how to balance time spent in moderate-to-vigorous physical activity (MVPA), light physical activity (LPA), sedentary behaviour (SB), and sleep to enhance physical fitness across childhood and adolescence is unclear. To guide efforts, we examined associations of cross-sectional reallocations of time between movement behaviours and physical fitness at different ages across childhood and adolescence.

Methods: Participants in the Physical Activity and Nutrition in Children (PANIC) study had their physical fitness (cardiorespiratory fitness [CRF]: maximal workload from a cycle ergometer test; muscular power: standing long jump; muscular strength: dominant handgrip strength) and 24-hour time use (MVPA, LPA, SB, sleep via a combined heart rate and movement sensor) assessed in mid-childhood (6–9 years, n=448), late-childhood (8–11 years, n=370) and again in adolescence (15–17 years, n=136). Compositional data analysis, including compositional linear regression and iso-temporal substitution, investigated how time-use composition was associated with physical fitness levels after controlling for covariates.

Results: Reallocating time to MVPA, whether proportionally or from an individual behaviour, was positively associated with all physical fitness measures, while shifting time away from MVPA was negatively associated with physical fitness. For example, 15 minutes per day more time spent in MVPA was associated with higher CRF (range: 0.83–5.35 watts) and muscular power (range: 0.86–2.73 centimetres) at all ages and muscular strength (range: 0.25–0.55 kilopascals) in mid- and late-childhood. The negative impact of reducing MVPA was greater than the positive gains from increasing

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it by the same amount. In adolescence, increasing sleep by 15 minutes per day was associated with higher CRF when time was reallocated from SB (1.81 watts, 95% confidence intervals [CI]: 0.44, 3.17) or LPA (2.52 watts, 95% CI: 0.98, 4.05) but replacing MVPA with sleep reduced CRF (-5.51 watts, 95% CI: -8.81, -2.21).

Conclusion: Strategies targeting physical fitness among children and adolescents, notably CRF and muscular power, should aim to increase, or importantly preserve, MVPA levels, and prioritise MVPA and sleep over SB and LPA.

O.1.08-5

Cross-sectional and Longitudinal Associations between School Day Movement Behaviours and Children's Perceived Physical Literacy: A Compositional Data Analysis

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Purpose: Promoting movement and physical activity within the school environment may shape the development of how children perceive their physical literacy (PL). However, associations between school-day movement behaviours and children's perceived PL and how these might change over time are unclear. The purpose of this study was therefore to examine cross-sectional and longitudinal associations between school-day movement behaviours and children's perceived PL.

Methods: Data were collected from 249 primary school aged children (aged 8–9 years; 51.4% girls) across four time points: autumn 2023 (T1), winter/spring 2024 (T2), summer 2024 (T3), and summer 2025 (T4). School-day movement behaviours (sedentary time (ST), light PA (LPA), moderate PA (MPA) and vigorous PA (VPA)) were assessed using wrist-worn accelerometers. Perceived PL was assessed by the Physical Literacy in Children Questionnaire (PL-C Quest), which consists of 30 pictorial items relating four PL sub-domains (physical, psychological, social, and cognitive). Compositional linear mixed models and isotemporal substitution examined the cross-sectional and longitudinal associations between school-day movement behaviours and children's perceived PL, and predicted changes in PL following movement behaviour time-reallocations.

Results: Cross-sectional analyses showed significant overall composition associations for total PL ($p = .03$) and PL physical domain ($p < .001$) at T3 and PL cognitive domain at T4 ($p = .001$). These associations were driven by ST for total PL ($\beta = 9.84$, 95% CI [1.80, 17.97]), ST and VPA for PL physical domain ($\beta = 4.97$, [1.15, 8.79]; $\beta = 3.60$, [0.64, 6.56]), and MPA for PL cognitive domain ($\beta = -4.30$, [-8.01, -0.58]). Cross-sectionally reallocating time indicated positive associations between 30 additional minutes spent in VPA and total PL ($d = 0.71$), physical ($d = 0.96$) and cognitive domains ($d = 0.57$) at T3. Time reallocated to MPA was inversely associated with total PL, cognitive and psychological domains at T4. There were no significant longitudinal associations between schoolday movement compositions and perceived total or domain-specific PL scores.

Conclusion: The findings suggest that school-day movement compositions have limited consistent impact on children's perceived physical literacy. A substantial increase in school based VPA is needed to achieve meaningful improvements. Further, the negative predicted change in PL with increase in MPA warrants further investigation given the reported positive association between PL and PA.

O.1.08-6

Father's Motivation as a Driver of Reciprocal Reinforcement in Fathers-child Dyads: Psychometric Properties of a Father-focused Instrument

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Purpose: We hypothesize that fathers and children bidirectionally influence their health behaviors through reciprocal reinforcement (RR) processes. To operationalize RR, we developed a father-focused instrument, which consists of two scales: fathers' motivation for their own health (F-RR) and for their child's health (C-RR). Both scales use parallel wording across three domains of eating, exercise, and screen use. A community advisory board reviewed and informed F-RR and C-RR during development. We tested the psychometric properties of F-RR and C-RR.

Methods: Baseline data from the Healthy Dads, Healthy Kids for Hispanics efficacy trial were analyzed to validate the F-RR and C-RR using confirmatory factor analyses. Model assumptions were tested, and robust maximum likelihood estimation was used. Three models were compared: (A) three correlated first-order factors (Eating, Exercise, Screen Use), (B) a higher-order Lifestyle factor, and (C) a unidimensional model. For the best-fitting model, internal consistency (Cronbach's α), convergent validity (average variance extracted, AVE), and discriminant validity (Heterotrait-Monotrait ratio, HTMT) were assessed. Global fit was evaluated using CFI, RMSEA, and SRMR; local fit using residuals. Monte Carlo simulations tested the model stability.

Results: We analyzed data from 187 fathers (mean age=39.9 $\pm$ 7.1 years; 46% overweight, 54% obese) of 5–11-year-old children. Models A and B showed excellent fit (F-RR: CFI=0.959, RMSEA=0.075, SRMR=0.045; C-RR: CFI=0.979, RMSEA=0.056, SRMR=0.037), whereas Model C fit poorly (F-RR: CFI=0.782, RMSEA=0.166, SRMR=0.080; C-RR: CFI=0.868, RMSEA=0.135, SRMR=0.055). Model B was retained for parsimony and theoretical alignment. In the selected model B, F-RR demonstrated reliability (α =0.80-0.84), convergent validity (AVE=0.52-0.67), and discriminant validity (HTMT=0.66-0.69); C-RR showed reliability (α =0.66-0.85), convergent validity (AVE=0.44-0.77), and discriminant validity (HTMT=0.78-0.82). All factor loadings were significant and theoretically consistent. Standardized residuals were within acceptable limits ($<|2.0|$) and residual plots indicated adequate local fit. Monte Carlo simulations confirmed model stability.

Conclusion: F-RR and C-RR are psychometrically sound and provide a foundation for future research, comprehensive analysis, and interventions that leverage paternal motivation as a catalyst for sustained family lifestyle change. This study is an initial step in measuring RR under the premise that fathers' motivation (for themselves [F-RR] or their children [C-RR]) is a driver of RR processes within father-child dyads.

O.1.08-7

Social Media Use and Wellbeing Across Adolescent Development: A Longitudinal Cohort Study Using Annual Population Data

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O.1.08 Children & Families: Youth Movement Behaviors and Health Outcomes: From Measurement to Intervention Room 7, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Social media's impact on adolescent wellbeing remains contested. While heavy use correlates with psychological distress, complete abstinence may lead to social exclusion and missed peer connections. Existing cross-sectional research limits causal inferences and obscures age and gender variations in these associations. This study investigated three-year longitudinal associations between after-school social media use and adolescent wellbeing in a large, representative dataset, with specific attention to developmental stage, gender, and the effects of both heavy use and abstinence.

Methods: This cohort study included 100,991 Australian students in Grades 4–12 (2019–2022), contributing 173,533 observations. After-school social media use (3:00–6:00 p.m. weekdays) was self-reported and classified as none (0 hours/week), moderate (>0 to <12.5 hours/week), or highest (≥ 12.5 hours/week). The primary outcome was overall wellbeing, measured as the average score across eight validated domains (happiness, optimism, life satisfaction, worry, sadness, perseverance, emotional regulation, and cognitive engagement), dichotomised into high versus low wellbeing (<3 on a 1–5 scale). Secondary outcomes included each individual wellbeing indicator, similarly dichotomised. Wellbeing was assessed concurrently with social media use during annual school-based surveys. Mixed-effects logistic models were used for cross-sectional and longitudinal analyses, stratified by gender and adjusted for demographic covariates.

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Results: The analytic sample comprised 100,991 adolescents (49.9% female; mean [SD] age, 13.5 [2.2] years). A U-shaped association was observed between after-school social media use and wellbeing. Compared with moderate users, adolescents with the highest use had greater odds of low wellbeing (females: OR, 3.13; 95% CI, 2.88–3.39; males: OR, 2.25; 95% CI, 1.86–2.72), while non-users also had higher odds in later adolescence (Grades 10–12: females: OR, 1.80; 95% CI, 1.40–2.30; males: OR, 3.00; 95% CI, 2.01–4.46). These patterns were consistent across survey years and robust to sensitivity analyses.

Conclusion: Social media's relationship with adolescent wellbeing appears complex and non-linear, varying by age and gender. While heavy use was associated with poorer wellbeing and abstinence sometimes coincided with less favourable outcomes, these findings are observational and should be interpreted cautiously. Further research is needed to clarify causal pathways and underlying mechanisms.

O.1.09-1

Simulating Urban Food Environments through Immersive Virtual Reality: Evaluating Policies to Mitigate Unhealthy Food Outlets and Harmful Marketing in Outdoor Public Space: Design and RCT

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings

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Purpose: There is a need to understand how changes in local food environments influence eating behaviour, as existing evidence is largely correlational. Studying this in real-life is challenging because settings such as shopping streets cannot be easily manipulated. To address this, we (1) designed a high-fidelity Immersive Virtual Reality (IVR) shopping street that allows precise manipulation of food outlets and advertisements, as well as accurate tracking of participants' behavior (motion, eye tracking), and (2) conducted a first RCT randomized controlled trial to test the impact of exposure to a healthy vs. unhealthy food environment on the perceived food environment and determinants of eating behaviour.

Methods: An IVR shopping street was developed in collaboration with health scientists, IVR specialists, and local policy officials through an iterative design process. An RCT was conducted with 65 participants (M age = 24.5y; 66.2% female). After a pre-survey, participants walked through either an "obesogenic" or a "healthy" shopping street (no fast-food outlets or junk food marketing) for four minutes. Eye-tracking data were collected to assess visual attention and reactions to food cues, followed by a post-test survey. Linear regression analyses examined perceptions and supportiveness of the food environment (7-point Likert scales) and post-test hunger (VAS 0–100), adjusted for age, gender, and baseline hunger.

Results: All participants felt the environment resembled places they often visit (M = 5.5). Participants in the obesogenic shopping street (n=32) rated the environment as less healthy (B=-2.85, P<.001) and unhealthier (B=3.81, P<.001) than participants in the healthy street (n=33). They also felt the environment made them think more about food (B=0.85, P=0.036), perceived it as more encouraging of unhealthy food choices (B=2.59, P<.001), and found it less acceptable (-1.03, P=0.002). Hunger did not increase significantly (B=2.60, P=.39). Eye-tracking descriptive data will be presented.

Conclusion: The IVR food environment enables controlled, ecologically valid experiments to test the potential impact of local food environment policies. This overcomes key limitations of real-world studies, that cannot be manipulated easily. Future studies with larger samples are needed to robustly assess simulated policy effects on food choices, or use the IVR tool to support policymakers in designing healthier environments.

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O.1.09-2

Beverage Purchasing Patterns among Canadian Households, 2018–2020

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings

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Purpose: Beverages are a major source of added sugars in Canadian diets among both children and adults. This study examined household beverage purchasing patterns from 2018 to 2020 as well as differences across sociodemographic characteristics.

Methods: Nielsen HomeScan data from 13,324 households in Quebec and Ontario, Canada, were analyzed to examine annual purchases of six beverage categories: sugary drinks (i.e., all beverages with added sugars), coffee/tea, water, milk/plant-based milk, 100% juice, and diet beverages (i.e., other beverages without added sugars and/or with non-nutritive sweeteners). Beverages sold in a concentrated form or requiring preparation (e.g., tea or coffee) were converted to liters. Product descriptions and UPCs were matched with nutritional information and ingredients for 12,201 distinct products. Clusters were formed based on the proportion of each beverage category relative to the total volume purchased by each household. Adjusted and weighted multinomial regressions were conducted to examine differences by sociodemographic characteristics.

Results: The most frequently purchased beverages by volume were coffee and tea (30%), followed by sugary drinks (19%), milk (18%), water (16%), diet beverages (10%), and juice (7%). A **five-cluster model** provided the best overall fit, with a 16% misclassification rate, distinguishing households based on their annual purchase volume: “**Coffee and tea**” (38% of the sample; 54L of sugary drinks, 259L of coffee and tea), “**Milk**” (23%; 78L of sugary drinks, 153L of milk), “**Sugary drinks**” (18%; 240L of sugary drinks), “**Water**” (15%; 90L of sugary drinks, 330L of water), and “**Diet**” (7%; 56L of sugary drinks, 281L of diet beverages). The “Coffee and tea” cluster was used as the reference, as it was considered the “healthiest.” Households with children at home were more likely to be in the “Milk” cluster than in the “Coffee and tea” cluster. Households without a university degree were more likely to be in the “Sugary drinks,” “Water,” and “Diet” clusters than in the “Coffee and tea” cluster. Other sociodemographic differences will be discussed.

Conclusion: These findings underscore the importance of tailoring public health strategies to household characteristics, such as the presence of children and the household’s education level, to reduce sugary drink purchases more effectively.

O.1.09-3

The Impact of School-lunch Salad Bars on Adolescent Fruit and Vegetable Waste: A Clustered Randomized Control Trial

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings

Room 8, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Adolescents consume too few fruits and vegetables (FVs). Schools in the US serve lunch to 30 million youth each day; schools are ideal environments to implement behavioral nutrition interventions. Interventions often focus on increasing consumption; however, understanding how interventions impact FV waste is also needed, as food waste is a driver of climate change, and has financial implications for school meal programs. We tested the impact of school-lunch salad bars on FV waste for adolescents in middle and high schools.

Methods: In a cluster randomized control trial across 24 schools in Arizona, USA (12 middle and 12 high schools; 2756 student observations), schools were randomized to either Salad Bar or Wait-Listed control conditions. Digital scales were used to objectively measure plate waste to the nearest 2 grams. FV waste was defined as the amount of FV left on the child’s tray (including rinds) minus the amount selected, then calculated as a proportion of the FVs selected (%FV wasted). Mixed effects ordinal beta regressions were used to examine how change in %FV waste differed between

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conditions, adjusting for clustering of students within schools and students' socio-demographics.

Results: The sample of students was 52% female; 68.5% Hispanic; and 84% free/reduced-price lunch eligible. At baseline, the Wait-Listed (48.2%) and Salad Bar (52.5%) conditions did not differ in %FV wasted ($p=0.761$). The between-condition difference in change from baseline to follow-up was significantly different from 0 (Salad Bar – Wait-Listed difference in change = -17%; 95% CI = -0.21, -0.12; 1-tailed $p < 0.001$), with %FV wasted increasing by 9.1% in the Wait-Listed condition and decreasing by 7.8% in the Salad Bar condition. Both within-condition changes were significantly different from 0 (1-tailed $ps < 0.001$).

Conclusion: The introduction of the built environmental change of school-lunch salad bars resulted in lower FV waste relative to no intervention for adolescents in middle and high schools. Still, significant proportions of FVs were wasted regardless of study condition. Research is needed on the financial implications on FV waste in schools. Interventions are needed to simultaneously encourage students to consume more FV consumption while decreasing FV waste for human and planetary health.

O.1.09-4

AI-assisted Monitoring of Food and Alcohol Advertising: Validating Large Language Models against Human Coders

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings

Room 8, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Social media marketing of unhealthy food and alcohol influences people's eating habits and alcohol intake, especially among adolescents and young adults. Because manual coding is costly and time-consuming, it remains difficult to monitor exposure at scale. This study examined whether Large Language Models can accurately identify nutritional and marketing features of food and alcohol advertisements, comparable to crowd and expert coders.

Methods: A sample of 1000 Facebook ads (image + caption) from 77 major Belgian food and alcohol brands was collected during a one-year period using the AdDownloader tool. The ads were annotated by 600 crowd participants, three expert dieticians and four multimodal AI models (GPT-4o, Qwen2.5, Pixtral and Gemma3). The classification task included three single-option variables (alcohol presence, ad type, target group) and three multi-option variables (premium offers, marketing strategies, WHO food categories). Agreement between all coders (crowd, dieticians and AIs) was calculated using Gwet's AC1 for single-option and Krippendorff's Alpha for multi-option tasks, complemented by bias analyses and Monte Carlo bootstrap validation.

Results: Large Language Models closely matched human performance in detecting simple single-option features, such as alcohol presence or target group, with over 90% agreement with expert dieticians. For more complex multi-option questions, AI reliability was lower but still remained within the range of human/dietician variability. Bootstrap simulations showed that in over 95% of replications, GPT-4o's agreement was within the inter-dietician range, indicating statistical exchangeability with humans. Bias analyses showed that AIs slightly over-detected promotional elements (e.g., limited editions, endorsements of characters/celebrities) and under-detected their absence, but these patterns were systematic and interpretable, and could be corrected by refining label definitions or prompt design. A smaller outdoor ad analysis produced similar agreement patterns, suggesting robustness across digital and physical advertising formats.

Conclusion: Validated AI models can classify food and alcohol advertisements with reliability comparable to expert dieticians. Monitoring of harmful marketing exposure in both digital and outdoor environments can be significantly improved by incorporating them into nutrition and public health research. This approach provides a scalable way of studying and addressing commercial influences on diet and health by combining automation with expert oversight.

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O.1.09-5

Who Uses a New Major Walking and Cycling Bridge? A 12 Month Study Using Novel Mobile Phone Sensor Data in Glasgow, UK

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings
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Purpose: Built environments can be designed to encourage physical activity. The Govan-Partick Bridge, one of Europe's largest opening walking and cycling bridges, opened across the River Clyde in Glasgow, UK. It aims to promote active travel, reduce car dependency, and contribute to the city's net-zero climate targets. Current active travel measures (e.g. pedestrian/cycling counters), capture overall volumes of users but provide little information about *who* is using active travel infrastructure. Therefore, this study aims to evaluate the impact of a new major active travel bridge using a novel mobile phone sensor to examine the socio-demographic, spatial profile and temporal patterns of users.

Methods: A mobile phone sensor, mounted on the bridge, continuously captured anonymised data from approximately 35% of all mobile phone users crossing between September 2024 and September 2025. The sensor recorded people walking, cycling, or wheeling past with a Virgin Media O2 mobile, recording socio-demographic indicators (age, gender, spending power), spatial locations (residential and employment) and temporal patterns of use (number of visits by a user, number of crossings per hour). Aggregated data were analysed descriptively and visualised through an interactive online dashboard.

Results: Over 12-months, 1,266,111 UK users were recorded. At one year, 58% of users were male. The largest age group was 25-34 years (20%), followed by 65+ (19%), with the smallest group being 18-24 (11%). Spending power was generally high. Usage was highest at weekends, peaking between 2-3pm on Saturdays. 46% of users had visited once that month and 29% had 2-5 visits. Spatial analysis showed that the highest user residential postal sectors were in the local vicinity, with the top two in an area of high deprivation however, employment location was varied and extended across the city.

Conclusion: The new bridge has experienced high levels of active travel. Using this mobile phone sensor has provided unique large-scale insights into users and an innovative method for evaluating active travel infrastructure. A wider two-year evaluation will triangulate these findings with surveys, counters, observations, and interviews to assess the bridge's longer-term impacts on transport and health as it becomes embedded within the community.

O.1.09-6

A Cluster Randomized Controlled Trial of a Multilevel Physical Activity Intervention: Community Walks

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings
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Purpose: Multilevel interventions can impact several behavioral determinants; yet evidence among low-income urban adults is lacking. We are conducting a multilevel trial to compare an individual-level intervention, an environmental-level intervention, and their combination on moderate physical activity among low-income residents of U.S. public housing developments in Boston Massachusetts, hypothesizing the combined intervention would produce the greatest increase over a 2-year period.

Methods: The study design is a prospective, factorial, cluster randomized controlled trial, with housing developments (n=12) as the units of randomization. There are four groups: environmental intervention alone (3 developments), individual intervention alone (3 developments), environmental plus individual intervention (3 developments), and

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assessment only control group (3 developments). The environmental intervention includes: community health worker (CHW)-led activities, pedestrian advocacy trainings, and maps/signage displaying walking routes. The individual intervention is a 12-week automated telephone program to increase motivation and self-efficacy. Intervention activities are designed to be enjoyable, safe, and accessible and are promoted through collaboration with front-line housing staff. Physical activity is measured at baseline, 12-, and 24-months by actigraphy in an evaluation cohort representing a sub-sample of participants across all developments. Descriptive statistics were used to summarize data.

Results: The evaluation cohort consisted of 479 residents. Mean (range) age was 53.8 (18-90) years, with the majority being women (79.5%) and Hispanic/Latino (64.0%). Half reported high blood pressure (50.4%); one-quarter reported diabetes (26.9%). At baseline, mean minutes/day (SD) was 234.5 (230.3) for sedentary, 122.2 (132.7) for light, and 24.3 (38.6) for moderate intensity physical activity. Across 6 environmental-level developments, we hosted 12 pedestrian advocacy training sessions (mean 9.4 residents/session) and 880 CHW-led activity sessions: 73.0% indoor activities and 27.0% outdoor walking groups (89.0% of sessions had ≥ 1 resident attend). 140 residents enrolled in the automated telephone program across 6 individual-level developments. Resident reported barriers to participation and comparison of physical activity levels between groups from baseline to 12-month follow-up using multilevel models will be presented.

Conclusion: Participants with high co-morbidities from marginalized communities were enrolled in this on-going multi-level intervention. While challenging, continued community and housing partnerships, addressing resident-reported barriers, and offering multiple, flexible, culturally relevant activities may encourage future participation.

O.1.09-7

Impact of Light Rail Transit on Physical Activity and Travel Behaviors: Longitudinal Findings from the TROLLEY (TRAnsit Opportunities for Health, Livability, Exercise and Equity) Study

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings

Room 8, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Light rail transit (LRT) may improve physical activity (PA) and air pollution by shifting travel mode. While promising, evidence of the impact of LRT on PA has been inconsistent. The TROLLEY study assessed change in PA and travel behaviors following the opening of a new LRT line. We expected PA and active travel to increase among those living closest to new LRT.

Methods: Participants were diverse, university staff who lived either <1 mile, 1-2 miles, or ≥ 2 miles from an LRT station. Participants wore accelerometers and GPS devices and completed questionnaires three times over a 2-year period, in addition to self-reporting PA and travel behaviors prior to new LRT. Multilevel mixed effects models analyzed change in outcomes, adjusting for individual and block group level covariates.

Results: Participants (N=479) were 45 years of age, mostly female (68%), and nearly 40% were people of color. Half of the sample lived <2 miles from LRT. Compared to living ≥ 2 miles from LRT, living closer to a station was positively associated with becoming a new LRT commuter (OR: 2.96 (95% CI 2.03-4.32) for <1 mile and OR:2.30 (1.48-3.56) for 1-2 mile group. Those living closest to LRT had a significant increase in the number weekly LRT commute days, compared to those furthest away. There was a 70% increase in the odds of getting any transportation PA (TPA) among new LRT commuters (OR:1.65 (95% CI 1.15-2.34)) and a significant increase of 145 minutes/week of TPA in the 1-2 mile group. Preliminary analyses show 35% and 40% used LRT to commute at 1 and 2-years of follow up, respectively, compared to 28% immediately following the LRT opening. Multilevel models of PA and travel mode outcomes at 1 and 2 years of follow up will be completed by February 2026.

Conclusion: The introduction of a new LRT line was associated with a substantial shift from driving to LRT as a primary commute mode and increased TPA among those living closest to transit. Encouraging LRT use may help address the health burden from physical inactivity and vehicle emissions.

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O.1.09-8

Healthy Beverages in a Sugary World: Dutch Adolescents' Perspectives on Healthy Beverages, a Qualitative Multi-method Study

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O.1.09 Policies and environments: Multi-level Interventions in Youth Food and Activity Settings
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Purpose: Much is known about what drives teenagers' consumption of sugar-sweetened beverages. However, far less is understood about what influences them choosing healthy options. Moreover, little is known about how adolescents define healthy beverages and what *they* consider to be healthy drinks. The aim of this study is twofold: 1) to explore how Dutch adolescents conceptualize healthy beverages, and 2) to gain a holistic understanding of the lived experiences that shape their behaviour regarding healthy beverages so that more effective future intervention endeavors can be designed.

Methods: A qualitative multi-method approach [1] was used to gain in-depth insights into adolescents' perceptions and behaviours regarding healthy beverages by combining three complementary methods: street intercept interviews, group sessions and semi-structural interviews. Data were collected from April to June 2025, both online as in person. A total of 60 Dutch adolescents, aged 12 to 16, attending prevocational-level secondary school (VMBO), participated in the study. All data were coded and analysed using Reflexive Thematic Analysis.

[1] Morse JM. Principles of Mixed Methods and Multimethod research design In: Tashakkori A, & Teddlie, C. , editor. Handbook of mixed methods in social & behavioral research Thousand Oaks, Californie: SAGE Publications 2003.

Results: Four overarching themes were generated: (1) conceptualizing healthy beverages: teenagers' perspectives; (2) refreshing but not exciting: teenagers' perspectives on tap water and associated doubts; (3) what teens wat: taste, fun and worth my money; (4) teenagers' perspectives on choosing healthy drinks: preferences and strategies for change. Water was widely recognized as healthy, energy drinks as unhealthy; soft drinks and fruit juices, however, occupied a grey area. Uncertainty about the health consequences of drinking light or zero options leads to teenagers drinking regular sodas.

Conclusion: Teenagers' confusion among drinks echoes scientific non-consensus, leading to blurry and sometimes contradicting advice towards the public. The food industry leverages this ambiguity through health claims and branding, while disinformation on platforms like TikTok – e.g. skepticism about tap water or protein drinks – further clouds adolescents' perceptions. Clearer and more consistent communication from the scientific community, stricter marketing regulations, and effective strategies to counter misinformation are essential to support adolescents in making healthier choices.

O.1.10-1

Contribution of AI-detected Pedestrian Environment Features (PEFs) to the Explanation of Physical Activity and Obesity among Adults

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments
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Purpose: This study examined whether artificial intelligence (AI)-detected pedestrian environment features (PEFs) - such as sidewalks, curb cuts, crosswalks, walk signals, and streetlights - contribute to explaining physical activity and obesity outcomes beyond macro-level walkability factors. We hypothesized that greater coverage of PEFs would be independently associated with higher levels of moderate-to-vigorous physical activity (MVPA) and lower obesity prevalence, after adjusting for neighborhood built and sociodemographic characteristics. This study is among the

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first to link large-scale AI-detected pedestrian infrastructure data to objectively measured accelerometer-based MVPA.

Methods: Data were drawn from 1,022 adults across four US metropolitan regions (Seattle, Phoenix, Baltimore, and San Diego) participating in the SAFE and WalkIT studies. Validated deep learning models were applied to over 20 million Google Street View images to detect eight types of PEFs. Pedestrian feature coverage within 400m of each participant's neighborhood was estimated using a network-based "dense node" approach. Hierarchical and ridge regression models were used to assess independent associations between PEFs, MVPA, and obesity, adjusting for individual, social, and macro-level built environment factors.

Results: Six of eight PEFs were significantly associated with higher MVPA, including sidewalks ($\beta = 0.21$, $p < 0.001$), curb cuts ($\beta = 0.19$, $p < 0.001$), streetlight ($\beta = 0.16$, $p=0.009$), sidewalk buffer ($\beta = 0.08$, $p=0.017$), crosswalk ($\beta = 0.09$, $p=0.015$), walk signal ($\beta = 0.08$, $p = 0.029$). This translates into an average increase of 19.1 minutes in weekly MVPA if all six types of PEFs were to double in a typical neighborhood. A weighted PEF index was also constructed and validated. While PEFs were negatively associated with obesity, the associations were not significant at the $p<0.05$ level.

Conclusion: AI-detected, micro-scale pedestrian features are significant and modifiable correlates of physical activity, in addition to neighborhood walkability. Investing in such infrastructure represents a scalable, evidence-based strategy to foster activity-supportive environments and promote population health. This study also validates deep learning as a robust and efficient tool for quantifying micro-scale built environments at scale.

O.1.10-2

Does Brand-only Advertising Weaken Marketing Restriction Efficacy? An Experimental Study of Youth's Hypothetical Menu Item Selection

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments
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Purpose: Children are particularly susceptible to food marketing, which impacts dietary practices by influencing product awareness, attitudes, and purchasing intent. Marketing policies typically rely on nutrient profile model thresholds to decide whether a food/beverage advertisement would be restricted, and commonly exempt brand-only advertisements (i.e., advertisements featuring brand imagery, such as logos/mascots, without any identifiable products). This study examined the relative impact of brand-only versus product-specific advertising on youth's hypothetical menu item selection.

Methods: An online between-group experiment was conducted in 2023 with 5,744 youth aged 10-17 years from six countries. Youth were randomised to view one of four advertisements: 1) control (video game), 2) 'brand-only' (McDonald's logo), 3) 'brand and unhealthy food' (McDonald's logo and hamburger), or 4) 'brand and healthy food' (McDonald's logo and salad). Youth were then shown six McDonald's menu items and asked which they would choose to eat. Regression models tested differences in products selected and nutrient levels by advertisement condition.

Results: Youth who saw the 'brand and unhealthy food' advertisement were slightly more likely to select the item featured in the advertisement (17.5%; Quarter Pounder Deluxe) than youth who saw the 'brand-only' (15.0%, OR:1.20, $p=0.068$) and 'brand and healthy food' (14.2%, OR:1.29, $p=0.013$) advertisements. Differences in product selection between youth who saw the 'brand-only' and 'brand and unhealthy food' advertisements were otherwise minimal and did not translate into significant differences in nutrient levels. Youth who saw the 'brand and healthy food' advertisement were more likely to select the garden salad (5.7%; product featured in 'brand and healthy food' advertisement and only menu item meeting nutrient profile model thresholds), and selected items with less saturated fat and energy than those who saw the 'brand and unhealthy food' (3.8%, OR:1.53; saturated fat β :-0.66; kilocalories β :-25.50) and 'brand-only' (3.5%, OR:1.49; saturated fat β :-0.62; kilocalories β :-26.06) advertisements ($p<0.05$ for all).

Conclusion: Brand-only advertisements may have similar impacts on youth's selection of unhealthy products as advertisements featuring specific unhealthy foods, whereas advertisements featuring healthy products may encourage healthier selection. These findings underscore the importance of including brand-only advertising in global marketing restriction development to support efficacy.

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O.1.10-3

From Citizen Perceptions to Policy Action: Mapping Food Environments Using the Big Food Map App in Flanders

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments
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Purpose: This study investigates the hypothesis that citizen-driven, subjective data on food environments can effectively inform actions to improve those environments. We address three interlinked goals: raising citizen awareness of the food environment, generating a large-scale map of perceived food-environment quality across Flanders, and fostering public support for food-environment policy.

Methods: We developed the “Big Food Map” smartphone application through co-creation with stakeholders (local governments, retailers, short-chain initiatives), citizens — including those in vulnerable groups — and app developers. Over four months, participants evaluated retail food-locations, answered daily perception/behaviour questions tied to locations, and engaged in weekly thematic challenges on themes such as advertising, short-chain initiatives and ideal food environments. 4 707 participants registered (2 364 active). Recruitment was open to the general public via media, social outreach and incentives; 4 707 registered, of whom 2 364 were active. Descriptive analyses were performed on participation patterns, demographic characteristics, and user responses, complemented by qualitative coding of open-ended inputs. Future work will apply logistic regression to identify demographic and contextual predictors of perceived “healthy” food locations, and clustering techniques to detect user typologies based on food-environment perceptions.

Results: The sample mean age was ~50.8 years (SD 14.7), 69.9 % female; education skewed high (~70 % had higher/university education). Users spanned rural (35 %), peri-urban (22 %) and urban (43 %) zones. Initial findings show that “accessibility” was ranked the top reason for choosing a food-point (16.5 %), followed by “taste” and “personnel friendliness” (both 8.9 %). Mobility patterns differed markedly: in urban zones 79 % of journeys to food points used active modes (walk/bike), versus 54 % car use in rural zones. Qualitative themes emerging include strong citizen demand for local/short-chain initiatives, affordability, and enhanced accessibility.

Conclusion: This large-scale, citizen-science initiative offers a novel tool for mapping subjective food environments and generating actionable insights. The citizen-science approach yielded high engagement and substantial data on perceived food-environments, offering a fresh angle for food-environment policy. It bridges behavioural nutrition (perceptions/choices) and environment/policy science (availability/accessibility). The outputs are now being used in municipal workshops to co-design local food-environment policies. This app is scalable and transferable to other contexts.

O.1.10-4

Policy Implementation and Recommendations to Address the Double Burden of Malnutrition in South Africa: Expert Assessment Using the Expanded Healthy Food Environment Policy Index (Food-EPI)

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments

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Purpose: South Africa faces a nutrition transition with an escalating double burden of malnutrition (undernutrition, micronutrient deficiencies, overweight/obesity), which is significantly influenced by the food environment. The Healthy Food Environment Policy Index (Food-EPI) was developed to evaluate the implementation of public food environment policies in comparison with international best practice. The aim of this study was to assess the extent of implementation of healthy food environment policies in South Africa using an expanded version of Food-EPI which includes indicators related to the double burden of malnutrition, compare its progress since the assessment in 2016, benchmark implementation against international best practice, and develop a list of priority policy actions.

Methods: The assessment was conducted in a stepwise approach, which included tool adaptation to the context using expert and policy reviews, identification of international best practice, and evidence validation, and two workshops involving a panel of national experts from government, academia and civil society to benchmark current food environment policies across 60 indicators and prioritize a list of policy actions based on perceived implementation gaps.

Results: 70% of the indicators were rated at low / very low levels of implementation. Of the 48 original indicators, the mean implementation improved between 2016 and 2024, driven by the introduction of a sugar-sweetened beverage tax, increased evidence uptake and health impact assessments in policy development, and the new draft food labelling regulation. Of the 12 (new) indicators that addressed the double burden of malnutrition, eight were rated at low to very low levels of implementation. Priority policy actions, considered relevant and achievable, included regulation of the food marketing directed at children, increase of the sugar-sweetened beverage tax to an effective level, supplement income support programs, and ensure affordability of healthy foods for vulnerable populations. Policies are also needed to regulate the relationship with industry, ensure adequate resource allocation, and implement monitoring and evaluation mechanisms to increase accountability.

Conclusion: Application of the expanded Food-EPI in South Africa showed improvements for the original indicators compared with 2016 and highlights the need for additional policy efforts to improve public nutrition policy and address the double burden of malnutrition.

O.1.10-5

Correlations between Physical Activity Environments and Flood Risk across the United States: Disparities by Social Vulnerability, Rurality, and Region

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments

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Purpose: We aim to examine the county-level correlations between flood risk and environmental infrastructure that supports physical activity, including access to parks and the National Walkability Index. Additionally, we aim to analyze differences across social vulnerability, urban-rural status, and region.

Methods: This cross-sectional analysis included 3,142 counties across the contiguous United States. Data were merged from public health and governmental sources, including 2018 FEMA's National Flood Hazard Layer (quantifying the percentage of county land in 100- or 500-year flood zones), the 2018 CDC/ATSDR Social Vulnerability Index (SVI; grouped into tertiles), and 2013 USDA Rural-Urban Continuum Codes (RUCC). Proximity to parks from the National Environmental Public Health Tracking Network and the county-level EPA National Walkability Index (aggregated from block group data) were based on 2018 data. Spearman correlations (ρ) were calculated and stratified by RUCC, region, and SVI tertile.

Results: Overall, both park access ($\rho=0.17$, $p<0.0001$) and walkability ($\rho=0.33$, $p<0.0001$) were positively correlated with flood hazard. Stratified analysis revealed significant heterogeneity. In metropolitan counties, park proximity and walkability were significantly correlated with flood hazard (parks: $\rho=0.10$, $p=0.04$; walkability: $\rho=0.42$, $p<0.0001$). Conversely, non-metropolitan counties showed no significant correlation to park access ($\rho=-0.04$, $p=0.48$), and when compared to the metropolitan correlation, walkability had a significantly weaker correlation with flood hazard ($\rho=0.12$,

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$p=0.02$). Regional analysis showed correlations with flood hazard were strongest in the Northeast and West. The West showed robust positive relationships for park proximity ($p=0.29$, $p<0.0001$) and walkability ($p=0.63$, $p<0.0001$), and the Northeast was similar (parks proximity: $p=0.27$, $p<0.0001$; walkability: $p=0.49$, $p<0.0001$). The Midwest and South regions exhibited somewhat weaker positive correlations (Midwest park proximity: $p=0.08$, $p=0.03$; Midwest walkability: $p=0.17$, $p<0.0001$; South park proximity: $p=0.05$, $p=0.10$; South walkability: $p=0.15$, $p<0.0001$). The strongest positive correlations with flood hazard were found in the lowest social vulnerability tertile (park proximity: $p=0.32$, $p<0.0001$; walkability: $p=0.48$, $p<0.0001$).

Conclusion: This analysis underscores the importance of climate adaptation and resilience planning that incorporates locally informed approaches to mitigate disproportionate flood risks to physical activity infrastructure, particularly in communities with lower social vulnerability, metropolitan counties, and regions in the western and northeastern United States.

O.1.10-6

Quantifying Health and Economic Benefits of Active Transportation Investments and Supportive Land Use Actions within Government Decision Making Processes: The National Public Health Assessment Model

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments
Room 9, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: The National Public Health Assessment Model (N-PHAM) is a Peer-Reviewed and Federally-Funded Software Tool that has been applied in 15 Regions of North America to assess health impacts of contrasting land use and transportation investment scenarios. N-PHAM employs a quantitative health impact assessment framework and has been applied at a wide range of geographic scales from neighbourhood, corridor, to entire regions to inform government actions and investment decisions over the past 2 decades. Agencies that have employed N-PHAM have stories to share how the evidence N-PHAM provided was used to document health and economic benefits of active transportation and supportive land use actions.

Methods: N-PHAM is a suite of random parameter predictive models capturing duration of walking and biking, physical activity, obesity, diabetes, cardiovascular disease, and depression, chronic disease. These models are built off California Health Interview Survey (CHIS / N=54,000) and National Household Transportation Survey (NHTS) (N=45,000) datasets joined at the census block group level with built (walkability), regional accessibility, demographic, greenspace metrics. These California based models used variables that exist for the entire USA creating the ability to estimate current baseline health characteristics employing existing values for environmental and demographic metrics for each health outcome model anywhere in the USA. It allows end users to test and compare potential changes in health outcomes from densification, adding shops, services, green space, and other features.

Results: Results from the application of N-PHAM over the past 20 years in 15 different regions of North America will be summarized and presented: Implementing Agency, Intended Outcome and Purpose, Health Outcomes Across Scenarios, Use of Evidence and Impact on Agency Policies, Synthesis of Findings Across Case Studies, Limitations of Methods, and Proposed Next Steps.

Conclusion: The ability to directly apply research to decision making is a primary goal for scholars and policy advocates. N-PHAM has documented health and related economic importance of active transportation investments and elevated and protected billions in funding for active transportation infrastructure. In Los Angeles N-PHAM helped to protect \$12.9 Billion in active transportation funding by documenting an \$8.41 return on investment from active transportation from health care cost savings and workforce productivity.

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O.1.10-7

Peeking Behind the Algorithm: AI-enabled Surveillance of Unhealthy Food Marketing to Children on Youtube

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments

Room 9, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Whereas industry has leveraged artificial intelligence (AI) to market unhealthy food to children on digital media in covert ways, researchers continue to manually assess these AI-enabled tactics. To address these gaps, we developed the CHOPPED (CHild Oriented food Product Promotion Evaluation and Detection system) AI system that can automatically collect and analyze food marketing on digital media. The purpose of this study was to use CHOPPED to examine unhealthy food marketing in YouTube videos suggested to child and adult accounts based on age and gender.

Methods: Over two months of continuous monitoring, CHOPPED collected and analyzed all marketing instances shown before, during, and after videos suggested by YouTube's algorithm to six child (2-12 years) and two adult accounts from four major cities in Canada (n=60,633). Marketing instances were classified based on whether they featured unhealthy foods and used child-targeted marketing techniques. The extent and nature of monthly child-targeted unhealthy food marketing were characterized during a 24-hour daily viewing period and children's typical 2-hour daily viewing period.

Results: No food marketing instances were shown to child accounts 2-4 years. On average, child accounts (5-12 years) were shown 25 monthly unhealthy food marketing instances during a 2-hour daily viewing period. The boy's account (9-12 years) was shown a significantly higher monthly frequency of child-targeted unhealthy food marketing instances (340, 70.2%) than the boy's account aged 5-8 years (241, 66.2%), the girl's account aged 5-8 years (261, 60.6%), the man's account (224, 79.9%), and the woman's account (263, 54.7%) during a 24-hour (p<0.05) but not a 2-hour daily viewing period. The monthly frequency of some core child-targeted techniques shown to the boy's account (9-12 years) was significantly higher than that shown to other accounts during a 24-hour (p<0.05) but not a 2-hour daily viewing period.

Conclusion: This study is the first to demonstrate the potential of AI to monitor unhealthy food marketing to children on YouTube. Findings suggest that children's exposure to unhealthy food marketing on YouTube may be relatively low and that food marketers may target a general audience, rather than children based on age and gender.

O.1.10-8

Examining Public Support for Comprehensive Policy Packages to Tackle Unhealthy Food Environments

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O.1.10 Policies and environments: Measuring and Modelling Healthy Food and Activity Environments

Room 9, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: This study examines public support – and its drivers – for comprehensive policy packages (i.e. bundles of coherent policy measures introduced together) aimed at improving food environments.

Methods: The study was conducted in Germany via an online survey. The sample included 1200 eligible German voters, recruited based on age, gender and income quotas. Participants completed an online survey with a choice-based conjoint experiment, where they evaluated pairs of policy packages comprising up to seven distinct food environment measures. After choosing a preferred package or opting for a single policy, participants designed their ideal policy package. Based on their choices, respondents were categorized as resistant, inclined or supportive towards policy packaging according to their frequency of opting out for single measures and the number of policies

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they included in their ideal package.

Results: Based on both opt-out frequency (44.7 %) and ideal policy packaging (72.8 %) outcomes, most respondents were inclined towards policy packages. The inclusion of fiscal incentives and school-based measures in packages enhanced support, while fiscal disincentives reduced it. Key drivers of support included beliefs about the importance of diet-related issues and the role of government in regulation, while socio-demographic factors, political leaning and personal experience with diet-related disease had minimal impact.

Conclusion: The results reveal public appetite for policy packages to address unhealthy food environments, contingent on package design and beliefs about the issue's severity and legitimacy of intervention. Public health advocates should design and promote policy packages aligned with public preferences, especially given anticipated opposition from commercial interests.

O.1.11-1

La Cruz que Cargamos: A Sociocultural Perspective of Health and Lifestyle through the Lived Experiences of Immigrant U.S.-Mexico Borderland Residents Living with Type 2 Diabetes

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

Multipurpose Room, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: The U.S.-Mexico borderland population experiences high rates of chronic disease, persistent poverty and other non-medical barriers to healthy lifestyle behaviors like physical activity and nutrition. The purpose of this study was to explore adverse and protective non-medical drivers of health from a sociocultural perspective through the lived experiences of Texas-Mexico borderland residents with type 2 diabetes, to provide more effective chronic disease management interventions and give voice to an often-marginalized population.

Methods: This mixed method study included semi-structured, in-depth interviews with 20 residents of the Texas-Mexico borderlands living with type 2 diabetes. We used an engaged critical phenomenological approach with a focus on understanding the meaning people give to their lived experiences; embedded within the socioeconomic, cultural and political context by exploring participant sense-making and emotions related to topics. Demographic questions, the Adverse Childhood Experience (ACE) Immigration survey, and the Accountable Health Communities (AHC) Health-Related Social Needs (HRSN) Screening were administered to further describe the study sample.

Results: Several phenomena emerged from the interviews: *Beyond familism, work and life exhaustion, geographic challenges, walking associated with poverty and immigrant status, stress makes me sick. 'Desahogar' (unburdening) and "cargar la cruz" (faith as empowering)* were coping mechanisms. *Borderland culture familiarity* emerged as a protective factor. The participants were monolingual Spanish speaking, low-income, middle-aged to older adults ranging in age from 44-73, 50% with less than 8 years of formal education, all having immigrated to the U.S. over the age of 18. Participants reported experiencing childhood and adulthood trauma as well as multiple complex social determinants of health needs, including food insecurity, transportation and interpersonal safety barriers.

Conclusion: The study provides unique socio-cultural insight into an immigrant population living in the U.S.-Mexico borderlands with type 2 diabetes experiencing multiple and complex SDOH challenges. Findings from this study can contribute to improving non-medical behavior change interventions related to physical activity, nutrition, stress and chronic disease prevention and control. This study highlights protective and resilience factors that should be also considered in intervention design. Insight into the lived experiences of individuals seldom included in mainstream narrative is important for further research with populations experiencing similar conditions.

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O.1.11-2

A Comparison of Device-measured 24-hour Movement Behaviour between Rural and Urban Malawi

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

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Purpose: The association between self-reported 24-hour movement behaviour (physical activity (PA), sedentary behaviour, and sleep), with health and disease is well documented. However, device-measurement of these behaviours in low-income settings is rare, with particular need for comparative studies, given the very different lives of rural and urban dwellers.

Methods: In Malawi, we invited a stratified, random sample of 3,489 individuals aged ≥ 15 years participating in a larger urban and rural Long-Term Conditions survey, to wear a wrist-worn accelerometer (Axivity AX3) continuously for one week. The survey collects demographic, behavioural (including the International Physical Activity Questionnaire Short Form) and health data. Data were processed in R (GGIR package) to derive PA and sleep variables, and Inverse Probability Weighting used to account for the sampling strategy.

Results: To date, 2,939 participants have provided accelerometry data (weighted mean age 34.1 (SD 16.1); 59.2% female; 45.8% urban dwelling). Participants provided a median of 7 valid 24-hour recordings (IQR: 6–7) with minimal non-wear time (median 0.15%, IQR: 0–1.2%). Accelerometer-measured PA and self-reported PA (total MET-minutes) showed weak positive correlation (Spearman's $\rho = 0.3$, $p < 0.001$) that was similar between sites. However, urban participants had significantly lower total acceleration for the same self-reported PA ($\beta = -14.1$ mg, $p < 0.001$). Median overall (unweighted) acceleration (Euclidean Norm Minus One, ENMO) was 47.8 mg/day (IQR: 35.7–59.7). The median intensity gradient, reflecting the distribution of intensity across the day, was -2.25 (IQR: -2.4 to -2.2). The median minutes of moderate-to-vigorous physical activity (MVPA) were 1521 minutes/week (IQR: 1075–1952). Median sleep period duration was 7.1 hours/night (IQR: 6.2–7.9), sleep efficiency was 83.8% (IQR: 79.3–87.5%), and median inactive time was 10.0 hours/day (IQR: 8.7–11.7).

After weighting, compared to urban, rural participants had higher ENMO (53.5 vs 39.9 mg/day), more MVPA (1744 vs 1316 minutes/week), and less inactive time (median 9.6 vs 11.2 hours/day), all $p < 0.001$. Sleep periods and sleep efficiency were similar across sites.

Conclusion: Device-measured PA was lower in urban than rural participants for the same self-reported PA, suggesting self-report may not adequately capture differences between contexts. Objective measurements are needed to accurately quantify differences in 24-hour movement behaviours.

O.1.11-3

A Mixed-methods Analysis of Oregon Double Up Food Bucks Participants' Nutrition Security during and after SNAP Emergency Allotments

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

Multipurpose Room, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Emergency allotments (EA) temporarily increased Supplemental Nutrition Assistance Program (SNAP) benefits to the maximum monthly allotment, substantially reducing food insecurity in the U.S. during the pandemic. Double Up Food Bucks Oregon (DUFBO), a nutrition incentive program that matches SNAP dollars for fruit and vegetable purchases, expands purchasing power at farmers markets and small grocers. Because SNAP policy strongly shapes

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nutrition incentives, this study explores how having and losing EA shaped DUFB participants' perceptions of nutrition security and DUFB participation.

Methods: A cross-sectional survey of 331 DUFB participants was conducted after EA ended in 2023. Participants answered parallel sets of seven questions about having and losing EA and open-ended questions about having and losing EA. Multinomial logistic regressions assessed perceptions during and after EA, while thematic analysis was applied to qualitative data.

Results: Participants were predominantly women (65%), aged 25–64 (72%), and non-Hispanic White (75%). Over 90% agreed that increased SNAP benefits helped them afford enough food, buy preferred foods, buy more fruits and vegetables, reduce stress, and afford other basic needs. Participants expressed stronger sentiment about EA's positive impact than its loss, though food-insecure households reported greater harm from termination (RRR=2.4, $p=.022$). No demographic differences emerged.

Themes indicated EA improved food security, diet quality, and autonomy, while reducing stress and enabling budget flexibility. Termination led to increased food insecurity, financial strain, and reliance on cheaper, less nutritious foods. Coping strategies included meal skipping and food pantry use. Some relied more on DUFB to offset benefit loss, while others reduced participation due to limited SNAP funds and transportation costs.

Conclusion: EA substantially improved food security and well-being, while termination exacerbated hardship and constrained choices. Though most participants felt more strongly about EA's positive impact than termination's negative impact, the coping strategies they employed undermine nutrition, chronic disease prevention, and mental health. DUFB provided critical support, but could not fully compensate for reduced SNAP benefits. Findings underscore the importance of considering the time, hassle, tradeoffs, and cost of food decisions, the adequacy of SNAP benefits, and overall household needs in policy decisions, particularly amid significant SNAP eligibility and benefit cuts.

O.1.11-4

Ultra-processed Food Purchases in England, 2012–2019 and 2022: A Sociodemographic and BMI-stratified Analysis

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

Multipurpose Room, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: To assess how ultra-processed food (UPF) purchasing varies across sociodemographic characteristics and Body Mass Index (BMI).

Methods: Take-home food and non-alcoholic drink purchase data for England (2012–2019, 2022) included ~77,000 households. Products were classified as UPF using NOVA and further divided into High Fat, Salt and Sugar (HFSS) or non-HFSS using the UK Nutrient Profiling Model, aligning with current policy criteria. UPF shares by spending (£), calories (kcal), and volume (kg) were modelled by income, education, ethnicity, socioeconomic position (SEP), and BMI using Quasi Maximum Likelihood Estimation with cluster-robust errors, adjusting for shopper age, gender, household composition, region, and year.

Results: UPF accounted for 59% of total purchased take-home calories, 55% of spending, and 48% of volume purchased, with minimal year-to-year variation. HFSS UPF contributed more calories (35%) and spending (29%), while non-HFSS UPF accounted for 24% of calories and 30% of volume. UPF purchasing (All UPF and HFSS UPF) was higher among lower-income (Kcal OR 1.23; Spending 1.32; Volume 1.22–1.29, all $p<0.001$), lower-SEP (Kcal 1.20–1.23; Spending 1.27–1.30; Volume 1.24–1.26, all $p<0.001$), and less-educated households (Kcal 1.16–1.19; Spending 1.19–1.23; Volume 1.17–1.19, all $p<0.001$). Asian households purchased less UPF than White households (Kcal OR 0.67–0.79; Volume 0.61–0.82; Spending 0.73–0.88, all $p<0.01$). Households with a shopper living with obesity purchased more UPF (Kcal 1.11–1.12; Spending 1.12–1.14; Volume 1.12–1.19, all $p<0.001$). Differences in non-HFSS UPF purchasing across these subgroups were minimal.

Conclusion: A sociodemographic and BMI gradient in UPF purchasing was observed, with lower-income, lower-education, lower-SEP and higher BMI households purchasing more UPF. Lower UPF purchasing among ethnic minority households may reflect protective cultural dietary patterns or the underrepresentation of culturally specific food outlets in the dataset. Inequalities in purchasing were driven by HFSS products, confirming that HFSS-focused policies may be an effective tool to reduce dietary inequalities.

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O.1.11-5

The Agency Dimension of Food Security: Measurement Development and Application

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

Multipurpose Room, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: There is increasing momentum in development around the construct of food security, including by the Food and Agriculture Organization of the United Nations, to add *Agency* (ability of individuals/households to act on their own food decisions and engage in processes to shape the food system) to the four traditional dimensions of food security (Availability, Accessibility, Utilization, and Stability). However, there is no available survey measure to assess Agency. The purpose of this study was to develop, test, and apply a novel Agency scale.

Methods: An initial pool of questions was drafted from newly written and modified existing questions. The pool was reviewed during a focus group of stakeholders (n=12), and revisions were made based on feedback. The revised pool was piloted among community members (n=300) and underwent item-reduction steps to identify poor-performing questions and exploratory factor analysis to understand groupings (i.e., factors). Two factors were retained and underwent assessment of convergent validity, reliability, and confirmatory factor analysis (CFA) in a new sample (n=720). The finalized scale was then used to examine sociodemographic differences in Agency among food pantry clients (n=1,054) using a generalized linear mixed model.

Results: CFA fit statistics met acceptable thresholds (e.g., RMSEA=0.069, SRMR=0.022, CFI=0.986), meaning the hypothesized model fit the observed data (supporting construct validity). Scale scores were associated with scores for Availability, Accessibility, Utilization, and Stability in expected directions ($\rho=0.161-0.743$, all $p<0.001$) (further supporting construct validity). Cronbach's alpha was high at 0.89 (supporting reliability/internal consistency). When examining sociodemographic differences in Agency among food pantry clients, after controlling for other sociodemographics and clustering effects, being on the WIC nutrition assistance program ($p=0.01$), speaking English ($p<0.01$), and having a household income higher than \$4,000 USD ($p=0.04$) were associated with greater Agency.

Conclusion: The scale measuring perceived household/individual-level Agency was shown to be valid and reliable in this sample. It was used to examine Agency among food pantry clients and found that governmental assistance programs and language access efforts may support Agency. This scale may strengthen the ability to assess all dimensions of food security beyond traditional financial-access-focused measures in the USA as well in other countries.

O.1.11-6

Mapping Behavioral, Social, and Healthcare Pathways to Diabetes Hospitalizations in California: A Configurational Analysis

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

Multipurpose Room, May 28, 2026, 12:00 PM - 1:00 PM

Purpose: Diabetes-related hospitalizations strain U.S. healthcare systems and, while often seen as a reflection of care access, may be influenced by more complex, context-specific factors, ie, behaviors and social determinants of health (SDoH). This ecological study examined whether limited healthcare access was a necessary condition for high hospitalization rates in California's 58 counties and identified specific combinations of SDoH and behaviors that create sufficient pathways to elevated rates.

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Methods: Using 2023 county-level data from the Agency for Healthcare Research and Quality and the County Health Rankings initiative, we applied machine learning-enhanced Qualitative Comparative Analysis to assess 20 behavioral, social, healthcare, economic, and demographic factors in relation to high hospitalization risk. Elevated hospitalization risk-adjusted rates were defined as counties exceeding the statewide benchmark of 234.4 hospitalizations per 100,000 adults (21 counties).

Results: No individual behavior nor SDoH, including insurance coverage or primary care provider rates, emerged as a necessary condition. Instead, five sufficient configurations were identified, each explaining 38–43% of high-hospitalization counties. Conditions defining the identified solutions included a low proportion of seniors (characterizing four solutions), low rates of uninsurance (four solutions), and high prevalence of insufficient sleep (three solutions), with some pathways also marked by predominantly male (two solutions), urban populations (two solutions) and limited availability of non-physician care providers (one solution).

Conclusion: These findings highlight the multifactorial nature of diabetes-related hospitalizations in California and suggest that expanding insurance or primary care provider coverage alone may be insufficient to reduce admissions. Public health strategies may benefit from combining targeted, context-specific approaches (particularly those focused on younger populations), behavioral risk mitigation, and expanding team-based care for men in urban settings to improve diabetes management and reduce hospitalizations.

O.1.11-7

Co-creating a Neighborhood-based Lifestyle Desk to Support Healthy Living among Residents with Socioeconomic Challenges and Limited Health Literacy in Amsterdam

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

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Purpose: Older adults in socioeconomically disadvantaged urban neighborhoods face increased risk of chronic disease, social isolation, and often encounter barriers to preventive lifestyle support due to limited health literacy and fragmented services. Addressing these challenges requires citizen science and co-creation approaches that actively involve community members and local organizations in developing context-specific solutions. This citizen science project therefore aims to establish a *Neighborhood Lifestyle Desk* that offers accessible, culturally sensitive, and personalized lifestyle support for older adults.

Methods: A participatory co-creation process was conducted with residents, community workers, healthcare professionals, local authorities, and students to jointly identify priorities, design criteria, and contextual enablers for a one-year pilot of the Lifestyle Desk. Guided by the socio-ecological model and the RE-AIM framework, the process used a triangulated qualitative approach combining field notes and logbooks, co-creation workshops, and semi-structured interviews. Field notes and logbooks captured contextual dynamics, informal interactions, and neighborhood engagement. Joint and separate co-creation workshops were conducted with stakeholders to define the aims, functions, and design criteria of the lifestyle desk, ensuring equal participation and transparent idea prioritization through the nominal group technique. Semi-structured interviews with professionals and local authorities explored existing collaboration and priorities. All data were thematically analyzed, with attention to cultural sensitivity, organizational enablers and barriers, and multi-level influences which highlights by the socio-ecological framework.

Results: Bringing together residents, professionals, and local organizations successfully fostered mutual understanding and shared ownership. The co-creation process produced clear design criteria and culminated in the collective naming of the project “*Gezond en Ontmoet in Osdorp (GOO)*”, emphasizing both on health and social connection. Three overarching themes emerged: (1) trust and familiarity as key enablers of engagement, (2) cultural and linguistic accessibility, and (3) strengthened collaboration across health and social domains. The co-created GOO prototype is currently being implemented and evaluated in a one-year pilot.

Conclusion: This participatory citizen science study demonstrates how researchers and community stakeholders can collaboratively translate community needs into a feasible prototype for neighborhood-based lifestyle support. The co-creation process offers valuable insights and preliminary blueprint for developing a culturally sensitive, Neighborhood-based Lifestyle Desk for older adults in socioeconomically disadvantaged urban areas.

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O.1.11-8

Grow.Cook.Eat: Supporting a Community Living with Disadvantage to Build Food Literacy and Connection

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O.1.11 Socio-economic inequalities: Bridging Gaps in Health Equity: Community-Centered Approaches to Nutrition and Lifestyle

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Purpose: Rising living costs, poor access to affordable healthy food, and being swamped with unhealthy options pose major health challenges to the Norlane community (the most disadvantaged area in Victoria, Australia). The Good Neighbourhood Project, a community-led placemaking organisation, takes a whole-of-neighbourhood and whole-of-person approach to create healthy, sustainable, inclusive, and resilient communities. Their strategies include: social enterprise cafés, an urban farm, a community garden, neighbourhood meals, and a food co-operative. Community feedback revealed a demand for food literacy skill-building.

Methods: The Good Neighbourhood Project partnered with Deakin University to co-design, deliver and evaluate a pilot food literacy program Grow.Cook.Eat. Free weekly sessions for 6 months were held at a social enterprise café adjacent to a community garden to build nutrition knowledge, cooking and gardening skills via growing, cooking and sharing a meal. A mixed-methods evaluation included surveys, session evaluations and interviews. Thematic analysis of follow-up interviews against the RE-AIM framework helped understand implementation and impact.

Results: Follow-up interviews revealed that the majority of participants were: 60+ years old, female, retired/unable to work; and many were living on their own (*Reach*). Participants had a strong sense of engagement, enjoyment and perceived value of Grow.Cook.Eat; improved food knowledge, cooking skills and increased fruit and vegetable intake and social connection (*Effectiveness*). Motivation to participate included poor cooking knowledge/skills, living with medical/health issue and social isolation (*Adoption*). Participants reported high program satisfaction and acceptability; with inclusivity suggestions for participants living with disabilities. Facilitators thought implementation success was rooted in relationships and social capital. Gardening engagement was lower (poor weather, limited growing space at home, mobility challenges) (*Implementation*). Participants replicated recipes independently at home, had plans for a home vegetable garden and wanted to program to continue. Facilitators reported succession planning, supporting local cost recovery and active promotion would enhance Grow.Cook.Eat's longevity and reach (*Maintenance*).

Conclusion: Co-designed, place-based food literacy programs can build community trust and engagement while addressing local needs such as food security and food literacy skills. Embedding opportunities for social connection into food literacy programs enhances impact beyond empowering community members with nutrition knowledge by fostering a healthier more connected community.

O.2.12-1

The Bloom Study – An Early Childhood Obesity Prevention Program Embedded in the Existing Health Service by Community Health Nurses in Denmark

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: In Denmark, health promotion delivered by community health nurses (CHNs) has been a universal health promoting service for families with newborns for more than 75 years. The service is well-established, characterized by a high level of professional competence, and highly trusted by families. Typically, families receive 5–6 home visits during the child's first year, with the guidance and support tailored to each family's circumstances and needs. Based

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on the recognition of the importance of early prevention, the Danish CHN service holds considerable potential for promoting healthy weight development in early childhood. The Bloom Study explores this potential by developing, implementing, and evaluating an intervention promoting healthy weight among infants, embedded within the CHN service. This study presents the strategies of the Bloom Study for ensuring successful embedding of the intervention into the service of CHNs in Denmark. Results from the development phase, strategies reflected in the final intervention design and experiences from early parts of the implementation will be presented.

Methods: The Bloom Study was developed through an extensive co-creation process involving parents and CHNs. The final intervention provides an enhanced service for first-time parents, focusing on eating and meal routines, motor skills and movement, screen habits, sleep, and a safe psychosocial family environment. Deliveries to families include additional home visits, telephone consultations, supportive dialogue tools, access to a video library, and parent group involvement.

Results: To support successful embedding in the CHN service, the development phase explored the implementation capacity, including staffing, financial resources, management engagement, competence level and training needs. The findings from the capacity analysis informed the final intervention design. Examples include focus points addressed (e.g. sleep), number of extra home visits and telephone consultations, duration of the intervention and themes prioritized in the teaching course provided to CHNs.

Conclusion: The Bloom Study resembles an example of an intervention program in which development and design are based on systematic exploration on how to increase the chance of successful embedding in an existing health service. This approach is taken to maximize the likelihood of successful and long-term sustainability within the Danish health system of CHNs.

O.2.12-2

A Qualitative Study of Parental Physical Activity and Diet Health Behaviours in First Time Parents in England

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Early parenthood offers an important window of opportunity to make positive behaviour changes to support parent, child and family health. Yet little is known about how new mothers and fathers experience changes in their diet, physical activity (PA) and sleep across early parenthood, or what support new parents require. This qualitative study aimed to a) understand new parents' diet and PA behaviours and how these were related to sleep quality in 3-6 months postpartum) and b) assess their related support needs.

Methods: First-time parents with infants aged 3-6 months were recruited using purposive sampling via parent and child groups in England, UK (January-March 2025). Semi-structured telephone/online interviews explored parents' own diet and PA. Participants also completed the validated Pittsburgh Sleep Quality Index (PSQI). Using Nvivo 12 software, verbatim transcripts were analysed inductively using Reflexive Thematic Analysis and a constructivist approach. Using the PSQI score, two groups were derived using median split (median= 6; better vs poorer sleepers). Qualitative sub-group analyses were undertaken to determine whether themes differed by parents' sleep quality.

Results: Participants from diverse socioeconomic, geographical and ethnic backgrounds (n=27, 37% men) completed interviews. Three themes common to all participants included: 'new routines for diet and PA behaviours'; 'expectations and hopes for future diet and PA'; and 'external support to support health behaviours'. An additional theme was identified through sub-group analyses: 'perceptions of diet and PA behaviours' were more positive for parents with better sleep scores and more pessimistic for poorer sleepers. Support needs were consistent regardless of sleep quality, with parents stating they would like greater social support from other parents at a similar life stage; and digital resources to help with meal planning and PA.

Conclusion: First-time parents described wide-ranging benefits and challenges to maintaining diet and PA behaviours during early parenthood. Sleep quality varied across participants, and appeared to influence their perceptions of diet and PA, rather than their behaviours directly. Quantitative exploration of these relationships in first-time parents is now warranted. Bringing together new parents in similar circumstances, and using digital materials, may better support positive diet and PA behaviours during the transition to parenthood.

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O.2.12-3

Associations between Caregiver Mental Health Symptoms and 3- to 4-year-Old Children's Movement Behaviours

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Understanding factors influencing children's movement behaviours is essential for healthy development. However, the role of caregiver mental health in shaping these behaviours is understudied. We examined associations between caregiver mental health symptoms and 3- to 4-year-old children's movement behaviours, including physical activity, sedentary time, digital media use, and sleep. We also investigated whether these associations were modified by caregivers' and child gender.

Methods: The cross-sectional SUNRISE Finland study included 1082 children (mean age 4.0, SD 0.6 years; 46% girls) and 1485 caregivers (65% women). Caregivers completed mental health questionnaires (Center for Epidemiologic Studies Depression Scale, Generalized Anxiety Disorder-7, Perceived Stress Scale, Insomnia Severity Index) and reported child digital media use. Children wore ActiGraph accelerometers for seven days to assess physical activity, sedentary time, and sleep.

Results: After adjusting for several sociodemographic confounders, higher caregiver stress was associated with shorter child sleep duration ($\beta = -0.43$, 95% CI -0.79, -0.08). Caregivers' higher depressive symptoms, ($\beta = 0.50$, 95% CI 0.18, 0.81) and stress ($\beta = 0.51$, 95% CI 0.13, 0.90) were associated with increased passive digital media use among children. Caregivers' higher stress ($\beta = 0.52$, 95% CI 0.18, 0.85) and insomnia symptoms ($\beta = 0.61$, 95% CI 0.18, 1.05) were associated with greater child gaming. We observed interactions by caregiver gender or by child gender in several associations. Only men caregivers' higher levels of stress were associated with more child sedentary time ($\beta = 1.08$, 95% CI 0.30, 1.86) and men caregivers' higher depressive ($\beta = 0.69$, 95% CI 0.15, 1.23) anxiety ($\beta = 1.57$, 95% CI 0.34, 2.80) and insomnia symptoms ($\beta = 1.43$, 95% CI 0.59, 2.27) were associated with more child gaming. Caregivers' insomnia symptoms were associated with increased passive digital media use only in boys. ($\beta = 1.44$, 95% CI 0.71, 2.17). Caregiver mental health symptoms did not associate with child physical activity.

Conclusion: This study highlights the potential relevance of caregiver mental health in shaping children's sedentary time, sleep and digital media use. These findings may inform the development of family-based interventions and public health strategies.

O.2.12-4

Correlates of Physical Activity and Motor Skills of Children Aged 3-6 Years Old: An Overview of Reviews

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Physical Activity (PA) and Motor Skills (MS) in young children are influenced by correlates operating at multiple levels as described by the socio-ecological model of Sallis et al. (2006). Previous studies that investigated correlates of PA and MS often examined these correlates in isolation, lack transferability to specific target groups or might be outdated today. Therefore, the aim of this overview of reviews is to synthesize the current evidence of the correlates of PA and MS in children aged 3- to 6-year-olds. These insights will guide the development of effective

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system approaches and provide directions for future research.

Methods: An overview of reviews (i.e., umbrella review) was conducted, following specific guidelines developed for overview of reviews (Fernandez et al., 2025; Gates et al., 2022). PubMed, PsycINFO and ERIC were searched for eligible studies from 2020 up until January 21, 2025. Inclusion criteria were formulated in line with the PECOS framework (Morgan et al., 2018). The Rayyan web tool was used for removing duplicates and assessing eligibility (Ouzzani et al., 2016). The quality of the included studies and study overlap were assessed with the AMSTAR-2 and GROOVE tools, respectively (Bracchiglione et al., 2022; Shea et al., 2017). Evidence synthesis was done with summary codes, leading to certainty of evidence per identified correlate.

Results: A total of 31 reviews/meta-analyses were included in this study. The number of primary studies per review/meta-analysis varied from 9 to 150 and were published between 1988 and 2023. In total, 323 distinctive correlates of PA and/or MS of 3- to 6-year-olds were identified. For most correlates, inconsistent evidence was found.

Conclusion: The inconsistent evidence found for most correlates underscores the highly context-dependent nature of PA behaviour and MS development in children. Moreover, confounders (e.g., sex, age, PA intensity level and type of MS) and the different definitions and assessment methods for PA and MS should be considered when investigating specific correlates in this target group.

Altogether, this overview of reviews provides a comprehensive overview of correlates that can be used to develop effective system approaches to increase PA and MS in young children.

O.2.12-5

Associations between 24-hour Movement Behavior Reallocations and Endothelial Dysfunction Biomarkers in Youth with Overweight and Obesity: An Isotemporal Substitution Analysis

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Endothelial dysfunction, characterized by impaired vasodilation and vasoconstriction, is an early and reversible marker of cardiovascular disease (CVD) and is more prevalent in youth with overweight and obesity (OW/OB). Although higher physical activity (PA) and lower sedentary time (ST) are associated with improved cardiometabolic profiles, little is known about how time reallocations between daily movement behaviors influence early indicators of vascular health. Isotemporal substitution analysis (ISA) is an approach to model the effects of replacing one behavior with another while holding total daily time constant. This study applied ISA to examine whether reallocating ST to PA or sleep was associated with biomarkers of endothelial dysfunction in youth with OW/OB.

Methods: Children aged 8–11 years with OW/OB wore activPAL accelerometers for seven days to capture time spent in ST, light-intensity PA (LPA), moderate-to-vigorous PA (MVPA), and sleep. Fasting blood samples taken directly after the activity monitoring week were analyzed for soluble intercellular adhesion molecule-1 (sICAM-1) and vascular cell adhesion molecule-1 (sVCAM-1). ISA models estimated effects of reallocating 10- and 18-minutes between behaviors, adjusting for age, sex, ethnicity, maternal education, and body fat (%).

Results: Participants (n=37; mean age=9.4±1.1y; 37.8% female; 62.2% Hispanic) accumulated 686±97 min/day of ST, 79±93 min/day of LPA, 36±18 min/day of MVPA, and 616±67 min/day of sleep. Reallocating 10 and 18 min of ST to LPA was associated with lower sICAM-1 (Δ =-2.36 and -3.80 ng/mL; 95% CIs -4.54, -0.18 and -7.38, -0.26; p=0.03), whereas reallocating 10 and 18 min of LPA to MVPA (Δ =8.46 and 14.03 ng/mL; 95% CIs 3.05, 13.86 and 5.91, 22.14; p<0.01) or sleep (Δ =4.24 and 8.05 ng/mL; 95% CIs 0.27, 8.22 and 0.56, 15.55; p=0.04) corresponded with higher sICAM-1. No reallocations were significantly associated with sVCAM-1.

Conclusion: Reallocating as little as 10 min/day of ST to LPA was linked to favorable sICAM-1 concentrations, suggesting that even modest behavioral changes may yield measurable vascular benefits in youth with OW/OB. Public health efforts that encourage short, frequent bouts of LPA throughout the day could be beneficial in reducing early CVD risk in this population.

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O.2.12-6

Leveraging Built-in Mobile Device Motion Sensors to Enhance Measurement of Mobile Device Usage in Children: Evaluating Model Performance across a Standardized Screen Time Protocol

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Objectively measuring how children use mobile devices is challenging, especially when devices are shared among family members. Passive sensing provides an objective way to track use, but it cannot reveal who is actually holding the device. Recent work suggests that motion sensor data might help identify users, yet these findings may be confounded by the types of applications used and have not been tested for temporal stability. This study tests whether models trained on standardized activities can reliably identify users, and whether this identification remains stable over time.

Methods: Thirty-seven parent-child dyads (children: 9.4 ± 1.8 years, 57% female; parents: 41.8 ± 6.7 years, 70% female) engaged in a ~30-min standardized protocol, where they played a counterbalanced series of games (i.e., Like a Dino, Block Blast, Toy Blast, Melon Maker) and watched YouTube videos on a Pixel tablet, while a sensor logging application captured tablet accelerometer and gyroscope data. Random Forest models were trained to classify each target user against three unseen test users using an 80/20 split, with performance averaged across target users. First, models were trained on four activities (Toy Blast, Melon Maker, YouTube, Like a Dino) and tested on one activity (Block Blast) to evaluate how models perform when participants are doing the same activities. Second, models were trained on the first instance of users watching YouTube and tested on the second instance of users watching YouTube (1 to 25-min gap) to evaluate temporal stability.

Results: When models were trained on four activities and tested on one activity, models performed well in predicting when it was *not* the target user (Specificity: 0.93 ± 0.13), and moderately when predicting when it *was* the target user (Sensitivity: 0.61 ± 0.41). When trained on the first instance of YouTube and tested on the second instance of YouTube, Specificity was also strong (0.93 ± 0.14), but Sensitivity was low (0.48 ± 0.43).

Conclusion: Although previously strong model performance does not appear to be driven by the model only identifying the game being played, the temporal instability highlighted in the current study warrants further investigation of this and other machine learning methods to identify mobile device users.

O.2.12-7

The Early Movers Pilot Intervention: Encouraging Healthy Movement Behaviours in Infants

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Adherence to the Canadian 24-Hour Movement Guidelines among infants (<1 years) is low across demographic groups, impacting overall development. To increase guideline dissemination and activation, the Early Movers Intervention was developed and piloted. The primary objectives of this study were to: 1) explore the feasibility of the Early Movers intervention protocol, including recruitment, retention, data collection, and procedures and 2) explore the acceptability of the intervention by parents and public health nurses.

Methods: In partnership with the local public health authority, Alberta Health Services, a randomised controlled trial (RCT) was conducted with 60 infants (Intervention: n=31; Control: n=29; Baseline: 2.3 ± 0.2 months old) and

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their parents. Participants were recruited from public health centres in Edmonton, Alberta Canada during routine 2-month immunization appointments. The intervention group received: 1) an educational resource (i.e., hand-out) regarding the 24-Hour Movement Guidelines from public health nurses at their 2-month immunization appointment and 2) follow-up support via access to a digital app with evidence-based information and support from an online toolkit as well as weekly text messages until their infant was 6 months old. The control group received standard care. Participation, retention, and data completion rates as well as app usage were tracked. Brief semi-structured interviews were conducted with 21 intervention group parents at 6-month follow-up and 10 public health nurses at study completion. Descriptive statistics and thematic analyses were conducted.

Results: For feasibility, the participation rate was 64%, the retention rate was 85%, and the data completion rate was 100%. A total of 26 intervention participants (84%) used the app, and these participants spent a total of 15±14 minutes using the app (27.5 minutes was estimated to complete all app content). Overall, intervention procedures were perceived as feasible by public health staff. For acceptability, there were consistent positive responses from both interviewed parents and public health nurses supporting the following acceptability constructs: perceived effectiveness, affective attitude, ethicality, low burden, opportunity cost, and self-efficacy.

Conclusion: The Early Movers Intervention was observed to be feasible and acceptable. Findings will inform an adequately powered RCT that aims to promote healthy infant movement behaviours and subsequently support optimal development.

O.2.12-8

Maternal Physical Activity Trajectories from Pre-conception to 12 Years Post-delivery and their Associations with Children's 24-hour Movement Behaviour Composition: Findings from the GUSTO Cohort

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O.2.12 Children & Families: Early Life Health: Parenting, Movement Behaviors, and Developmental Outcomes, Auditorium, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Patterns of maternal physical activity (PA) across the transition into and throughout motherhood may influence both maternal well-being and children's movement behaviours. However, little is known about how maternal PA evolves from before pregnancy into the second decade of their child's development, or how these long-term trajectories relate to children's PA and sedentary behaviour (SB). This study aimed to identify distinct trajectories of maternal PA from pre-conception to 12 years post-delivery and examine their associations with children's 24-hour movement behaviour compositions at age 12.

Methods: In the Growing Up in Singapore Towards healthy Outcomes (GUSTO) cohort, maternal PA was assessed repeatedly 5 times from pre-conception to 12 years post-delivery using interviewer-administered questionnaires capturing PA intensity, frequency, and duration, from which total MET-hours/week were calculated. Latent growth mixture modelling identified maternal PA trajectories. At age 12, children's 24-hour movement behaviours (SB, light-intensity PA (LPA), moderate-to-vigorous PA (MVPA), and sleep) were measured using wrist-worn accelerometers. Associations between maternal PA trajectories and children's movement behaviours were examined using compositional data analysis, adjusting for maternal and child sociodemographic and anthropometric factors.

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Results: A total of 900 women with PA data at three or more timepoints were included in the trajectory analyses; 466 of their children with valid accelerometer data were included in the compositional analyses. Three maternal PA trajectories were identified: consistently low PA (44.1%); high-to-lower PA with higher pre- and early-pregnancy PA that declined over the 12 years following delivery (19.2%); and low-to-higher PA, with initially low PA that increased during the post-delivery (36.6%). Maternal PA trajectory membership was associated with children's overall 24-hour movement composition ($p=0.049$). Compared with children of mothers with consistently low PA, those whose mothers' PA decreased over time accumulated less LPA, more SB, and less sleep per day. No notable differences in MVPA were observed.

Conclusion: Three distinct maternal PA patterns from pre-conception to 12 years post-delivery were identified in our study. These trajectories are associated with children's movement behaviours, underscoring the importance of parental role modelling in promoting children's behaviour during the dynamic parenting years and throughout the life course.

O.2.13-1

Developing a Context-specific Evaluation Framework for Physical Activity and Sedentary Behavior Interventions in Thailand

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes
Room 1, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: To develop and disseminate a Thailand-specific evaluation framework for physical activity and sedentary behavior interventions that is practical for local implementers while also methodologically robust to inform policy and scale-up.

Methods: We executed four sequential phases: (1) synthesized core structures from 13 related international frameworks (e.g., CDC program evaluation framework, NHS Standard Evaluation Framework); (2) conducted Scoping Review and Systematic Review of Thai physical activity and sedentary behavior intervention studies (2014–2024), by searching five international databases (PubMed, Embase, Web of Science, Scopus, Cochrane Library) and Thai databases; (3) co-designed the framework through iterative consultations with national and international experts; and (4) delivered capacity-building and testing of the developed materials via interactive workshops, a web application, and a support system for free rental and training on research-grade accelerometers (e.g., ActiGraph™).

Results: The final guideline integrates elements from 13 frameworks into a coherent pathway of 3 phases and 6 steps, with practical templates for stakeholder mapping, context assessment, theory of change and logic model reconstruction, indicator selection (with SMART examples), data quality checks, and reporting standards aligned to process and outcome evaluation. Analytic guidance emphasizes fit-for-purpose designs (e.g., difference-in-differences for non-randomized settings, cluster designs when appropriate) and explicit causal assumptions. The national literature review ($n = 163$) identified gaps the framework directly addresses: heavy reliance on self-report; limited device-based measurement with pedometers predominating and minimal accelerometer use; scarce formal process evaluation; infrequent long-term follow-up; and absent economic evaluation or scalability planning. The framework, web application, and device-lending/training system were piloted with implementers and evaluators, establishing pathways for routine use of objective measurement and standardized analytic and reporting practices.

Conclusion: By coupling clear evaluation steps with accessible tools (digital platform, device lending, and training), this context-appropriate framework can raise the quality and comparability of physical activity and sedentary behavior evaluations in Thailand. In turn, stronger evidence will better support decision-makers in prioritizing effective interventions and sustaining physical activity and sedentary behavior promotion within constrained public health budgets.

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O.2.13-2

Association between Bikeability and Cycling: The Role of Ethnicity (YAHEE Project)

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes
Room 1, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Active transport, such as cycling, contributes to an active lifestyle and while the Netherlands is often considered a global benchmark for cycling, evidence on whether all population groups benefit equally from a bike friendly environments (bikeability) is lacking. This study examines ethnic differences in exposure to bikeability and its association with cycling behavior in Amsterdam.

Methods: As part of the Young Adults in Health-enhancing Equitable Environments (YAHEE) project, we used data from 18,916 participants (18-70 years old) from the Healthy Life in an Urban Setting (HELIUS) multi-ethnic cohort (Amsterdam), including 1,990 young adults (18-25 years old). An objectively measured bikeability index, comprising four subcomponents (safety/comfort, attractiveness, directness, coherence), was computed within a 0.5-2.5km residential buffer using data from the Geoscience and Health Cohort Consortium (GECCO). Welch's ANOVA and Tukey HSD post-hoc analyses assessed ethnic differences. Ethnicity-stratified linear regressions examined associations between bikeability(subcomponents) and self-reported commute and leisure cycling (SQUASH-questionnaire), adjusting for sociodemographic factors. Moderation analyses tested education and acculturation effects.

Results: Bikeability differed by ethnicity in both age groups ($p < .001$). Dutch participants were exposed to more bikeable environments; with higher directness and coherence but lower safety/comfort and attractiveness. For commute cycling: higher bikeability related to more cycling in Dutch and African Surinamese participants (e.g., in Dutch $B = 0.51$, $95\%CI = 0.17-0.85$). For leisure time cycling: bikeability was positively related in Dutch, African Surinamese, and Turkish (e.g. African Surinamese $B = 1.44$, $95\%CI = 0.75-2.14$). For the subcomponents directness and coherence were positively associated, whereas safety/comfort and attractiveness were negatively associated, with commute and leisure time cycling, albeit with differences in effect sizes and statistical significance per ethnic group. Education moderated only in Dutch: among young adults effects were stronger for vocational vs higher education groups ($B = 2.15$, $95\%CI = 0.13-4.17$), but weaker with primary/no education in the full sample ($B = -2.92$, $95\%CI = -5.41-0.44$). Acculturation moderated the associations only in African Surinamese young adults: with higher acculturation the association bikeability and cycling was stronger ($B = 8.88$, $95\%CI = 1.31-16.45$).

Conclusion: This study provides evidence of inequities in bikeability in Amsterdam. Findings highlight that infrastructure improvements alone may not increase cycling. Further research is needed to understand which strategies can promote cycling in a multi-ethnic population.

O.2.13-3

How Can Advocates Leverage Power to Advance Comprehensive Regulation on Ultra-processed Foods? Learning from Advocate Experience in Argentina

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes
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Purpose: The use of corporate power to undermine public health policy processes is increasingly well understood; however, relatively little scholarship examines how advocates can leverage power to promote the successful adoption

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of public health policies. The objective of this paper is to explore how advocates leveraged three forms of power – structural, instrumental and discursive – to promote the passage of the Promotion of Healthy Eating Law (Ley 27,642) in Argentina, one of the most comprehensive policies to introduce mandatory front-of-package (FOP) warning labels and regulate the marketing and sales of ultra-processed foods (UPFs) adopted to date.

Methods: We conducted seventeen semi-structured interviews with advocates from different sectors, including civil society, international agencies, and government. Both data collection and analysis were guided by Milsom's conceptual framework for analyzing power in public health policymaking, and the data was analyzed using hybrid deductive and inductive thematic analysis.

Results: Advocates harnessed structural power through the leveraging of revolving doors, informal alliances, and formal coalitions, enabling them to convene discussion spaces with decision-makers, make strategic use of limited resources, and cultivate the diverse expertise (e.g., research, nutrition science, advocacy, law, political science, activism and communications) needed to support the law through different phases of the policy process. Advocates wielded instrumental power by amassing an armada of localized evidence to promote robust policy design, building technical literacy amongst themselves and decision-makers, and exposing conflicts of interest to harness public pressure. Advocates exercised discursive power by adopting a rights-based discourse, including of children and adolescents and of consumers to transparent information, which enabled advocates to foster a favorable perception of the law amongst both decision-makers and the public. Key contextual enablers include a political window of opportunity, the COVID-19 pandemic, and the ability to learn from the regional precedent of similar policies.

Conclusion: Public health policymaking, particularly when encroaching upon corporate interests, is characterized by stark imbalances of power that hinder policy decisions. The strategies identified in the case of Argentina provide important insights as to how advocates might harness and exercise structural, instrumental, and discursive power to counter corporate influence and promote the successful adoption of comprehensive UPF regulation.

O.2.13-4

Evaluation and Prioritization of Food Environment Policies in Türkiye Using the Healthy Food Environment Policy Index (Food-EPI)

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes
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Purpose: Türkiye is facing an alarming rise in diet-related non-communicable diseases, with obesity rates anticipated to reach 36%. Tackling this issue demands a more proactive policy approach that fosters healthier food environments and supports long-term dietary improvements. The purpose of this study is to identify and evaluate policies implemented to create healthy food environments in Türkiye, using the Healthy Food Environment Policy Index (Food-EPI) framework.

Methods: The Food-EPI process in Türkiye was carried out in five main stages. First, the domains and indicators included in the tool were contextualized and adapted to the national setting. Second, international benchmarks were compiled, and evidence on national policies was gathered. Third, national experts assessed the implementation level and suggested improvements. Fourth, workshops were held to review results and identify policy gaps. Finally, experts prioritized proposed actions.

Results: None of the food policy or infrastructure support indicators in Türkiye reached a 'high' level of implementation, with half of the policy indicators (50%) and more than half of the infrastructure support indicators (54%) assessed as having a 'low' level of implementation. The two most important policy and infrastructure support actions are as follows, respectively: (1) reducing taxes on healthy and staple foods, (2) supporting healthy, local, and minimally processed food systems through agricultural policies and direct-to-consumer sales; (1) increasing dietitian employment in primary care to enhance nutrition monitoring, and (2) implementing systems to track children's growth, fitness, and eating habits throughout life. According to expert opinions, the implementation of most policy indicators has the potential to create a small reduction in socioeconomic inequalities. However, two policy domains — food promotion and food provision — were identified as having the potential to significantly reduce socioeconomic inequalities.

Conclusion: Türkiye shows weak implementation across several critical areas of food environment policy, including

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marketing restrictions, fiscal measures, and healthy food standards in schools and public settings. Without targeted and equity-focused interventions, Türkiye risks missing its health and nutrition goals. Strengthening multisectoral governance and prioritizing vulnerable groups will be essential.

O.2.13-5

Can Safe Routes to School Keep Children Moving? Evidence from the STREETS Project in Austin, Texas, USA

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes
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Purpose: Active commuting to school (ACS) can contribute up to 48% of the daily physical activity recommendations for children and adolescents. However, over the past 50 years, ACS rates in the United States have declined dramatically. The *Safe TRavel Environment Evaluation in Texas Schools* (STREETS) project evaluated the effects of a \$27.5 million USD municipal bond investment in Safe Routes to School (SRTS) infrastructure in Austin, Texas, USA, on children's ACS participation and accelerometer-based physical activity.

Methods: Two complementary natural experiments were conducted between Spring 2019 and Spring 2024. A serial cross-sectional study assessed school-level changes in the prevalence of ACS (n=84 schools), and concurrently, a prospective cohort followed children from 3rd to 5th grade (analytic n=275), measuring physical activity levels over time using accelerometers. Exposure was defined by school proximity (<1 mile) to completed SRTS infrastructure projects. Mixed-effects regression models examined associations between SRTS project implementation status in nearby roads to each school (no construction, during construction, completed project(s)) and ACS prevalence (study 1) and child accelerometer-based physical activity (total and MVPA) over time, adjusting for demographic, school, and environmental covariates (study 2).

Results: In both studies, exposure to completed SRTS infrastructure projects was associated with an apparent attenuation of the expected age-related declines in ACS participation and physical activity. During construction periods, temporary declines in school-level ACS participation and accelerometer-based PA were observed. At follow-up, ACS participation in infrastructure schools was attenuated compared to ACS participation in schools without infrastructure ($p < 0.05$). Among cohort participants, children unexposed to infrastructure improvements showed significant declines in total PA and MVPA compared to those attending schools with completed SRTS projects. Children exposed to two or more infrastructure projects exhibited no significant decline in MVPA between 3rd (48.0 min/day; 95%CI: 46.2, 49.9) and 5th grade (40.2 min/day; 95%CI: 32.3, 48.0).

Conclusion: Large-scale SRTS infrastructure investments may mitigate age-related physical activity declines by supporting ACS. While short-term construction disruptions can reduce activity, longer-term exposure to completed infrastructure appears protective. Findings highlight the importance of longer-term follow-up periods in natural experiment evaluations to fully capture the possible benefits of built environment transformations on child travel-related behaviors.

O.2.13-7

Healthy or Unhealthy by Design? an Indicator-based Analysis of Digital Food Choice Environments of Major Dutch Supermarket Chains

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes
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Purpose: Food environments influence food choices, and the digital transition has increasingly shifted food purchasing to digital food environments, like supermarket apps and meal delivery services. Robust indicators are essential for accurately assessing exposure to unhealthy food environments, understanding associations with health outcomes, and informing policy. While indicators are well developed for physical supermarkets and for online assortment and promotions, indicators for digital *choice architecture* are only beginning to emerge. This project aimed to develop indicators for digital food choice environments and to assess the extent to which the online supermarket landscape in the Netherlands supports healthy food choices.

Methods: Two observational substudies using an indicator-based analysis of major online supermarkets, were conducted. Drawing on the choice architecture framework (Münscher et al., 2016), we iteratively developed indicators reflecting decision information, structure, and assistance. In substudy 1, a broad set of indicators covering eight app functionalities was employed. In substudy 2, we focused more narrowly on the search and checkout functions using a granular set of indicators. Data were collected in November 2024 and April-May 2025.

Results: For substudy 1, across all indicators, online supermarkets generally favoured unhealthy over healthy products. For example, on product-pages, recommended products were often unhealthy, only one supermarket allowed filtering recipes by healthiness, and hedonic visual cues were more common than healthy ones. In Substudy 2, 3/4 of supermarkets recommended products at checkout. Although the top product in the checkout was always healthy (66.7%) or non-food (33.3%), the overall nutritional profile of recommended products was skewed: 52.7% were unhealthy, 34.7% healthy, and 12.5% non-food. A similar pattern emerged in the search function. While healthy products appeared more often in the top half of the search results ($M=2.3$, $SD=2.2$) compared to the lower half ($M=1.7$, $SD=2.0$), the majority of products returned were still unhealthy. Inter-rater reliability and stability over time were high (Krippendorff's α 's and ICC's > 0.9).

Conclusion: Both substudies show that online supermarkets generally promote unhealthy over healthy products, mirroring patterns seen in physical supermarkets. The indicators proved to be reliable and stable across time points, confirming the indicators' suitability for longitudinal and comparative research.

O.2.13-8

Understanding Local Food Policy Agenda-setting: A Multiple Streams Analysis of the Dutch City Deal Network on Healthy and Sustainable Food Environments

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O.2.13 Policies and environments: Safe Routes, Food Systems and Power in Local Policy Processes

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Purpose: Despite growing attention to local food policies as a means to transform unhealthy food environments, little is known about how these policies make their way into municipal agendas. This study compares municipalities within the Dutch *City Deal: Healthy and Sustainable Food Environment* to understand why some succeed in placing food strategies and zoning regulations on the agenda while others do not.

Methods: Using Kingdon's Multiple Streams Framework (MSF), we conducted a qualitative comparative case study of ten Dutch municipalities. Interview data from 14 policymakers and policy documents were coded according to the MSF streams and analysed to explore how and through which mechanisms the theoretical expectations of the framework were reflected in local policy processes. We examined whether and how hypothesised conditions, such as problem recognition, feasibility and acceptability of the policy and changes in the political environment, were realised across municipalities.

Results:

Six municipalities adopted a local food strategy. Rising obesity rates, health inequalities, and unsustainable food systems framed the food environment as a public issue, though in some cases it was also viewed as an economic opportunity. Political attention often depended on the presence of an alderman responsible for food, while strategies linked to broader health or sustainability agendas benefited from existing capacity and resources. In contrast, municipalities without a strategy lacked urgency, clear framing, or leadership, and some considered the topic too politically sensitive.

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No municipality had fully adopted zoning policies, but four were experimenting with restrictions or advertising rules. In these municipalities, policy and political entrepreneurs successfully framed fast-food dominance as a threat to health, spatial quality and local economy, mobilising support for regulatory action. Elsewhere, perceived legal uncertainty and fears of paternalism prevented progress despite technical options being available.

Conclusion: The MSF provided an useful analytical lens to examine how theoretical expectations of agenda-setting manifest in practice. Findings largely confirmed these expectations: successful agenda-setting depended on the alignment of issue framing, institutional capacity, and political culture. For zoning policies, ideological alignment and framing strategies were particularly influential, indicating that addressing perceptions of paternalism is essential for advancing regulatory measures.

O.2.14-1

Staying on Track: Exploring Experiences and Needs to Sustain Healthy Behavior after a Lifestyle Intervention

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: The rise in non-communicable chronic diseases calls for effective support of healthy lifestyle behaviors. Combined lifestyle interventions (CLI), aimed at reducing weight-related health risks through behavior change, seem successful in initial behavior change. However, sustaining healthy lifestyle behaviors after completing lifestyle interventions remains challenging. This study explores the experiences and needs to sustain healthy behavior after a lifestyle intervention of CLI providers and individuals who successfully completed a CLI in the Netherlands.

Methods: We conducted semi-structured online interviews with 17 adults who successfully completed a CLI. Additionally, four focus groups (three onsite, one online) were held with 22 CLI providers representing various CLI-programs and professional backgrounds. Data were audio-recorded, transcribed verbatim, and thematically analyzed using an iterative, inductive approach.

Results: In the interviews, participants highlighted the crucial role of social support in sustaining healthy behaviors after CLI, such as continued peer contact in informal meetings or sport groups. Participants emphasized the need for ongoing guidance after a CLI, through brief follow-ups, either in person or digitally. Participants expressed a preference for accessible, interactive support tools combining personalized feedback, social connection, and reminders, introduced during the CLI itself. In the focus groups, CLI-providers indicated to be available for ongoing support, but only at the initiative of participants. Both respondent groups mentioned digital tools as potentially helpful in post-CLI behavior maintenance, including apps for communication (chat or video calling), and for behavior tracking (physical activity, dietary habits, or emotional well-being). CLI-providers mentioned systemic barriers to provide support after CLI, including lack of structural funding, a shared national approach, and lack of collaboration between CLI-providers.

Conclusion: Sustaining healthy behaviors after CLI requires accessible, socially embedded, and personalized support. Guided peer interaction, self-monitoring tools, and brief in-person or digital follow-ups can enhance long-term maintenance. Addressing systemic barriers, including fragmented post-CLI support and lack of national coordination, is crucial. Findings will be used in a follow-up study into the design of a digital support tool for maintenance of healthy behaviors.

O.2.14-2

Body Image Satisfaction and Life's Essential 8 Cardiovascular Health: A Longitudinal Analysis from the SI! Program for Secondary Schools Trial

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: Adolescence is a period in which body image satisfaction (BIS) gains relevance and may influence lifestyles, with possible effects on cardiovascular health (CVH). The study aims to evaluate the relationship between BIS and CVH using the Life's Essential 8 (LE8) score over adolescence.

Methods: 1321 adolescents from the SI! Program for Secondary Schools trial were assessed at baseline (12.5 [±0.4] years, 48.4% girls), and after 2- and 4- years follow-up. Validated questionnaires were used for assessing BIS, diet and nicotine exposure. Validated tools were used to measure physical activity, sleep time, height, weight and blood pressure. Capillary blood samples were collected in fasting status to measure blood glucose and lipids. Associations were estimated using linear and logistic mixed models stratified by gender, and adjusted for age, educational level, migrant background, and randomization group as fixed effects, and region and schools as random effects.

Results: At age 12, adolescents desiring to lose weight (DTL) showed the lowest LE8 CVH score (76.4 [± 9.5]) compared to body-satisfied adolescents (82.0 [± 7.2]) and to those desiring to gain weight (DTG) (83.0 [± 8.0]). 53.3% of adolescents presented ideal CVH, but the proportion varied according to BIS (satisfied: 65.8%; DTL: 38.6%; DTG: 69.3%). After a 4-years follow-up, CVH significantly worsened, with a larger impairment in adolescents DTL (-4.1 [95% CI: -5.0; -3.2]), compared to body-satisfied participants (p-value: 0.014). In gender-stratified analysis, similar differences were observed for boys DTL (-4.7 [95% CI: -5.9; -3.4]). Between-groups differences in LE8 impairment over time were mainly driven by a larger impairment in physical activity among adolescents DTG and by worse blood pressure scores among those DTL, compared to body-satisfied adolescents.

Conclusion: BIS was consistently associated with CVH throughout adolescence, with a better CVH in body satisfied adolescents, and with a worse cardiovascular profile in adolescents DTL. Health promotion programs targeting adolescents should reinforce body image acceptance, considering its association with healthy lifestyle behaviors, beyond weight status.

O.2.14-3

Longitudinal Trends in Physical Activity, Screen Viewing and Sedentary Behaviour among Pre-school Children

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: To describe longitudinal trajectories of light physical activity (LPA), moderate-to-vigorous PA (MVPA), sedentary behaviour (SB), and screen viewing time (SVT) in Singaporean children aged 2–6 years and identify key socio-demographic predictors.

Methods: We used data of 325 children included from birth as part of the S-PRESTO cohort in Singapore. At ages 2, 3 and 6, parent reported LPA, MVPA, SB, and SVT using questionnaires. Population-averaged generalized estimating equations (GEE) with an exchangeable correlation structure, and robust standard errors were used. Models were adjusted for school year, sex, ethnicity, and maternal age, education, BMI, and SVT.

Results: Mean (95% CI) total PA time increased from 198.3 min/day (194.6–202.1) at Year 2 to a peak of 471.9 min/day (467.5–476.4) at Year 3, then declined to 188.8 min/day (184.7–192.8) by Year 6. LPA and MVPA followed similar trajectories, peaking at Year 3 (LPA: 356.9 min/day (353.4–360.5); MVPA: 115.0 min/day (113.3–116.7)). SB showed a U-shaped pattern, decreasing from 496.0 min/day (491.0–500.9) at Year 2 to 355.0 min/day (350.5–359.4) at Year 3, then increasing to 441.7 min/day (436.8–446.6) by Year 6. SVT rose steadily from 82.6 min/day (80.2–84.9) at Year 2 to 132.8 min/day (130.1–135.5) at Year 6.

Adjusted models showed lower daily LPA time in girls ($\beta = -18.3$ [-34.8, -1.8] min/day) and higher in non-Chinese children (+26.7 [6.1, 47.4] min/day). MVPA was higher among non-Chinese (+16.5 [6.4, 26.5] min/day) and children of mothers with overweight/obesity (+11.5 [0.1, 22.8] min/day). SB was higher in non-Chinese children (+52.3 [18.6, 86.0] min/day). Daily SVT was greater in non-Chinese children (+32.0 [13.5, 50.5] min/day) and increased with higher maternal SVT (>180 min/day; $\beta = +15.2$ [1.1, 29.4] min/day), BMI (+23.1 [5.7, 40.5] min/day), and age (+2.54 [0.3, 4.8] min/day per year), but was lower with maternal university education (-45.5 [-63.9, -27.2] min/day).

Conclusion: Our study shows that Singaporean preschool children experience important changes in movement behaviours. Those changes are predicted by child sex and ethnicity, maternal education and BMI. Interventions should target the critical Year 3–4 transition and promote parental role-modelling.

O.2.14-4

Effectiveness of Integrating a Lifestyle Front Office in Hospital Care for Patients with Lifestyle-related Diseases: The LOFIT Randomised Controlled Trial

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

Room 2, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: In many clinical guidelines lifestyle medicine is recommended as treatment option for diverse noncommunicable diseases. However, healthcare professionals experience barriers such as limited time, lack of skills and lack of knowledge to implement this in usual practice. Therefore, in the Netherlands, lifestyle front offices were integrated in hospital care for patients with lifestyle-related diseases to facilitate tailored lifestyle counselling and referral to community-based lifestyle initiatives. The LOFIT study aims to evaluate the effectiveness of implementing these lifestyle front offices in hospital care on a composite lifestyle and health risk outcome.

Methods: A pragmatic randomized controlled trial was conducted among patients recruited from three outpatient clinics in the Netherlands. Patients with (an increased risk for) cardiometabolic or musculoskeletal disorders and aged ≥ 18 years were eligible. Further inclusion criteria comprised BMI ≥ 25 kg/m² and/or current smokers. Patients were randomized to either the intervention or a usual care group. The intervention consisted of a face-to-face motivational interviewing session with a lifestyle broker, who motivated and supported patients in identifying and accessing suitable community-based lifestyle initiatives. The primary outcome was the adapted Fuster-BEWAT score at 12 months, a composite health and lifestyle measure comprising resting systolic and diastolic blood pressure, objectively measured physical activity and sedentary time, body mass index, fruit and vegetable intake, and smoking behavior. Analyses followed the intention-to-treat principle, using mixed-effects models to evaluate between-group differences over time, adjusted for baseline values.

Results: Between April 2022 and May 2024 a total of 740 patients were assessed for eligibility. Of these 415 (56%)

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were excluded, and 325 were randomly assigned (162 to the intervention group and 163 to the no treatment control group). 52% of the patients were women and the mean age was 54.0 years ($\pm$ SD 12.9). The intervention was effective and showed a significant improvement in the health risk and lifestyle score (0.74 95%CI 0.06 to 1.42).

Conclusion: This study provides evidence on the effectiveness of an integrated hospital- and community-based lifestyle care model. A lifestyle front office is a scalable strategy to embed lifestyle medicine within routine hospital care, promoting sustainable health behavior change and improved clinical outcomes.

O.2.14-5

The Impact of Taxation, Subsidies, and Warning Messages on Consumers' Healthy and Sustainable Online Food Purchases

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: Excessive red and processed meat (RPM) consumption in Belgium poses environmental and health risks, while fruit, vegetable, and legume (FVL) intake remains insufficient. Traditional interventions such as labeling yield limited effectiveness, while fiscal policies have shown mixed results. This study investigates whether combining fiscal interventions (taxes on RPM, subsidies on FVLN) with FoP warning labels (health, environmental, or combined) promotes healthier, more sustainable food choices among Belgian consumers, and whether eco-anxiety moderates intervention effectiveness. This research innovatively evaluates comparative and combined effects of fiscal and informational interventions in an incentive-compatible virtual supermarket, providing ecologically valid insights into behavioral mechanisms underlying sustainable dietary shifts.

Methods: A 4 (Warning Message: Control, Health, Environment, Combined) $\times$ 2 (Fiscal Policy: Absent vs. Present) between-subjects design was implemented with 3200 Belgian adults. Participants completed three-day online grocery shopping in an incentive-compatible virtual supermarket replicating Belgian retailers with over 10,000 products. Fiscal intervention: 30% tax on RPM, 30% subsidy on FVL. Outcomes included purchase probability, quantity (grams), spending (€) for RPM and FVL, nutritional quality, and basket CO₂ emissions. Eco-anxiety was examined as a moderator.

Results: Fiscal interventions consistently reduced probability and grams of RPM purchases while increasing FVL gram purchases. These interventions altered spending patterns, with higher per-buyer spending on RPM and lower spending on subsidized FVL. Combined fiscal and warning messages yielded largest improvements across purchase behavior, nutritional quality, and environmental outcomes, including lower CO₂ emissions from RPM and higher emissions from FVL. Warning messages alone had minimal or inconsistent effects. Eco-anxiety significantly amplified the effects of fiscal intervention: participants with higher eco-anxiety showed larger reductions in RPM purchases, stronger shifts in spending, although it did not consistently influence overall nutritional quality or total basket CO₂ emissions.

Conclusion: Fiscal interventions outperform warning labels alone, with combined strategies producing comprehensive improvements. Findings demonstrate how economic incentives integrate with behavioral insights to shift dietary behavior. Eco-anxiety's moderating role suggests emotional engagement enhances intervention effectiveness. Methodologically, the research demonstrates utility of incentive-compatible virtual supermarkets for ecologically valid behavioral experiments. Results support implementing taxes on red/processed meat and subsidies for FVLN, showing combined strategies meaningfully promote sustainable diets at population level.

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O.2.14-6

Effects of a Two-year Primary Care Behavioural Lifestyle Intervention on Weight Loss among Patients with Obesity and Prediabetes

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: The purpose was to determine the effectiveness of treatment for obesity delivered in primary care on weight loss among adults with obesity and prediabetes.

Methods: Eighteen primary care clinics participated in the Promoting Successful Weight Loss in Primary Care in Louisiana (PROPEL) cluster randomized trial. Clinics serving primarily low-income patients were randomized to a 24-month intensive lifestyle intervention (ILI) for weight loss or to usual care (UC). Patients in the ILI participated in a high-intensity behavioural program focused on reduced caloric intake and increased physical activity delivered by health coaches embedded in the clinics. Patients in the UC group received their usual care from their healthcare providers. Percent weight loss from baseline was calculated at months 6, 12, 18 and 24 months, and differences between groups were tested using linear mixed-effects multi-level models including age, sex and race as covariates, and included random cluster (clinic) effects.

Results: The full sample in the PROPEL trial included 803 adults. The analytic sub-sample included in the present analysis consisted of 174 patients (99 ILI; 75 UC) with obesity (BMI ≥ 30 kg/m²) and prediabetes (fasting glucose 100 – 125 mg/dL with no diagnosis of diabetes). A total of 86% of the sample were female and 64% were African American. The mean (SD) age and BMI at baseline were 50.8 (11.9) y and 37.6 (4.6) kg/m², respectively. At 24 months, weight change in the ILI was -5.09% (95% CI: -6.87, -3.31) compared to 0.02% (-1.84, 1.88) in the UC group. The mean difference between the two groups for weight loss was -5.11% (-7.48, -2.75%; $p < 0.0001$). Similarly, the mean difference between the two groups for change in waist circumference was -4.74 cm (-6.96, -2.52; $p < 0.0001$) favouring the ILI group.

Conclusion: A behavioural lifestyle intervention consistent with current guidelines was effective at producing clinically significant weight loss over 2 years in a high-risk, underserved population with obesity and prediabetes.

O.2.14-7

Effect of the RISE Intervention on 24-hour Movement Behaviour in People with First-ever Stroke: A Randomized Controlled Trial

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: A balanced 24-hour movement behaviour (sedentary behaviour (SB), physical activity and sleep) is expected to reduce the risk of a new major cardiovascular event or mortality (MACE) after stroke. This study evaluates the effectiveness of the RISE (*Reduce and Interrupt Sedentary behaviour using a blended behavioural intervention to Empower people at risk towards sustainable 24-hour movement behaviour change*) intervention on changes in 24-hour movement behaviour in community dwelling people with a first-ever stroke and high-risk sedentary profile, compared to usual care.

Methods: In this randomized controlled trial (N=119), participants were randomly assigned to either the *experimental*

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group (RISE intervention and usual care) or the *control group* (usual care). RISE is a 15-week blended care intervention: primary care physiotherapists coach people in their home setting using behaviour change techniques and the RISE eCoaching system. This system consists of: (1) an activity monitor, (2) a smartphone application that provides real-time feedback and contains e-learning modules and (3) a monitoring dashboard for the physiotherapist. A close relative of the participant is involved during the intervention to provide social support. The primary outcome was change in 24h movement behaviour (short SB (<30 minutes), prolonged SB (≥30 minutes), light physical activity (LPA), moderate to vigorous physical activity (MVPA) and sleep), objectively measured with accelerometers at baseline (T0) and post-intervention (T1). Compositional data were expressed as proportions of a 24-hour day and transformed into isometric log-ratio (ilr) coordinates to account for the co-dependency of 24-hour data. Changes in ilr-coordinates (T1-T0) were analyzed using multivariate analysis of variance (MANOVA) and follow-up univariate tests. Perturbation-based compositional differences were visualized using ternary plots.

Results: Complete dataset and analyses will be available at the end of 2025.

Conclusion: We anticipate that the RISE intervention will improve the 24-hour movement behaviour composition by replacing short and prolonged SB with LPA or MVPA, demonstrating that a 24-hour behaviour change is achievable through a 15-week blended behavioural intervention. If confirmed, these changes could contribute to secondary prevention of MACE in individuals after a first-ever stroke.

O.2.14-8

Development and Pilot of a Healthcare Professional Training Programme on 24-hour Movement Behaviours in Multiple Long-term Conditions

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O.2.14 Motivation and behaviour change: Advancing Care and Prevention: Strategies for Movement and Dietary Behaviors

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Purpose: We aimed to develop and pilot test a theory and evidence-based training programme for HCPs focused on supporting 24-movement behaviours (physical activity, sitting time and sleep) in people living with multiple long-term conditions (MLTCs).

Methods: Intervention Mapping (IM) guided the programme development. Literature review data (n=23 articles), five qualitative focus groups with HCPs (n=31), and two Patient and Public Involvement groups informed the needs assessment step of IM. Determinants of HCP behaviour were mapped to Behaviour Change Techniques (BCTs) and applied to the training. A collaborative, multidisciplinary group developed the training curriculum and materials. Training was pilot tested as a one-day, free course with a pre-post and 3 month follow up mixed-method online survey measuring participants self-rated knowledge of movement behaviours, self-efficacy in behaviour change, and Shared Decision Making (SDM) skills (SDM-Q-Doc-9). Pre-post results were analysed using the Wilcoxon Signed Ranks T-Test and content analysis of free-text responses.

Results: The needs assessment found that HCPs require knowledge on 24-hour movement behaviours and guidelines, skills in communication and SDM, and self-efficacy in behaviour change (e.g. action planning) to support people with MLTCs with 24-hour movement behaviours. These topics were incorporated into the training and resource pack with BCTs to change HCPs knowledge, skills and self-efficacy (e.g. behavioural practice).

Twenty-two HCPs attended the training (67%); 12 (54%) completed pre and post-training surveys and 9 (41%) completed follow-up surveys. Participants mean age was 44 (SD=12.4) and median years of experience was 3.5 (IQR=2.6-8.0). Following training, increases were found in SDM skills scores (mean=60±80), knowledge across all movement behaviours (from reasonable to good), and self-efficacy in behaviour change (from slightly or moderately confident to very confident), except planning. Qualitative responses indicated that the practice-based components were particularly valuable, however that the training could be improved with less repetition and shorter breaks to maintain engagement. Follow-up results are currently being analysed.

Conclusion: We developed and delivered a theory and evidence-based training programme to enhance HCPs knowledge, skills and confidence to support 24-hour movement in MLTCs. Further research should refine the programme and evaluate its impact on clinical practice and patient outcomes.

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O.2.15-1

Harmonising Sociodemographic Variables and Behavioural Outcomes for Individual Participant Data Meta-analysis: A Case Study in Early Childhood Obesity Prevention

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Outcomes assessing obesity-related behaviours, such as diet, feeding, physical activity, and sleep are often defined, measured and collected differently across trials, limiting the ability to compare and synthesise evidence. Similarly, sociodemographic data, such as ethnicity, education, and employment are often collected heterogeneously, precluding examination of health equity issues. We aimed to develop methods to harmonise variables and outcomes in a large systematic review and individual participant data (IPD) meta-analysis of early childhood obesity prevention interventions commencing during pregnancy or <12 months after birth.

Methods: We established the Transforming Obesity Prevention for Children (TOPCHILD) Collaboration, comprising over 70 researchers across 47 institutions. Investigators from 31 randomised trials evaluating parent-focused behavioural interventions for early child obesity prevention shared their line-by-line IPD and accompanying codebooks, generating a large dataset of 28,825 participants. To derive a process for harmonising these data, we conducted a literature review, drew on experiences from previous IPD and prospective meta-analyses, and consulted experts in the field, including members of the Cochrane Prospective Meta-Analysis Methods Group and the SMART-IPD Methods Group.

Results: We developed a step-by-step process for harmonisation:

1. **Collation:** Collecting detailed information on variables and outcomes across eligible trials, including definitions, measures, and timepoints.
2. **Mapping:** Aligning trial-specific data to TOPCHILD target variables to assess equivalence.
3. **Standardisation:** Using algorithmic transformations (e.g. recoding categories), unit calibration (e.g. pounds to kilograms), and score rescaling to achieve comparability.
4. **Consensus:** Conducting workshops with topic experts to decide on standardisation rules while preserving scientific validity.
5. **Documentation:** Recording all decisions and rules transparently.
6. **Application:** Re-coding datasets for analyses and sharing harmonised variables with ongoing trials to promote prospective harmonisation.

Harmonisation across trials enabled high-quality evidence generation on intervention effects on child weight status, breastfeeding, diet, physical activity, and sleep. Harmonised sociodemographic data also facilitated subgroup analyses to explore equity-related differences in intervention effects.

Conclusion: Our harmonisation framework supports the standardisation of behavioural and sociodemographic variables in early childhood obesity prevention research using IPD. Applying these methods enhances statistical power, precision, and validity, enabling more robust evidence to inform policy and practice.

O.2.15-2

Associations between Physical Activity and Physical Fitness in Preschool Aged Children: A Compositional Data Analysis

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Research investigating associations between movement behaviours and physical fitness using compositional data analysis in preschool children is scarce and to date only one other study has examined the full 24-hour day. Therefore, the aim of this study is to investigate associations of vigorous physical activity (VPA) and moderate-to-vigorous physical activity (MVPA) with physical fitness in 3–6-year-old children.

Methods: This study utilized cross-sectional data from the Swedish arm of the SUNRISE study ($n=631$). Physical activity and sedentary behaviour were assessed using waist-worn ActiGraphs following a seven day 24-hour protocol and sleep was assessed in the parental questionnaire. Physical fitness tests included: 20m shuttle run (cardiorespiratory fitness), handgrip strength (upper body muscular strength), standing long jump (lower body muscular strength), and supine-timed up and go (mobility and posture). Linear regression models were built using compositional data analysis standards.

Results: Reallocating time to VPA relative to the lower-intensity behaviours was associated with jumping longer ($\beta = 15.668$, $P < 0.001$), a stronger handgrip ($\beta = 1.547$, $P < 0.001$), and running more laps in the 20-m shuttle run ($\beta = 2.503$, $P = 0.011$). Similar results were also found for reallocating time to MVPA relative to the lower-intensity behaviours, where significant associations were observed with jumping longer ($\beta = 26.552$, $P < 0.001$), a stronger handgrip ($\beta = 2.114$, $P < 0.001$), running more laps on the 20-m shuttle run ($\beta = 3.883$, $P = 0.002$), as well as a faster time on the supine-timed up and go ($\beta = -0.952$, $P = 0.002$). Magnitudes of effects were larger for VPA than MVPA.

Conclusion: These findings highlight the importance of promoting higher intensity activities, especially VPA in early childhood for physical fitness. There is a need for prospective studies with large samples sizes, along with rigorously designed randomized controlled trials with a range of health outcomes to determine whether VPA plays a more significant role than MVPA in relation to preschool children's health. This could help in supporting future physical activity guidelines in the early years.

O.2.15-3

Overview of the Effectiveness of Nutrition Education for Youth in Childcare and School Settings

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Healthy and sustainable eating behavior is essential for health and environmental sustainability, yet children often fail to meet dietary recommendations. School-based nutrition education aims to enhance children's food literacy and favorable eating behaviors. A wide array of studies has evaluated nutrition education programs on various outcomes and showed various effects. This study mapped existing evidence on the effectiveness of nutrition education in childcare and school settings, and promising strategies for implementation of these interventions.

Methods: A review of reviews was conducted, including reviews that were published in the past decade. The search was conducted in PubMed and Scopus, focusing on nutrition education programs, food policy, and food provision in childcare or school settings in Western countries for children up to 18 years old. After title and abstract screening, 41 reviews from 322 unique search results were analyzed. An expert consultation was organized with 15 professionals from science, policy, and practice to validate the findings and discuss success factors for implementation.

Results: Most reviews reported positive effects on behavioral determinants (particularly on knowledge and self-efficacy) and dietary behaviors (particularly fruit and vegetable consumption). Effects on health-related outcomes, such as BMI, were less frequently assessed and inconsistent, with most often positive effects when nutrition education was combined with physical activity. Effects were generally small and often assessed on the short-term, limiting insights into long-term impact. Promising intervention strategies of effective interventions were multi-component strategies, combining experience-based activities (e.g., cooking and tasting), changing in the food provision, and active parental involvement. Moreover, theoretical grounding, a longer intervention duration, contextual adaptation, stakeholder involvement, and training of implementers increased the likelihood of effectiveness. Implementation barriers were related to intervention complexity, organizational constraints, and insufficient policy support.

Conclusion: School-based nutrition education is mainly effective in increasing behavioral determinants and eating behaviors of children and adolescents. Multi-component, context-sensitive, sustained approaches including

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experiential learning methods showed the largest effects. Structural implementation of nutrition education across all settings and age groups, supported by adequate resources, is therefore recommended.

O.2.15-4

Impact of a Family-based Early Childhood Intervention on Self-efficacy and Resilience for Obesity Prevention: Results from a Cluster Randomized Controlled Trial

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Early childhood is an essential period for shaping lifelong health trajectories, yet socioeconomic inequalities increase obesity risk. Parents and caregivers play a central role in establishing healthy behaviours, but evidence on effective interventions remains mixed. The primary aim of the study is to evaluate whether a family-based intervention can strengthen parental self-efficacy and resilience, which may, in turn, foster healthier behaviours in children and prevent obesity in later stages. This study is innovative as it addresses the psychosocial determinants of obesity among socioeconomically disadvantaged preschool children.

Methods: PRESAFALIN was conducted as a 1:1 cluster randomized controlled trial with a 10-month intervention across 115 early childhood centres in Spain (2020–2024). Ethics approval number: PIC-238-20; Trial registration: ISRCTN15553317. A total of 1,020 parents/caregivers of children under 5 years participated (546 intervention, 474 control). Parental self-efficacy (total and four subdimensions: Care, Signalling, Behavior, Belief) and resilience were assessed using validated self-report questionnaires. Baseline comparability was examined using univariate analyses. Intervention effects on continuous and binary outcomes were estimated with mixed-effects linear and logistic models, adjusting for sociodemographic factors and clustering by centre. Analyses were conducted in R 4.5.1 using two-sided tests with a 5% significance level.

Results: Bootstrap analyses of adjusted models confirmed significant group-by-time interactions for Self-efficacy_Total ($\beta = 1.57$, 95% CI [0.86, 2.21]), Self-efficacy_Behavior ($\beta = 0.78$, 95% CI [0.46, 1.11]), Self-efficacy_Signalling ($\beta = 0.53$, 95% CI [0.29, 0.76]), and Self-efficacy_Belief ($\beta = 0.22$, 95% CI [0.08, 0.34]). Logistic regression analyses confirmed significant short-term improvements in Self-efficacy_Total (OR = 1.43, 95% CI [1.06–1.94], $p = 0.019$) and Self-efficacy_Behavior (OR = 1.45, 95% CI [1.05–2.01], $p = 0.024$; $n = 690$). The remaining outcomes showed favourable but non-significant trends.

Conclusion: PRESAFALIN demonstrates that family-based interventions can effectively strengthen parental self-efficacy and resilience in the short term. Planned follow-up assessments will evaluate the sustainability of these effects, as well as their impact on health behaviours and weight status trajectories in the medium and long term. This intervention is designed to be scalable through national public health policies if the positive outcomes are maintained.

O.2.15-5

Mealtimes Are More Than Food: Fostering Inclusive Practices and Meaningful Conversations in Early Childhood Education and Care Settings

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Approximately 50% of Australian children aged birth-5 years attend Early Childhood Education and Care (ECEC), therefore these settings can be seen as “proxy homes” for children. Early mealtime experiences not only influence lifelong eating habits but can also foster connection and broaden learning. Yet current guidance largely focuses on food provision rather than the broader social and pedagogical dimensions of mealtimes. The purpose of this study was to explore how ECEC staff and assessment-and rating-officers (AROs) of ECEC perceive and enact mealtime environments and practices.

Methods: Five 90-minute online focus groups were conducted with ECEC Educators, Cooks, Directors, and AROs across Western Australia via Microsoft Teams. Purposive sampling ensured representation from privately owned and community-based services, family day care, and services located in metropolitan, regional, and remote areas. All sessions were recorded, transcribed verbatim, and analysed using an inductive thematic approach with NVivo.

Results: Data collection concluded in September 2025. Twenty-seven participants included Directors (n = 9), Educators (n = 6), Cooks (n = 5), and AROs (n = 7). Preliminary findings outlined four major themes: i) Mealtimes are more than food — they should be calm, positive, and inclusive, with reduced noise, fostering comfort and connection for all children, including those who are neurodivergent; ii) Current mealtime practices were shaped by personal experience and peer learning, with staff requesting concrete and practical guidance; iii) Conversations at mealtimes typically centred on food rather than supporting social connection or broader learning; iv) Staffing ratios and allergy management requirements constrained positive shared mealtime experiences.

Conclusion: Mealtimes can be a powerful relational and pedagogical opportunity. Findings highlight practical, high impact levers. There is an opportunity to guide ECEC services in supporting safe mealtimes beyond food quality, developing practices and conversations that foster connection and broader learning. These insights are being translated into a co-designed “Mealtime Environment and Practices” module (theme one of five), for the Best Practice Guide for food environments in ECEC with ECEC staff, health and clinical practitioners including allergy specialists, and trauma-informed experts, ensuring inclusive, emotionally safe mealtimes practices are fostered.

O.2.15-6

Effectiveness of Three Years of Classroom-based Physical Activity Interventions on Executive Functions in Schoolchildren: A Cluster Randomized Trial

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Physically active lessons (PAL) and physically active breaks (PAB) can reduce sedentary behavior in children, but their medium- and long-term effects on executive functions remain unclear. This study examined the impact of three-year PAL and PAB interventions on schoolchildren's executive functions.

Methods: A total of 324 children (7.5±1.1 years; 51.5% girls) from six public schools in Aracaju/Brazil, participated in a study from 2022 to 2024. Schools were randomized into three groups: PAL, integrating movement into academic content; PAB, short breaks involving physical activity; and control (CTL). Executive functions were assessed using reaction time (RT) and total correct responses (CR) in the Go/No-Go (inhibitory control), Digit Span (short-term memory), Mental Rotation (spatial reasoning), Visual Search (selective attention), and Posner Cueing (orienting attention) tasks. Generalized Linear Mixed Models were applied.

Results: Significant group-by-time interactions were observed for the inhibitory control (RT, p =0.001), spatial reasoning (RT, p=0.003), and orienting attention (RT, p=0.003). In the inhibitory control, only the PAB group showed a significant RT improvement after three years (-151.6 ms; p <0.001), whereas the PAL group improved only in the

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first year (-79.2 ms; $p=0.001$). In the spatial reasoning, all groups reduced RT after three years: PAL (-3794.4 ms), PAB (-2748.4 ms), and CTL (-2602.9 ms), all $p<0.001$, with only PAL and PAB improving in the first year ($p<0.001$). Difference-in-differences analyses showed greater reductions for PAL at the end of year three compared with CTL ($p=0.013$) and PAB ($p=0.026$). In the orienting attention, all groups reduced RT after three years: PAL (-571.1 ms), PAB (-452.3 ms), and CTL (-456.8 ms), all $p<0.001$, with improvements in the intervention groups only in year one (PAL: -261.1 ms, $p<0.001$; PAB: -166.6 ms, $p=0.015$) and year two (PAL: -359.5 ms; PAB: -252.3 ms; both $p<0.001$). Difference-in-differences analyses showed greater reductions for PAB compared with CTL in year one ($p=0.011$) and for PAL compared with CTL in both year one and year two ($p<0.001$ and $p=0.005$, respectively).

Conclusion: PAL and PAB improve children's executive functions, with PAL producing greater effects on attentional orienting and spatial reasoning, whereas PAB promotes gradual and cumulative improvements in inhibitory control.

O.2.15-7

NNN-ECEC as an Intermediary for System Change: Community of Practice Collaboration Model for Early Childhood Food Environments

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Translation of ECEC nutrition research into practice in Australia has been slow and patchy, leaving jurisdictions working in silos. Communities of practice (CoP) have been identified as effective knowledge-brokering platforms because they sit at the centre of cross-sector networks, which positions them to facilitate system change. In 2018, the National Nutrition Network-ECEC formed as a virtual CoP acting as intermediary to connect research, practice and policy. This study describes the Network's operational model, demonstrates how it enables system change, and offers a blueprint for adoption.

Methods: Over eight years (2018–2025), the Network moved from organic clusters to a structured model. Members co-designed governance comprising a core group and three action streams, measurement, intervention, communication and engagement, with nominated co-leads. Membership was strategically mapped across jurisdictions and sector roles to identify gaps and strengthen system influence. The Network runs six-weekly virtual meetings and maintains a shared knowledge repository. An annual member survey and routine tracking of activities captures collaboration and evidence uptake.

Results: The stream model with strategic membership enabled important intermediary functions. Members undertook mapping of programs and resources across jurisdictions, which reduced duplication and identified gaps where support was most needed. Practitioners were connected with researchers, supporting use of validated measurement tools. Dialogues progressed around harmonising food provision recommendations where guidelines had been interpreted differently, and strategic relationships were built with peak bodies such as Dietitians Australia. Members reported that the Network strengthened cross-jurisdictional connectivity, provided easier access to research collaborators, and created clearer pathways from evidence to practice and policy uptake. Key enablers included fostering trust among members, role clarity through stream leads, predictable routines, and lightweight/informal governance enabled a willingness for member engagement.

Conclusion: A nationally coordinated CoP that operates as a system intermediary can convert fragmented efforts into coordinated system action. The NNN-ECEC demonstrates that when CoP have explicit roles in knowledge management, linkage and exchange, and capacity-building, they reduce siloed working, which, in turn, delivers measurable value to members and the sector. The NNN-ECEC provides a scalable template for replication to accelerate improvements to ECEC food environments across different country contexts.

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O.2.15-8

The Impact of an Early Childhood Educator e-Learning Course on Young Children's Fundamental Movement Skills: A Cluster Randomized Controlled Trial

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O.2.15 Early care and education: Early Childhood Health Promotion: Interventions, Assessments, and Analytical Approaches

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Purpose: Early childhood educators (ECEs) are ideally positioned to support the development of children's fundamental movement skills (FMS), which are essential building blocks for physical activity and long-term health. However, most ECEs receive little specialized training in this domain. This study investigated the impact of a novel e-Learning course designed to enhance ECEs' knowledge and capacity to promote FMS within childcare settings. This was the first randomized controlled trial (RCT) to assess whether an e-Learning course for ECEs could improve children's objectively measured FMS, while also capturing parental perceptions of their child's FMS.

Methods: A cluster RCT was conducted across 12 childcare centres in London, Canada. A total of 42 ECEs and 145 preschool-aged children (2.5-5 years) participated. Centres were randomized into an intervention arm, in which ECEs completed the TEACH e-Learning course, or a control group continuing usual practice. A subsample of children (n = 48) was assessed at baseline and 3-month follow-up using the Test of Gross Motor Development-3 (TGMD-3), measuring locomotor and object-control skills. Parents of all participating children completed a questionnaire reporting their perceptions of their child's FMS at both timepoints. Data were analyzed with linear mixed-effects models, controlling for age and gender, with effect sizes expressed as Cohen's d.

Results: Children in the intervention group showed significant improvements in TGMD-3 locomotor skills ($p = .023$, $d = 0.67$) and total FMS ($p = .016$, $d = 0.71$) compared to controls. Object-control scores increased in the intervention group, but between-group effects were not significant ($p = .174$). Parent-reported locomotor, object-control, and total FMS also improved in the intervention group; however, intervention effects did not reach significance across these measures ($p > .05$).

Conclusion: This study provides promising evidence that an e-Learning course for ECEs can improve children's locomotor and overall FMS. While parent-reported outcomes trended positively, objective measures were more sensitive to change. Given its scalability and resource efficiency, e-Learning represents an innovative strategy to enhance ECEs' training and promote children's physical literacy. Integrating such programs with structured play and multicomponent interventions could strengthen their impact and better support children's movement development.

O.2.16-2

Effectiveness of a Machine Learning and App-based Digital Assistant to Increase Physical Activity in Adults: Outcomes of a Randomised Controlled Trial

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O.2.16 E- & mHealth: Effectiveness and Implementation of Digital Lifestyle Interventions

Room 4, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: While technology-based physical interventions have shown their worth, outcomes are often modest and short lived. Interventions that integrate machine learning with real-time data to offer unprecedented levels of personalisation and customisation might offer solutions. The aim of this study was to conduct a randomised controlled trial to evaluate the effectiveness of a machine learning and app-based digital assistant to increase physical activity.

Methods: 204 office workers were recruited through Facebook advertisements and randomly allocated to an

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intervention or control group. Intervention participants gained access to an app-based physical activity digital assistant that can learn and adapt in real-time to achieve high levels of personalisation and user engagement by virtue of applying a range of machine learning techniques (i.e. reinforcement learning, natural language processing and large language models). The digital assistant interacted with participants in 3 main ways: (1) educational conversations about physical activity; (2) just-in-time personalised in-app notifications ('nudges'), cues to action encouraging physical activity and (3) chat-based questions and answers about physical activity using Google's Gemini LLM. Outcomes were measured at baseline, 3 and 6 months. The primary outcome was change in moderate-to-vigorous physical activity (MVPA), assessed using the Axivity AX3 and the Active Australia Survey. Secondary outcomes include mental health (DASS21) and Wellbeing (Employee Wellbeing Scale). Linear Mixed Models were used to analyse outcomes.

Results: Over the 6-month period, daily minutes of MVPA decreased from 35.0 to 33.5 in the control group and from 39.7 to 35.0 in the intervention group (ns.) as measured by the Axivity monitor. Weekly minutes of MVPA decreased from 127.7 to 125.2 in the control group and increased from 143.6 to 213.1 in the intervention group ($P<0.01$) as measured by the Active Australia survey. Mental health and wellbeing outcomes slightly improved in the intervention group compared to the control group.

Conclusion: While self-reported physical activity significantly increased, similar to our pilot study, no improvement was observed using device-based measures. Process evaluation and mediation analyses will provide further insights. More research is needed to unlock the potential of machine learning applications to improve physical activity outcomes.

O.2.16-3

Outcomes of a Microrandomized Trial of Just-in-Time Adaptive Intervention Messages Nudging Weight-related Behaviors in Young Adults

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O.2.16 E- & mHealth: Effectiveness and Implementation of Digital Lifestyle Interventions Room 4, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: While just-in-time adaptive intervention (JITAI) research continues to advance, evidence guiding the use of behavior change techniques (BCTs) in JITAI messages remains limited. This microrandomized trial tested effects of BCT message types on achievement of daily weight-related behavioral goals among young adults in a 6-month mobile intervention.

Methods: Participants in the Nudge study received a smart scale, activity tracker, food log app, videochat session, and access to an app with weekly lessons, tailored feedback, and up to 3 BCT messages daily. Participants had 3 daily goals: self-weigh, an activity goal, and a red food (high-calorie foods; RF) limit. At 3 daily decision points, participants were microrandomized to receive or not receive one of 7 BCT message types focused on promoting one of the 3 goals (i.e., 21 BCT-behavior message types). Using generalized estimating equations accounting for nesting of observations within individuals, we evaluated the unique effects of receiving, versus not receiving, each message type on daily proximal outcomes of weighing, meeting activity goals, and staying at/below RF limit.

Results: Over 168 days, 206 young adults ($M_{age}=32.8$ years; $M_{BMI}=32.7$ kg/m², 65% female, 38% racial/ethnic minority background) were randomized multiple times daily, resulting in 50,986 randomizations to receive BCT messages and 51,019 randomizations to not receive messages. Retention was 99.5% and 96.0% at 3 and 6 months, respectively. Being randomized to receive any BCT message, versus none, increased odds of weighing that day by 6% (OR=1.06, 95% CI: 1.01-1.12). Receiving any BCT message about RFs, versus none, increased odds of staying at/below one's RF limit that day by 5% (OR=1.05, 95% CI: 1.00-1.11). Receiving messages about discrepancy between current RF consumption and one's daily RF limit resulted in 19% higher odds of meeting one's RF limit that day (OR=1.19, 95% CI: 1.06-1.35). Social comparison messages that indicated other participants' recent weighing behavior increased odds of weighing that day by 26% (OR=1.26, 95% CI: 1.05-1.51).

Conclusion: Providing BCT-specific messages can prompt daily weighing and dietary goal achievement. Future studies should focus on promoting achievement of activity goals and examine whether message effects vary by program week, time of day, and individuals' contextual factors.

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O.2.16-4

Effectiveness of an Automated Text-message Intervention to Support Weight Loss and Weight Loss Maintenance for Postpartum Women with Overweight or Obesity: The Supporting MumS RCT

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Purpose: Behavioural weight management trials have struggled to engage women during the demanding postpartum period. Whilst digital tools to support weight management show promise, robust evidence on effectiveness of such interventions in this population remains limited. This randomised controlled trial (RCT) assessed the effectiveness of the theory-based *Supporting MumS* (SMS) intervention, an automated, bi-directional text message service, targeting diet and physical activity behaviour change, to support postpartum weight loss and weight loss maintenance for women with overweight or obesity.

Methods: Women, within 6 weeks to two years postpartum, with a BMI ≥ 25 kg/m², were recruited from five sites across the United Kingdom. The two-arm parallel group RCT compared the effectiveness of receiving 12 months of text messages about 1) weight management (intervention), versus 2) child health and development (active control), on weight change (kg) at 12-month follow-up. Weight was measured by researchers using standardised protocols and calibrated scales. An intention-to-treat analysis was conducted using ANCOVA, adjusting for baseline weight, site, ethnicity and recruitment pathway. Engagement with the intervention was assessed through participants' response rates to two-way text messages encouraging enactment of embedded behaviour change techniques across the 12 months. Hierarchical cluster analysis was applied to the bi-directional text message engagement data. Prespecified subgroup analysis assessed the relationship between engagement level and weight change at 12 months.

Results: Of the 892 women recruited (445 intervention; 447 active control), 674 (75.6%) participants were included in the primary analysis. There was no statistically significant difference in the adjusted mean weight change between groups (mean difference -0.1 kg [-1.0, 0.8], $p=0.84$). Cluster analysis produced two clusters, named 'high' and 'low' engagers. Subgroup analysis indicated significantly greater weight loss in high engagers at 12 months compared with the control group (mean difference -1.9 kg [-3.1, -0.6], $p=0.005$). No significant group difference was found for low engagers.

Conclusion: Findings show that a fully automated text message service did not support weight loss in a UK sample of postpartum women with overweight or obesity. However, pre-specified engagement analysis showed that women who engaged most with the intervention achieved significantly greater weight loss than the control group.

O.2.16-5

A General Practitioner-initiated mHealth Intervention with Just-in-Time Adaptive Messaging to Increase Physical Activity in Adults with (Pre)Diabetes: Results from the ENERGISED Randomised Controlled Trial

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O.2.16 E- & mHealth: Effectiveness and Implementation of Digital Lifestyle Interventions Room 4, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Mobile health (mHealth) technologies offer new opportunities to extend behavioural counselling beyond clinic visits and provide personalised support at scale. Yet, evidence on their long-term effectiveness and implementation within primary care remains limited. The ENERGISED trial examined whether a general practitioner-initiated mHealth intervention, combining just-in-time adaptive text messaging with an initial phase of brief phone counselling, could sustainably increase physical activity in adults with prediabetes or type 2 diabetes.

Methods: This 12-month pragmatic, two-arm randomised controlled trial recruited adults with prediabetes or type 2 diabetes from 28 Czech general practices. All participants received brief advice from their general practitioner and a Fitbit activity tracker for self-monitoring for 12 months. The intervention group additionally received automated, context-sensitive text messages triggered by real-time Fitbit data via the HealthReact platform, supported by monthly counselling calls during the first six months. The primary outcome was change in daily step count from baseline to 12 months, assessed over seven consecutive days using a wrist-worn accelerometer. Secondary outcomes included physical activity volume (average acceleration) and intensity (intensity gradient), self-reported anxiety and depression (HADS), quality of life (SF-12), lower-body strength (30-s chair-stand test), and clinical indicators including HbA1c, fasting glucose, blood pressure, and lipid profile.

Results: A total of 343 participants (mean age 62 ± 12 years; 55% women; 33% prediabetes) were randomised, and 308 (90%) completed 12-month follow-up. There was no significant between-group difference in the 12-month change in daily step count (mean difference 309 steps/day; $p = 0.32$). At six months, the intervention group showed higher physical activity intensity (intensity gradient difference 0.038; $p = 0.03$) and better mental health outcomes, with lower anxiety and depression and higher SF-12 mental scores (all $p < 0.05$). These effects were not maintained at 12 months. No other significant differences were observed for secondary outcomes.

Conclusion: This general practitioner-initiated mHealth intervention produced short-term improvements in physical activity intensity and mental well-being but did not increase overall activity volume at 12 months. The results highlight the potential of integrating wearable-based just-in-time messaging into routine care and the continued importance of human support for sustaining engagement and long-term behavioural change.

O.2.16-6

Cost-effectiveness Evaluation of a Blended Mobile Lifestyle Intervention among Adults in Singapore: The LvL UP Trial

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Purpose: LvL UP is a holistic blended mHealth intervention promoting physical activity, healthy eating, and emotion regulation among adults in Singapore at risk of non-communicable diseases (NCDs) or common mental disorders (CMDs). Such interventions can support scalable prevention efforts, but their value depends on both effectiveness and cost-effectiveness. LvL UP's effectiveness and cost-effectiveness were evaluated in a sequential, multiple assignment, randomised trial, with the present abstract focusing on findings from the cost-effectiveness analyses.

Methods: Adults aged 21–59 years were recruited and randomised (2:1) to receive either the LvL UP intervention or a usual-care condition (a mock app providing generic, publicly available health resources) for 6 months. Within the intervention arm, participants identified to be 'non-responders' at 1-month were re-randomised to either continue receiving LvL UP or receive additional motivational interviewing (MI)-inspired coaching delivered by MI-trained coaches via an instant messaging platform (LvL UP + MI). Cost-effectiveness was assessed using EQ-5D-5L utility scores to estimate Quality-Adjusted Life Years (QALYs) and self-reported measures of healthcare utilisation, work productivity, and broader resource use collected at baseline and 6-month. The analysis is conducted from societal and healthcare system perspectives. We will estimate Incremental Cost-Effectiveness Ratios (ICERs), and incremental net monetary benefit and generate Cost-Effectiveness Acceptability Curves (CEACs) across a range of willingness-to-pay thresholds.

Results: Our participants (n=678, 31.6±9.6 years, were mostly females (57.5%), of Chinese ethnicity (82.7%), and had obtained at least a Bachelor's degree (64.5%). At baseline, n=452 were randomised into the intervention group (66.7%), and n=226 were randomised into the control group (33.3%). Intervention-group non-responders identified at 1-month (n=238, 52.7%) were re-randomised 1:1 to either continue receiving LvL UP, or receive LvL UP + MI. At 6 months, n=13 had withdrawn from the trial (1.9%). LvL UP cost-estimations and cost-effectiveness are ongoing, and will be reported at the conference, with reporting in line with the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement.

Conclusion: The cost-effectiveness results will determine whether LvL UP provides sufficient health gains relative to implementation costs to support scale-up in real-world settings.

O.2.16-7

Step Behaviour Profiles Derived from 24-hour Accelerometry Data and their Associations with Cardiometabolic Health

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O.2.16 E- & mHealth: Effectiveness and Implementation of Digital Lifestyle Interventions

Room 4, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Daily step counts are a key component of physical activity (PA) and are increasingly emphasised in public health recommendations. Recent advances in open-source algorithms now allow detailed step-related metrics to be derived from 24-hour raw accelerometer data. This study aimed to identify distinct step behaviour profiles and examine their associations with cardiometabolic health biomarkers.

Methods: This cross-sectional study included 1072 Luxembourg residents aged 25–79 years with ≥4 valid accelerometry days. Functional data analysis modelled daily step trajectories, which were classified into distinct daily step clusters using k-means clustering. Participants' series of daily clusters were subsequently analysed using sequence analysis to identify broader sequence clusters, representing habitual multi-day step behaviour profiles. Adjusted linear regression models examined associations between these profiles and cardiometabolic biomarkers, including systolic and diastolic blood pressure, fasting plasma glucose (FPG), triglycerides, high-density lipoprotein cholesterol (HDL-c), apolipoprotein B/A1 ratio, fasting insulin, and a clustered metabolic risk score (CMRS).

Results: Four distinct step profiles were identified: consistently inactive (4824 steps/day), consistently active (10915 steps/day), weekday active (7377 steps/day), and weekend warriors (7157 steps/day). Compared to the consistently inactive reference group, the consistently active group showed significantly lower levels of FPG, triglycerides, apolipoprotein B/A1 ratio, fasting insulin and CMRS, and higher HDL-c levels. The weekday active pattern showed significantly lower levels of triglycerides, apolipoprotein B/A1 ratio, fasting insulin and CMRS, and higher HDL-c levels, while the weekend warrior cluster showed significantly lower fasting insulin levels and CMRS. However, after further adjustment for total step counts, none of these associations remained statistically significant, indicating that total step volume, rather than temporal distribution, primarily explained the observed cardiometabolic benefits.

Conclusion: Although active step profiles were initially linked to more favourable cardiometabolic markers, these associations were fully explained by total step volume. The findings suggest that achieving sufficient overall step

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counts may be more important for cardiometabolic health than the timing or distribution of steps across the week. Nonetheless, the data reduction inherent to sequential clustering may limit pattern detection, and future work using alternative methods (e.g. reversed graph embedding methods) may help uncover more nuanced step behaviour patterns related to health outcomes.

O.2.16-8

Temporal Association between Objectively Measured Smartphone Usage Patterns with Cognitive Function among University Students

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O.2.16 E- & mHealth: Effectiveness and Implementation of Digital Lifestyle Interventions

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Purpose: Excessive smartphone use may impair cognitive functioning through constant attentional switching. However, most existing studies rely on self-reports and one-time cognitive assessments. This study examines the temporal associations between objectively measured smartphone use patterns and cognitive function using repeated, real-time assessments among university students.

Methods: The BALANCE (Behavioural Assessment of Learning and Navigation of Smartphone Engagement for Healthier Living) study recruits up to 750 full-time undergraduate students (aged ≥ 18 years) at the National University of Singapore. Recruitment is conducted entirely online without face-to-face contact. Participants install the 360INSIGHTS app, which passively tracks smartphone screen time, unlock frequency, and type of app usage across Android and iOS platforms. The app concurrently administers four ecological momentary assessments (EMAs) daily for 10 days. Each EMA captures: (1) digital media use context (screen type, duration, motivation, multiscreening); (2) mental and physical states; and (3) cognitive performance. Two validated cognition assessments: (1) Matrix Reasoning (MR): measures fluid intelligence and nonverbal reasoning; (2) Stroop Colour-Word Test (SCWT): a gold-standard measure of attentional control and cognitive interference. Repeated-measures linear mixed models assess associations between smartphone use and cognitive performance, adjusting for demographic and contextual factors.

Results: Data collection is ongoing and expected to be completed by December 2025. Pilot data (N = 100) demonstrated high adherence, with 90% providing ≥ 7 valid days. Mean daily smartphone use was 6.1 ± 2.8 hours, peaking in the evening. Males showed higher use than females (6.2 ± 2.9 vs. 6.0 ± 2.8 hours/day). The average daily screen use frequency was 118.2 ± 79.0 times/day, higher on weekdays (124.7 ± 80.7) than weekends (102.7 ± 72.5). Longer daily smartphone screen time was associated with higher interference scores at both early afternoon ($\beta=0.32$, $p=0.044$) and late afternoon ($\beta=0.41$, $p=0.024$), indicating poorer inhibitory control with greater smartphone exposure.

Conclusion: This ongoing digital cohort integrates passive smartphone tracking with real-time cognitive testing to dynamically capture cognitive responses to digital media use. Pilot results suggest that heavier smartphone use may be linked to reduced attentional control. Findings from the full cohort will clarify temporal associations and guide evidence-based strategies for healthier digital engagement.

O.2.17-1

Scaling up the Family Support Program a Healthy School Start in Low-income Communities in Sweden – Final Results from the IMPROVE Implementation Study

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

Room 5, May 29, 2026, 12:00 PM - 1:00 PM

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Purpose: The aim of the IMPROVE study, a parallel cluster-randomized hybrid type 3 effectiveness-implementation study was to compare the effect of two tailored implementation strategy bundles (Basic with six strategies vs. Enhanced with four additional strategies providing external support) on fidelity to the universal and evidence-based Healthy School Start family support program.

Methods: The study was conducted in 45 primary schools in three municipalities in the Stockholm region with a high prevalence of child obesity and a high proportion of foreign-born parents with two consecutive cohorts over two academic school years. The strategy bundles from the SISTER taxonomy were based on pre-identified determinants together with stakeholders. Fidelity was measured with an adherence score (0-4) and parents' responsiveness score (1-5) to the four intervention components (health brochure for parents, motivational interviewing by school nurse with parents, classroom module with nine sessions for children, diabetes risk test for parents). Data was analyzed using mixed-effects linear and logistic regression models.

Results: A total of 946 parents and 655 children participated in the study. Fidelity to the intervention components was around 75%. After the first year, schools in the Enhanced bundle showed a higher adherence score (non-significant), but after two years this difference was no longer visible ($\beta = 0.01$, $p = 0.95$, 95% CI: -0.24, 0.25). However, parents born in the Nordic countries had twice the odds ($p < 0.001$, 95% CI: 1.14-3.43) of completing the motivational interviewing compared to non-Nordic born. When adjusting for school, cohort and parents' region of birth, responsiveness of parents to each of the four components (3.4 – 3.7) was not statistically different between the Basic and Enhanced bundle.

Conclusion: Adding external support strategies did not improve adherence or responsiveness to the Healthy School Start program showing that schools were well equipped to implement the manual-based program after an initial introduction. However, additional support might be needed in schools with a high proportion of foreign-born parents. Therefore, we conclude that external coaching during the first year could have an additional value in this context. These findings could be relevant for other countries wanting to scale-up school-based health promotion programs.

O.2.17-2

Co-designing Steps and Processes with Small-and-Medium-Sized Enterprises for Scaling-up the Implementation of Physical Activity across Europe: The Active4SME Project

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

Room 5, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Tackling physically inactive lifestyles is a universal challenge to promote health. Workplaces have an essential role in promoting PA to the adult population. However, low scalability of effective, feasible and sustainable PA programs in small-and-medium-sized enterprises (SMEs) is a challenge. SMEs represent 99% of European businesses. Scalability means embedding PA programs into SMEs specific context. Given the limited evidence-to-practice, Active4SME codesigns and seeks feasible solutions on steps and processes to improve dissemination and PA implementation in SMEs. Results of a specific geographical European context, Active4SME-Catalonia, are presented.

Methods: Using the RE-AIM framework and Citizen's Science, twenty SMEs from two Catalan counties (Osona, n=7; Garrigues, n=13) were reached out for participating in two co-design sessions (presential, 2 hours, April 2025). Sessions were conducted by two experts in co-design and, the protocol included several categories: (1) status for implementing PA, (2) motivations and barriers, (3) solutions to tackle barriers, (5) identification of stakeholders for overcoming barriers, (6) impact expectations from implementing PA. SMEs expressed their opinions writing on hexagons of different colours. Each colour corresponded to a specific category, facilitating interrelationships between data categories. Data analysis systematized the collaboratively expressed information and, photographs of the hexagons were taken for visual documentation. A summary report was sent back to SMEs and external observers for verification.

Results: SMEs' motivations (micro, n=4; small n=8; medium, n=8; agriculture, n=4; industry, n=3; construction, n=2; commerce, n=5; educational, n=2; health, n=2; sports, n=2) for implementing PA included improving the work environment, team cohesion and workers' well-being and productivity. However, SMEs faced specific challenges: (1)

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overcoming lack of knowledge for implementing PA, (2) improving internal communication to prevent perceiving PA as an additional burden, (3) having no certainty about the tailored impact of implementing PA, requiring evaluation studies, (4) adapting PA to workers' diversity, (5) improving infrastructure, (6) PA professionals supporting PA personalization, (6) improving motivation through training and communication strategies.

Conclusion: Co-designing solutions to support local SMEs for implementing PA could serve as a Prove-of-Concept to improve PA scalability across Europe.

O.2.17-3

Economic Evaluation of OncoActive: A Computer-tailored Physical Activity Intervention for Cancer Survivors

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

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Purpose: Although physical activity (PA) can reduce long-term symptoms and improve quality of life in (former) cancer patients—thereby potentially mitigating rising healthcare cost—only a minority meets PA guidelines. OncoActive, a computer-tailored eHealth intervention has previously proven effective in increasing PA in daily life and may offer a scalable, cost-effective solution. This study therefore examines the cost-effectiveness and cost-utility of OncoActive compared to usual care.

Methods: A cost-effectiveness analysis and cost-utility analysis were conducted alongside a randomized controlled trial among 478 (former) prostate and colorectal cancer patients, who were allocated to OncoActive or a waiting-list usual care group. Moderate-to-vigorous PA (MVPA) was assessed with an accelerometer (ActiGraph); Quality-adjusted life years (QALYs) were derived from the EORTC QLU-C10D. Fatigue, physical functioning and depression were assessed as secondary outcomes. Societal costs—including healthcare costs, patient and family costs, productivity losses, and intervention costs—were assessed with a modified version a self-report medical consumption questionnaire (IMTA-MCQ). Incremental cost-effectiveness (ICER) and cost-utility ratios (ICUR) were calculated over 12 months. Uncertainty was addressed through non-parametric bootstrapping and sensitivity analyses.

Results: Societal costs were higher in the OncoActive group than in usual care, although not significantly. OncoActive increased MVPA, yielding an ICER of €42 per additional MVPA minute. The probability of cost-effectiveness for MVPA was low at a willingness-to-pay (WTP) of €0 but increased to 80% at €175/min MVPA. OncoActive did not increase QALYs, resulting in an inferior ICUR (-€383,646/QALY) and thus in a consistently low probability of cost-effectiveness across WTP thresholds. The cost-effectiveness for fatigue (ICER: €271 / 1-point decrease) and physical functioning (ICER: €1.236 / 1-point increase) depended on the WTP. Sensitivity analyses produced similar findings.

Conclusion: Depending on the WTP, OncoActive may be considered cost-effective for improving MVPA, fatigue, and physical functioning among (former) cancer patients, but it was not cost-effective in terms of QALYs due to the absence of measurable quality-of-life gains. High baseline quality-of-life scores may have limited the ability to detect QALY improvements. Nonetheless, its focus on behavior change, scalability, and ability to increase PA without supervision suggest potential value for cancer survivorship care.

O.2.17-4

Building Capacity for Nature Prescribing in Clinical Practice: A Co-designed Sustainability-focused Approach

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

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Purpose: Healthcare systems contribute to climate change through carbon-intensive practices. Preventive healthcare initiatives such as Nature Prescribing offer a way for health professionals to connect people at risk of chronic diseases to lower carbon, locally delivered nature-based physical activities, supporting both human and planetary health. Despite this potential, Nature Prescribing remains under-utilised globally and implementation barriers limit routine practice. The Springfield Green Hearts Initiative (Australia) aimed to identify these barriers and enablers and then co-design resources that support Nature Prescribing, thereby encouraging more sustainable healthcare practice.

Methods: This is a two-phase study. Phase 1: a Behavioural Design Thinking approach was used with local health professionals from diverse disciplines, at-risk citizens, nature-based physical activity providers, and community hub managers (interviews n=45; workshops). Qualitative framework analysis was used deductively and inductively through a Socio-Ecological-Model lens to understand multi-level implementation barriers and enablers. Phase 2: co-designed clinical resources and organisational tools are currently being tested in a mixed-methods acceptability study. Pre-and-post-questionnaires assess changes in health professionals' knowledge, confidence and consultation practices. Acceptability is examined using the Theoretical Framework of Acceptability, exploring affective attitude, ethical alignment, perceived burden, and self-efficacy towards nature prescribing.

Results: Phase 1 identified that health professionals (n=12) were enabled by *aligned personal and professional values*, *community knowledge*, *access to risk-assessed activities*, and *professional development opportunities*. Patient (n=18) enablers included *nature literacy*, *community connectedness*, *high-quality conversations with clinicians*, *accessible green spaces*, and *welcoming activity providers*. These insights directly informed the development of clinical resources and organisational tools focused on *community knowledge*, *nature-oriented person-centred conversations*, *climate literacy*, and *organisational capacity building*. Phase 2 data collection and analysis are underway. Full acceptability findings, including changes in knowledge, confidence and reported practice, will be presented at the conference alongside the Nature Prescribing resources.

Conclusion: Springfield Green Hearts demonstrates how preventive healthcare can be incorporated into clinical practice to support human health and environmental sustainability. By addressing implementation barriers and building capacity among health professionals and organisations, Nature Prescribing offers a practical pathway to reduce the health sector's carbon footprint while enhancing patient engagement in nature-based activities that promote physical, mental and social health.

O.2.17-5

Barriers and Facilitators to Weight Management Behaviours among Underserved Women Living with and beyond Cancer: Findings from a Scoping Review and Qualitative Study

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

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Purpose: Excess weight can increase the risk of poor health outcomes for women living with and beyond cancer (LWBC). Behavioural weight management interventions often fail to engage those from underserved communities, including women from minoritised ethnic backgrounds and/or low-income households who may face structural, cultural, and economic barriers. These women experience cancer-related health disparities, low access to support services, and are underrepresented in intervention research. We aimed to identify barriers and facilitators to weight management among underserved women LWBC to inform development of equitable, effective behavioural interventions.

Methods: *Scoping review:* Six databases (Embase, Medline, Web of Science, PsycINFO, CINAHL, Scopus) were searched in December 2024. Eligible sources reported barriers and facilitators to behavioural weight management interventions among underserved women (≥18 years) LWBC. Data were narratively synthesised.

Qualitative interviews: Semi-structured interviews were conducted with 25 UK women who self-identified as South Asian (n=12), Black African (n=6), Black Caribbean (n=4), and/or as living on a low income (n=7), diagnosed with breast cancer. The interview guide was informed by the Theoretical Domains Framework, and data were analysed, with a peer researcher, using reflexive thematic analysis.

Results: *Scoping review:* Thirty studies were included (73% peer-reviewed; 90% conducted in the United States). Most

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focused on African American or Black women (37%) and those diagnosed with breast cancer (57%). Social support, cultural adaptation, and intervention tailoring facilitated intervention engagement, whereas barriers included cancer stage, treatment side effects, safety concerns, financial constraints, transport difficulties, and English-only delivery.

Qualitative interviews: Participants (mean age 50.3 years, SD=9.6; range 32–70) were diagnosed between March 2020 and March 2025. Treatments included surgery (n=20), hormone therapy (n=15), radiotherapy (n=14), chemotherapy (n=12), and/or biological therapy (n=7). Developed themes reinforced the importance of social support, cultural sensitivity, and financial accessibility, as found in the scoping review. Additional insights included tensions between cancer survival and weight management, identity changes post-diagnosis, and self-advocacy for support. Participants emphasised the need for holistic, culturally responsive, and socially supported approaches to weight management.

Conclusion: Underserved women LWBC experience multifaceted challenges to weight management. Addressing structural and cultural barriers through co-designed, contextually tailored interventions could reduce inequities and improve long-term health outcomes.

O.2.17-6

Scale up the SuperFIT Approach in ECEC in the Netherlands; Using the PRACTIS Guide to Identify Factors and Strategies

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

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Purpose: SuperFIT is an integrated approach to promote healthy habits in preschool children, via the early childhood education and care (ECEC) setting. Scaling up of evidence-based effective interventions is essential to improve health-promoting practices in ECEC settings. In this study we applied the PRACTIS guide to investigate the upscaling of SuperFIT. We had two research questions: 1) What are facilitators and barriers identified by stakeholders in the process of scaling up SuperFIT? 2) Which strategies can tackle these barriers to optimize scalability of SuperFIT?

Methods: Multiple stakeholders (N=14) working on strategic or operational levels and involved in the scale-up of SuperFIT participated in semi-structured individual and group interviews. The aim was to get an understanding of the scale-up process, to identify barriers and facilitators and to cocreate strategies to tackle barriers.

Results: Barriers and facilitators existed at four levels (adapted from Koorts 2018): intervention, provider, organisational, and community. Adaptability emerged as a key factor across levels, facilitating contextual fit but challenging fidelity and clarity on how to implement. At intervention level, adaptability supported credibility and flexibility for scaling up, yet raised concerns about core components. At provider level, basic knowledge of the core themes, as well as existing coaching skills, facilitated future implementation and scale-up. However, lack of experience working with adaptable intervention posed a challenge. At organisational level, commitment of the intervention owner and future provider in new regions as well as a positive climate facilitated scale-up, although uncertainties remained regarding structures and responsibilities. At community level, adaptability supported contextual fit, but early and active involvement of ECEC teachers proved essential, as ECEC organisations often face multiple challenges, such as staff turnover. Identified strategies included development of visual support materials, guidance for prospective providers, organizational support for ECEC teachers and clear agreements about ownership and structure.

Conclusion: The PRACTIS guide proved to be a very useful tool in identifying barriers, facilitators and strategies for scaling up SuperFIT. While several barriers remain, the identified strategies offer a path forward, enabling steps towards further scaling up SuperFIT. Future evaluation will help to refine strategies.

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O.2.17-7

Evaluating the Implementation of Harmonised Multi-site Data Collection on Youth Physical Activity Behaviours: The INDEEP Process Evaluation Protocol

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

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Purpose: High-quality harmonised data are essential to understand physical activity behaviours (PABs) across contexts and populations. However, multi-site data collection (MSDC) often poses challenges related to ethics, logistics, training, and fidelity, which can affect data quality and comparability. The INtervention on the DEterminants of, and Expertise in, Physical activity behaviours (INDEEP) project aims to develop a feasible, acceptable, and scalable strategy for harmonised European data collection on youth PABs and their determinants. This study presents the process evaluation protocol designed to evaluate the implementation of INDEEP's MSDC strategy across five European countries.

Methods: A mixed-methods design will be employed, integrating multiple qualitative and quantitative data sources. Data will be collected from various stakeholders, including implementers (research staff) and end-users (adolescents and caregivers) between January and June 2026. Implementer data sources will include logbooks, end of measurement day reports, and post-data collection de-brief interviews, with surveys and semi-structured interviews capturing end-user feedback. Data will be triangulated to explore contextual influences, implementation mechanisms, and outcomes across settings, in accordance with the UK Medical Research Council framework for process evaluations.

Results: The INDEEP process evaluation will generate insights into practical facilitators and barriers influencing harmonised MSDC across diverse European contexts. Analysis will explore, from the perspective of multiple stakeholders, whether contextual factors (i.e., ethics procedures, cultural norms, resource availability) influence the feasibility, acceptability, and scalability of the adopted strategies. This study will also investigate key implementation mechanisms that may support successful cross-site coordination. With an overall aim to collect high-quality data on PABs and their determinants in adolescents, their siblings and caregivers.

Conclusion: The INDEEP process evaluation will advance our understanding of how to implement harmonised, MSDC strategies for youth physical activity research. Findings will guide future large-scale surveillance studies towards feasible and acceptable data collection strategies for high-quality harmonised data sets on PABs in youth across Europe.

O.2.17-8

A Scalable Approach to Live Observations: Validity of Swivl™ Robotic Video for Feeding Practice Assessment

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O.2.17 Implementation and scalability: Optimizing Interventions: Scaling Up and Assessing Health Behaviors in Complex Settings

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Purpose: Direct observation is considered the gold standard for assessing teacher mealtime practices, but it is resource-intensive, disruptive, and limits scalability. Swivl™ robotic video technology offers a lower-cost alternative that allows classrooms to be recorded without additional personnel. The purpose of this study was to assess the validity of Swivl-based video coding compared to live observation of teacher feeding practices during WISE nutrition lessons in early childhood classrooms.

Methods: Seventy-two classroom sessions were observed, of which 52 contained complete paired live and Swivl-based

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coding. Trained coders rated each session in real time and later using Swivl recordings in a single-pass viewing. Two constructs were evaluated. *Table Talk* captured teacher feeding communications and included counts of supportive and unsupportive feeding comments. *Fidelity* assessed adherence to the four WISE evidence-based practices during nutrition lessons (appropriate feeding practices, use of the program mascot owl puppet [Windy], hands-on exposure to foods, and teacher role modeling of tasting). Agreement between live- and video-coded data was assessed using two-way mixed-effects intraclass correlation coefficients (ICC; absolute agreement, single measures) and Cronbach's α . Items with 0 standard deviation at either time point were excluded, because they provide no discriminatory information and may distort the validity estimate.

Results: For Table Talk, agreement was excellent for Positive Comments (ICC = .94, 95% CI = .90–.97, $p < .001$; $\alpha = .98$) and good for Negative Comments (ICC = .82, 95% CI = .71–.89, $p < .001$; $\alpha = .90$). For Fidelity, all four subscales demonstrated excellent agreement: Feeding Practice (ICC = .86, 95% CI = .77–.92; $\alpha = .92$), Windy (ICC = .97, 95% CI = .94–.98; $\alpha = .98$), Hands-On (ICC = .97, 95% CI = .94–.98; $\alpha = .98$), and Role Modeling (ICC = .98, 95% CI = .97–.99; $\alpha = .99$), all $p < .001$.

Conclusion: Swivl-based video coding shows good to excellent agreement with live observation for both feeding communications and fidelity to nutrition curriculum practices. Results of the current study indicate Swivl provides a valid and scalable alternative for collecting high-quality feeding behavior data in early childhood and community-based research.

O.2.18-1

Operationalising and Evaluating Place-based Whole Systems Approaches: Development of a Conceptual Framework and Maturity Matrix

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O.2.18 Systems Science: From Environment to Action: Systems Science for Health Behavior Change
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Purpose: This paper presents the development of a Conceptual Framework and Maturity Matrix designed to support the operationalisation and evaluation of Place-Based Systemic Working (PBSW) in England to address physical activity inequalities. The framework responds to the complexity and uncertainty inherent in systems change, making explicit the dynamic processes that influence outcomes and the relational conditions underpinning local change.

Methods: Drawing on evidence synthesis, stakeholder co-production across multiple Place Partnerships, and realist principles of mechanisms of change, we developed a Conceptual Model articulating foundational relational dynamics, cultures, and structures shaping inequalities. The model identifies three key areas for action and nine cross-cutting conditions for change. A complementary Maturity Matrix was constructed to describe evidence-based and inferred stages of progression, enabling systematic data capture and reflective learning at local and national levels.

Results: The Conceptual Framework provides a scaffold for evaluation and learning, advancing beyond existing principles-based guidance by recognising variations in ideologies and contextual manifestations of conditions for change. The Maturity Matrix supports both quantitative and qualitative assessments of progress, enabling systematic case comparison and facilitating iterative synthesis of place-based findings. Early application demonstrates its utility in framing local evaluation designs and guiding collaborative decision-making, while highlighting challenges such as limited representation of inactive populations and risks of misinterpreting the framework as a prescriptive model.

Conclusion: Despite inherent limitations and measurement challenges, the framework offers a pragmatic tool for evaluators and practitioners seeking to understand and influence complex systems. It enables structured assessment of enabling conditions and fosters shared learning across diverse contexts. Future work will refine the model through ongoing testing in England and explore its relevance internationally. By making “fuzzy” concepts explicit, this approach contributes to building cumulative knowledge on systems change and offers potential applicability beyond physical activity.

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O.2.18-2

Leveraging Blue Spaces for Public Health: Co-creating a Whole-system Action Plan

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O.2.18 Systems Science: From Environment to Action: Systems Science for Health Behavior Change
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Purpose: Non-communicable diseases (NCDs), obesity, physical inactivity, and poor mental health are rising globally, a trend intensified by COVID-19 and climate change. Urban blue spaces, including rivers, canals and coasts, have emerged as a promising asset to counter these challenges, offering opportunities to improve health and wellbeing. However their management often lacks coordination for achieving health benefits. A systems approach, integrating diverse stakeholders through co-creation, is essential. We present evidence-based co-created whole-system recommendations for leveraging blue spaces to enhance public health. The recommendations can guide decision-makers and practitioners in preserving, revitalising and using urban blue spaces for synergistic benefits to people and the planet. We showcase implementation in Scotland, a nation particularly vulnerable to non-communicable diseases and poor mental health, yet uniquely positioned as a “Hydro Nation.” This status highlights Scotland’s potential to leverage its blue spaces as vital public health assets.

Methods: We followed a three-step process to develop the recommendations. First, we established a robust evidence base through six years of extensive mixed-methods academic research on the health benefits of urban blue spaces. Second, we partnered with a national water-focused research and innovation programme to integrate policy expertise and reduce siloed working. Third, we co-created an action plan with diverse stakeholders using systems-based co-creation, guided by the DISCOVER framework, to ensure inclusive, coordinated, and context-sensitive solutions.

Results: The system map includes 137 variables and 220 causal linkages, organised around four mechanisms: promoting physical activity, fostering social interaction, supporting a healthy environment, and reducing stress. Developed from stakeholder interviews and co-creation sessions in Scotland, the map highlights interconnected factors influencing how blue spaces affect public health. Each mechanism contains key relationships and feedback loops. An interactive map available online: <https://nsmith222.kumu.io/recommendations-for-leveraging-blue-space-for-health>.

Conclusion: The resulting 12 recommendations are the first actionable recommendations for leveraging blue space for public health, including the experiences and expertise of around 300 people and longitudinal evidence covering 19 years of data. The co-created recommendations provide a practical guide for decision-makers, enabling synergistic improvements for both human wellbeing and environmental sustainability.

O.2.18-3

Discovery of Universal Behavioral Laws Underlying Human Activity Patterns across Global Populations

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Purpose: Daily activity patterns fundamentally shape human health, economic productivity, and environmental sustainability. Yet, we lack understanding and mechanistic models of how humans organize their active time—knowledge that is critical to informing policy and practice.

Methods: We analyzed over 600,000 daily activity patterns from eight cohorts spanning four continents—from hunter-gatherers to industrialized populations—using continuous accelerometer monitoring (NHANES in the USA; and the UK Biobank and Whitehall II, ENRICA 2 in Spain, MASKin South Africa, TrUST Colombia, and Tanzania (The Hadza people). Raw accelerometer signals were converted into minute epoch of activity intensity. Each minute epoch was classified, as either active or inactive based on intensity thresholds corresponding approximately to ≥ 3 metabolic equivalent (MET) or < 3 MET, respectively, device-specific cut points were taken from manufacturer specifications or the latest calibration studies for the target population. The 3 MET threshold was selected because it marks the level of physical activity that is typically *perceived consciously as requiring an effort*. Activity below this level (< 3 METs) encompasses light-intensity behaviors and sedentary behaviors. This threshold therefore provides both a physiological and phenomenological basis for distinguishing effortful from effortless activity.

Results: Despite vast differences in geography, culture, context and measurement methodology, all populations exhibited a similar pattern of daily activity: periods of inactivity, corresponding to low intensity behaviors typically experienced as effortless (< 3 MET) follow a $1/t$ power-law distribution, while active periods (typically effortful, ≥ 3 MET) decay more rapidly as $1/t^{2.5}$. This universal pattern shows that humans have an intrinsic tendency to engage in short bouts of effortful activity interspersed with long periods of inactivity. This can be understood as a time- and energy-management optimization strategy balancing limited daily time and finite energy reserves. This is supported by the fact that a simple dynamical law can be derived that quantitatively reproduces and explains activity patterns across all populations using simple and measurable parameters representing fundamental time and energy constraints.

Conclusion: Recognizing these intrinsic dynamics opens new avenues for designing interventions and policies that align with natural human behavior, potentially enhancing impact, adherence, and long-term sustainability in public health, climate policy, and urban planning.

O.2.18-4

The River of Utilisation: From Insight to Action, Who Cares and Who Acts on Findings

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O.2.18 Systems Science: From Environment to Action: Systems Science for Health Behavior Change
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Purpose: This work explores how embedded evaluation balances expert and participatory traditions of care within complex, place-based systems. It examines tensions between independence and involvement, rigour and relevance, proposing that building evaluative capacity requires reflexive balance, strengthening systems' ability to generate trustworthy insight while empowering people to act. It is situated within Sport England's systematic place-based approaches, now successfully scaling across England, where evaluation of complex systems approaches remains one of the most significant gaps and challenges for academics and practitioners.

Methods: The research applies a realist-informed developmental evaluation to study evaluation "in motion." Data sources include over 250 reflexive journals, evaluative artefacts (Stories of Change, Ripple Effect Maps, Conditions Tracker), interviews, and partner reflections. Analysis proceeds through four linked papers:

- Paper 1: Analytic autoethnography of embedded evaluation practice (2025)
- Paper 2: Realist synthesis of utilisation patterns across place-based systems (2026)
- Paper 3: Comparative case analysis of leadership and evaluative capacity (2027)
- Paper 4: Development of a conceptual model, The River of Utilisation, illustrating how insight flows through relationships, time, and governance (2028)

Results: Early analysis suggests that successful evaluation use is relational, emotional, and iterative. Use emerges where curiosity, care, and translation coexist, and where spaces for reflection are intentionally created. Evaluative learning travels through trust, dialogue, and shared sense-making rather than formal reporting mechanisms. Reflexivity itself became data, exposing tensions between independence and involvement, rigour and relevance, and the emotional labour of working at the research–practice boundary.

Conclusion: This realist perspective deepens understanding of how evaluative learning operates within the everyday dynamics of place-based physical-activity systems. It connects individual reflection with organisational adaptation

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and system-level governance, showing that the use of evidence is itself a social process.

By illuminating these pathways, the research contributes new methodological and theoretical insights to systems research. It offers a conceptual framework for the *conditions for evaluating in systems* tackling physical-activity inequality and demonstrates how realist, utilisation-focused evaluation can bridge the research–practice divide, creating learning-led governance models that inform policy, investment, and decision-making in real time.

O.2.18-5

Understanding how Changes in Urban Design May Affect Physical Activity among Dutch Adults: Developing Causal Loop Diagrams with Group Model Building

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O.2.18 Systems Science: From Environment to Action: Systems Science for Health Behavior Change
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Purpose: Physical inactivity among adults continues to be a major issue worldwide. Physical activity is the result of interactions among various factors at multiple levels, with urban design playing an important role. Traditionally, research has focused on direct associations between urban design and physical activity. However, a more comprehensive understanding of how urban design affects activity levels calls for a systems thinking perspective. This study uses a systems thinking approach to map the complex relationships between urban design and physical activity.

Methods: Four group model building workshops were held: one each with residents and professionals in both Dordrecht and Utrecht. A total of 54 individuals participated, representing a blend of neighbourhood professionals (such as sport coaches and urban designers) and residents. The involvement of both professionals and residents ensured a balance between expert knowledge and resident experience. Participants worked together to construct causal loop diagrams, which visually illustrated the various factors and interrelationships that affect physical activity in their neighbourhoods.

Results: The workshops resulted in four causal loop diagrams. In each, both social and physical environmental factors emerged as important influences. For example, a higher presence of people in public spaces was associated with improved feelings of safety, which in turn encouraged outdoor activity. Policy interventions frequently served as balancing mechanisms within these systems; for instance, professionals might launch initiatives to promote physical activity, but these could be scaled back if activity levels rise. The analysis also revealed that professionals tended to prioritise policy and programmatic solutions, whereas residents highlighted day-to-day experiences and mental well-being.

Conclusion: The study shows that physical activity is shaped by both universal and neighbourhood-specific factors within the urban environment. The causal loop diagrams provide municipalities and neighbourhood professionals with valuable insights into which interventions can be implemented to stimulate physical activity, and how these may have effects throughout the system. Furthermore, combining the perspectives and factors identified by professionals and residents not only enriches understanding, but may also lead to innovative policy approaches tailored to the unique needs of each neighbourhood.

O.2.18-7

A Systems Evaluation of a Participatory Systems Approach to Promote Physical Activity: The Children's COOPERation Denmark (Child-COOP) Trial

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Purpose: Addressing complex public health challenges, such as physical activity among children, entail an increase focus towards systems approaches that address interacting determinants at multiple levels. The Danish Child-COOP trial applies such a systems approach to promote physical activity in childhood. This study presents preliminary findings on early system-level changes, essential precursors to lasting individual behavior change.

Methods: The Child-COOP Denmark trial is a three-year, participatory systems approach based on group model building (GMB) workshops across five communities in five municipalities, with a total target population of 935 children aged 6–12 years across whole of Denmark. Child-COOP employs the IMPAcT process for system evaluation, this study reports on selected components only. The IMPAcT process integrates an Action Registry to track actions, with the Action Scales Model to identify leverage points, and Ripple Effects Mapping to track emergent change, and structured stakeholder reflections to support continuous adaptation. Actions registered through the IMPAcT process were systematically coded according to type, system level, and actor involvement.

Results: Twelvemonths after the final GMB workshop, a total of 67 actions were registered across the five municipalities (range: 6–27 activities per municipality). The majority were categorized as event-based actions ($n = 36$), followed by actions aimed at the structural level of the system ($n = 29$). Only two actions targeted higher system levels, such as goals or beliefs. Most actions were led by volunteers ($n = 25$), eighteen by professionals, and twenty-four represented collaborations between both. Twenty-one activities generated synergies across initiatives, reflecting clearer alignment between community efforts and existing strategies, and fostering effective cross-sector collaboration.

Conclusion: The results highlight significant variation in action levels across municipalities, with strong volunteer involvement and collaboration with professionals contributing to sustained momentum. Importantly, these findings provide early indications that a participatory systems approach may facilitate meaningful system-level change by mobilising local assets and strengthening alignment across sectors.

O.2.18-8

Probabilistic Interrelationships between 24-hour Movement Behaviours and Correlates of Different Domains: A Baeyesian Network Analysis

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O.2.18 Systems Science: From Environment to Action: Systems Science for Health Behavior Change Room 6, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Studies on 24-hour movement behaviours in the early years are generally driven by linear models, overlooking the non-linear, and multifaceted interactions involving a high level of uncertainty between movement behaviours and its correlates. This study explored the probabilistic interrelationships between 24-hour movement behaviours and physical, motor, cognitive, sociodemographic, and environmental correlates through a complex systems approach.

Methods: A total of 146 Brazilian preschoolers (3-to-5 years) were measured for 24-hour movement behaviours (Actigraph wGT3x and parent-report); anthropometrics; sociodemographic variables; executive functions (Early Years Toolbox); motor skills (Test of Gross Motor Development - TGMD-2); and cardiorespiratory fitness (Shuttle-Run). Parents reported their perception of the neighborhood environment; and an auditory of the preschool environment was done. Bayesian Network Analysis was conducted based on a Directed Acyclic Graph, using the heuristic Hill-Climbing algorithm, and bootstrap analysis with 500 resamples. The analyses were performed in RStudio using the bnlearn and Rgraphviz packages.

Results: Results revealed that nighttime light exposure negatively impact sleep ($\beta = -11.83$). Sleep duration was also positively associated with ethnicity ($\beta = 17.94$), suggesting potential racial differences in sleep patterns. Screen time played a central role in the network, with multiple predictors and widespread effects. It was positively associated with ethnicity ($\beta = 31.59$) and nighttime light exposure ($\beta = 42.16$), and negatively associated with the number of siblings ($\beta = -42.99$) and executive function ($\beta = -3.13$). Light physical activity was positively associated with number of siblings ($\beta = 14.90$), though negatively associated with socioeconomic status ($\beta = -12.65$), and parent schooling level ($\beta = -7.45$). Moderate physical activity was mainly predicted by ethnicity ($\beta = -15.37$), and school day routines ($\beta = -6.80$); while vigorous physical activity showed positive associations with ethnicity ($\beta = 15.78$). Nighttime light exposure, executive function, and number of siblings emerged as critical nodes with the capacity to broadly influence the entire system.

Conclusion: The use of directed acyclic graphs and Bayesian networks allow for flexible and adaptable modeling of

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causal and probabilistic relationships. Integrating these analytical tools can significantly enhance research in this field, supporting more robust inferences, and offering practical guidance for related disciplines.

O.2.19-1

Knowledge and Practices on Osteoporosis Prevention in Reproductive-age Women: A Study from Abia State, Nigeria

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood
Room 7, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Osteoporosis is a skeletal disorder characterized by reduced bone density and microarchitectural deterioration, increasing fracture risk and reducing quality of life. Women of reproductive age are vulnerable due to modifiable lifestyle factors. Understanding knowledge, attitude, and practices (KAP) toward osteoporosis prevention is essential for targeted interventions. This study focused on assessing the knowledge, attitude, and practices related to osteoporosis risk factors among women of reproductive age in Ikwuano Local Government Area, Abia State, Nigeria.

Methods: A cross-sectional study was conducted among 204 women selected through multi-stage sampling from four communities. Data were collected using a validated questionnaire covering socio-demographics and KAP regarding osteoporosis. Knowledge was assessed using the Osteoporosis Knowledge Assessment Tool, while attitude and practice were measured using Likert-scale items. Data were analysed using SPSS version 22 with descriptive statistics and Chi-square tests.

Results: Respondents were predominantly aged 15–25 years (50.5%) and single (70.1%), with most earning less than ₦30,000 monthly (83.3%). Knowledge was poor: 51.0% had never heard of osteoporosis, and only 36.3% correctly identified its definition. Attitude scores were also low, with 52.5% classified as poor. In contrast, practice scores were relatively good: 76.5% demonstrated positive behaviours such as avoiding smoking (98.5%) and consuming calcium-rich foods (milk and leafy vegetables). However, only 27.9% reported taking preventive measures like exercise or calcium supplementation. Health workers were the main source of information (28.0%).

Conclusion: Women of reproductive age in Abia State exhibit poor knowledge and attitude but relatively good practices toward osteoporosis prevention. Awareness campaigns and community-based education programs are recommended to improve knowledge and attitudes, leveraging social media and continuous medical education for health professionals.

O.2.19-2

Perceived Built Environment and Health Behaviors among Young Adults: A Multi-country Citizen Science Study Using TravelTrack

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood
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Purpose: Built environments influence physical activity and unhealthy diets through factors such as mobility, safety, and access to healthy food, yet supportive conditions remain unequally distributed. Within the Young Adults in Health-enhancing Equitable Environments (YAHEE)-project, TravelTrack was developed as a citizen science web tool enabling young adults to map commuting routes and evaluate perceived mobility and food environments. This study investigates how young adults across four countries perceive their commuting environments and examines whether these perceptions—such as safety, cost, convenience, and food healthiness—are associated with self-reported active travel and food purchasing behaviors.

Methods: This cross-sectional study (2024–2025) was conducted in Belgium, the Netherlands, France, and Taiwan among 1,000 young adult students (18–25 years) from low socioeconomic neighbourhoods recruited through vocational schools and universities. Using TravelTrack, participants mapped daily commuting routes between their residence and educational institutes, rated perceived safety, attractiveness, and the importance of mobility- and food-related factors, and reported main travel mode and frequency of food purchases. Descriptive and comparative analyses assessed cross-country differences, while mixed-effects models examined associations between perceived environmental factors and behaviors, accounting for clustering within schools and countries.

Results: Preliminary findings (Belgium and Taiwan, $n=616$) revealed significant cross-country differences in commuting behaviors ($p<0.001$) and perceptions (most $p<0.001$). In Taiwan, walking (36.7%) and motorbike use (46.7%) were the main travel modes, reflecting short distances and high motorbike accessibility, while Belgian participants primarily commuted by car (33.5%), public transport (29.0%), or bicycle (16.5%). Both samples reported convenience and safety as the most important factors when choosing their travel mode, and taste and price as the strongest influences on dietary behavior. Compared with Belgian participants, Taiwanese participants rated nearly all mobility- and food-related factors as more important. Analyses including all four countries will be presented.

Conclusion: Strong contrasts in commuting behaviors and perceptions between Belgium and Taiwan emphasize the importance of local contexts in shaping mobility and food-related choices and demonstrate the need for context-specific approaches when designing intervention. TravelTrack shows how citizen science can capture such nuanced, place-based insights with the potential to support policies that promote healthier, more equitable, and sustainable urban environments in young adults.

O.2.19-3

Associations between Social Background, Food Security and Diet Quality among Students in France: A Cross-sectional Representative Study

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood

Room 7, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: In countries such as France, the higher education system tends to reproduce social inequalities, with students' social background shaping both access to higher education and academic achievement, a pattern that may also influence dietary behaviors. We aimed to analyze the associations between students' social background, food security and diet quality and to evaluate whether these associations were influenced by student's daily living conditions.

Methods: Cross-sectional data were collected in 2024 by the French Observatory of Student Life among a representative student population. Food security was assessed using the short-form U.S. Household Food Security Survey Module (total score categorized in three classes: food security, low, or very low food security). The frequency of consumption of 15 food groups was assessed using a short food frequency questionnaire, and a diet quality score was computed (and categorized in tertiles, a higher score reflecting greater diet quality). Social background was assessed through parental household occupational status. Associations of social background with food security and diet quality were assessed using multivariable logistic regressions (ordinal and multinomial, respectively). Model 1 was adjusted for sociodemographic and academic characteristics (sex, age, study level, nationality, type of high school diploma, field of study). Model 2 was additionally adjusted for daily living conditions (living with parents, job, financial difficulties, scholarship, use of food assistance).

Results: This study included 5024 students (57% women, mean [SD] age 23.3 [3.9]), 32% with privileged social

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background). Overall, 14% and 16% students reported very low and low food security, respectively. Social background was significantly associated with food security and diet quality: in model 1, disadvantaged social background was associated with lower food security (OR [95% CI] 3.24 [2.51-4.18]) and lower diet quality (OR [95% CI]=1.45 [1.05-2.02]). Associations were slightly attenuated in model 2 (OR [95% CI]=1.89 [1.40-2.56]; 1.47 [1.04-2.07], respectively).

Conclusion: Social background was associated with students' food insecurity and lower diet quality, independent of their sociodemographic characteristics. Accounting for students' daily living conditions slightly attenuated these associations, but did not eliminate them. These findings suggest that students' diets are shaped not only by material limitations but also by cultural and institutional influences, like parental food education.

O.2.19-4

Moving Out: The Impact of Leaving the Parental Home on Diet Quality Trajectories among Australian Adolescents and Young Adults (14-27 Years)

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood

Room 7, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Adolescence and early adulthood are life stages marked by major life transitions. One transition which may influence dietary behaviours and related health risks is that of leaving the parental home. This study examined diet quality trajectories from adolescence into early adulthood and the influence of the transition out of the parental home and into different living arrangements on diet quality.

Methods: Data were drawn from 1,135 participants aged 14 to 27 years in the Raine Study (Australia), who completed food frequency questionnaires at up to five follow-ups: 14, 17, 20, 22 and 27 years. Diet quality was assessed using (i) the Dietary Approaches to Stop Hypertension (DASH) diet score and (ii) the proportion of total energy intake from discretionary foods and beverages. Multilevel regression models examined trajectories of diet quality with age, investigating interactions with leaving the parental home and subsequent living arrangements (partner, friends or alone).

Results: Diet quality was generally poor and followed a quadratic trajectory with lowest diet quality seen at around age 20 years. Leaving the parental home was associated with a decrease in diet quality, reflected in a lower DASH diet score: $\beta = -0.97$ [95% CI: -1.65, -0.28]; and increased discretionary food intake: $\beta = 1.05$ [95% CI: 0.08, 2.02]. The initial decrease in diet quality persisted with age for DASH diet score and diminished for discretionary food intake. Moving in with a partner was associated with the greatest decrease in DASH diet score: $\beta = -1.02$ [95% CI: -1.91, -0.14].

Conclusion: Leaving home, particularly to live with a partner, is associated with poorer diet quality. Public health strategies targeting life transitions may help support healthier dietary behaviours in adolescents and young adults. Further research should investigate mechanisms, exploring timing of transitions and motivations for food choices in different living arrangements during this critical developmental stage.

O.2.19-5

Engagement with Food-related Videos on Social Media: A Qualitative Comparison of Young Adults' Experiences in Jamaica and the United Kingdom

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood

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Purpose: The rise of video-based social media platforms and the shift towards a video-first content strategy by social media companies have altered how people consume and engage with food-related content. However, little is known

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about how young adults experience and interpret these influences across national and cultural contexts. This study presents a novel cross-national comparison and develops a conceptual understanding of how and why young adults engage with food-related videos on social media, and how these interactions influence their food attitudes and behaviours in Jamaica and the United Kingdom.

Methods: Twelve focus groups were conducted between July and November 2024 with young adults aged 18–25 years (six in Jamaica and six in the UK). Discussions explored their experiences with food-related content. Transcripts were analysed using reflexive thematic analysis, complemented by framework analysis and the constant comparison method to facilitate cross-national and cross-cultural comparison.

Results: Analysis generated four themes: (1) young adults balance algorithmic influence with personal curation; (2) young adults engage with food-related videos for relaxation, amusement, and learning; (3) young adults evaluate food-related content through enquiry and strategy; and (4) food choices form at the intersection of online and offline worlds. A unified high-order theme, “A Journey of Influence,” captures how young adults move from exposure to evaluation and filter digital experiences through offline realities, leading to either change or continuity in dietary attitudes and behaviours. Although this journey was consistent across Jamaica and the UK, its expression reflected cultural differences: Jamaican participants often gauged food content through the lens of Jamaica’s food culture, whereas UK participants displayed a broader diversity of cultural perspectives on food.

Conclusion: This study conceptualises the influence of food-related videos as a dynamic process that unfolds across digital and offline environments. Our conceptual map is among the first to visualise this process for young adults, identifying three decision points for change where reflection and action converge, namely: exposure, evaluation, and contextualisation. These insights highlight opportunities to design youth-responsive digital nutrition interventions that leverage these inflexion points to guide young adults towards real-world dietary shifts.

O.2.19-6

Nourishing Student Wellbeing: Behavioral, Social, and Operational Insights from an Urban College Food Pantry

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood
Room 7, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Food insecurity, defined as limited or uncertain access to safe and nutritious food, is a pressing public health issue among university students, especially in high-cost urban settings. However, a critical gap remains in understanding why and how students at urban universities rely on campus food pantries and whether these resources truly meet their needs. This study investigated how students utilize their campus food pantry at a large urban university in the United States, with insights on the behavioral, social, and operational factors that shape food access and inform their basic-needs decisions.

Methods: We conducted a qualitative study using five semi-structured focus groups and four in-depth interviews involving 20 pantry users. All sessions were audio-recorded, transcribed verbatim, and checked for accuracy. We used Atlas.ti (version 25.0.1) for deductive and inductive coding focused on food pantry discovery, motivations for use, shopping behaviors, food quality, perceived stigma, operational barriers, and recommendations for improvement. We approached thematic analysis using a phronetic iterative approach and strengthened rigor by comparing memos, discussing coding with a third researcher, and cross-checking themes across interview types.

Results: Key themes emerged in three domains: behavioral, social, and operational determinants of use. First, students relied on the pantry as a supplemental food source due to high living costs, cooking constraints, and busy schedules. Additionally, inconsistent stock, restricted availability, and food quality concerns influenced shopping behaviors. Second, most students reported minimal stigma, yet undergraduates expressed greater concerns about privacy and social judgment. Third, operational barriers, including communication gaps, limited hours, and item distribution systems, further reduced access. Overall, participants’ recommendations included real-time stock updates, extended hours, improved food handling, and greater cultural and dietary accommodations.

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Conclusion: This study explores college food insecurity beyond access, focusing on students' consistent, equitable, and comfortable use of campus resources. Food pantry improvements should prioritize accessibility, convenience, quality, and inclusivity in both stock and operations. These findings provide actionable guidance and challenge academic institutions to rethink basic-needs interventions as dynamic, student-centered systems.

O.2.19-7

Adapting a Campus Mobile Produce Market: Feasibility, Acceptability, and Main Outcomes of the 2024–2025 Campus Veggie Van Pilot

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood
Room 7, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Improving access to fruits and vegetables (FV) among postsecondary students may improve food security (FS). Building on a 2023 pilot, we adapted the Veggie Van (VV) model, an evidence-based mobile market developed to increase access to FV in underserved communities, to a college campus. The intervention combines weekly mobile markets with financial incentives, nutrition education, and community partnerships to increase FV consumption. We evaluated feasibility, acceptability, and participant outcomes while highlighting the participatory adaptation process.

Methods: An academic year (2024–2025) pre-post pilot was conducted with 125 food-insecure students at a large US public university. Weekly mobile markets provided \$5 weekly shopping incentives, discounted produce bundles, and a weekly online newsletter. Key implementation adaptations included improved location and hours, increased social media presence, smaller bundles, expanded offerings (dairy, eggs), and co-design via a Student Advisory Board (SAB). Quantitative outcomes included FV intake (dermal carotenoids with the Veggie Meter®) and USDA FS (10-item). Implementation outcomes (reach, feasibility, acceptability) were assessed through a point-of-sales system, SAB meetings, and three post-intervention focus groups. Analyses included pre-post comparisons, stratified by VV usage (visits to market), and summarizing qualitative data.

Results: Approximately 40% of study participants visited the market at least once per month, averaging 7.3 visits (over twice as often as non-participant student customers). Compared to students who used the VV less than once per month, adjusted linear mixed-effects models indicated significant improvements among frequent users in FV intake (+29.5, $p = .001$, $d = .84$) and FS (-2.7, $p < .001$, $d = -.34$). Students regularly used their full weekly discount. Focus group findings highlighted high acceptability: students praised the freshness, affordability, and on-campus convenience of the market. The expanded product offerings and promotional strategies (shaped by ongoing input from SAB) further enhanced engagement. Remaining barriers included limited student time, competing schedules, and market awareness gaps.

Conclusion: Compared to the initial pilot, this academic year-long implementation achieved stronger engagement, with frequent users integrating the VV into weekly food procurement. Significant gains in FV intake and FS suggest that student co-design, incentives, and improved access make the Campus VV a feasible, scalable strategy to enhance campus FS.

O.2.19-8

Co-designing a Theory-based Digital Behaviour Change Intervention to Improve Wellbeing in Young Adult University Students

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O.2.19 Young adult: Health in Transition: Navigating Diet and Wellbeing in Young Adulthood
Room 7, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Young adults are in a transitional life stage often marked by unhealthy lifestyle behaviours, including low adherence to dietary guidelines, high psychological distress and insufficient strength-based physical activity. Understanding the barriers and facilitators to healthier lifestyle habits, and intervention preferences is essential for designing health promotion strategies aligned with students' needs. This project aimed to identify barriers, facilitators, and intervention preferences to inform a co-designed theory-based digital behaviour change prototype for young adult

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university students.

Methods: The study comprised three stages using a mixed-method approach. Stage one involved quantitative assessments of barriers and facilitators for physical activity (DPAQ questionnaire), diet (adapted DPAQ), and intervention preferences (custom survey) (n=76). Stage two collected qualitative data through focus groups (n=6 in each of two groups) to complement quantitative findings and capture additional insights regarding stress management behaviours. Data from both stages were analysed using the Theoretical Domains Framework (TDF) to identify behavioural determinants, which were mapped to Behaviour Change Techniques (BCTs) that informed the last stage. Stage three comprised three co-design workshops with students, researchers, digital and health professionals, guided by the PROCEDURES framework and design thinking principles to develop a prototype intervention.

Results: Key barriers included limited time and busy schedules affecting diet, physical activity and stress management, while social support emerged as key facilitator for motivation and adherence. Barriers and facilitators were aligned to 11, 9, and 7 TDF domains for diet, physical activity, and stress management respectively. Relevant BCTs, such as “Restructuring the physical environment”, were then selected in consultation with co-designers to inform prototype features, such as time and context-efficient workouts, recipes, and relaxation activities. Students preferred a digital app featuring text, image and video content with 2-3 updates per week and optional in-person support, prioritising mental wellbeing (39%), sleep (20%), physical activity (19%), and diet (16%).

Conclusion: This study identified key barriers (e.g., time constraints), facilitators (e.g., social support) and student preferences for an app-based intervention targeting mental wellbeing, sleep, diet and physical activity. Combining behavioural theory with participatory co-design, this project developed a theory-informed digital prototype offering a novel, user-driven approach to promote wellbeing among university students.

O.2.20-2

Parks as Active Living Assets for Stroke Prevention: The Protective Association between Residential Park Area and Incident Stroke in a US-based Prospective Cohort Study

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
Room 8, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Parks are recognized as important public assets that facilitate physical activity, but their association with distal health outcomes, such as stroke, are not well established. Demonstrating that active living assets have benefits that reach beyond behavior, substantially strengthens the incentive for communities, clinicians, and policy makers to invest in and promote active living features as tools for promoting overall human health and well-being. This study helps fill this gap by examining whether the residential availability of parks is associated with a lower risk of incident stroke.

Methods: This United States-based prospective study used data on 21,874 middle and older age adults who self-identified as White or Black and were enrolled in the ongoing REasons for Geographic And Racial Differences in Stroke (REGARDS) Study. The primary exposure was the availability of park area within a 1km radial buffer around geocoded home addresses and was dichotomized using 0.5 hectares of park area as a cut-point (the approximate size of an American football field). The outcome was clinically adjudicated incident stroke. Hazard models were estimated with 95% confidence intervals. Model 1 adjusted for demographics, Model 2 made additional adjustments for socioeconomic factors, and Model 3 made further adjustments for health factors.

Results: In Model 1, having at least 0.5 hectares of park area within 1km of one's home was associated with a 21% lower hazard of incident stroke (HR: 0.79; 95% CI: 0.70-0.90; p<.001). In Models 2 and 3, having at least 0.5 hectares of park area within 1km of one's home was associated with an 18% lower hazard of incident stroke (HR: 0.82; 95% CI: 0.72-0.94; p=.003).

Conclusion: The results provide novel evidence of the long-term health benefits of active living features. Specifically, our findings show that parks, which are known to support proximal health behaviors such as physical activity, are also protective against distal adverse health outcomes, including incident stroke. These findings strengthen the value proposition for investing in active living environments and uniquely highlight parks as a key feature with the potential to be leveraged as a preventive medicine tool for preventing physical inactivity-related diseases, such as stroke.

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O.2.20-3

How Meat Taxation Is Framed in German News Media: An Analysis of Themes and Stakeholders

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
Room 8, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: In many high-income contexts, consumption of animal-based foods remains higher than levels advised for environmental sustainability and public health. Fiscal instruments such as taxes have been discussed as potential levers to shift consumption patterns, yet these proposals face political and societal backlash. Public debates, and in particular media framing, can shape perceptions of the legitimacy and feasibility of such policies. This study examines how the taxation of animal-based foods is represented and contested in German media, identifying central actors, dominant narrative frames, and the arguments that support or challenge different tax models. The research contributes novel insights into how value-based reasoning and policy design considerations influence discursive support for or opposition to these measures.

Methods: We conducted a qualitative media analysis of German newspaper and trade press coverage concerning proposals for taxes and levies affecting the price of animal-based foods. The dataset comprised 488 articles published between February 2019 and July 2023 in ten national daily newspapers and eight trade press publications. Using an inductive coding approach, we identified key stakeholder groups, mapped recurring argumentative themes, and analyzed how policy instruments were framed. Coding reliability and thematic interpretation were refined through team-based discussion and cross-checking.

Results: Positive framing of taxation most frequently centered on expected improvements in animal welfare and environmental protection, while health benefits were referenced less prominently. Support for taxation was not confined to traditionally progressive actors; it also appeared among agricultural producers, industry representatives, and conservative political figures, particularly where revenues were proposed to be earmarked for animal welfare improvements. This alignment around animal welfare provided a cross-cutting justification that could bridge ideological divides. By contrast, opposing frames emphasized risks of exacerbating socioeconomic inequalities, questioned the effectiveness of a tax, or argued that regulatory measures would be preferable.

Conclusion: Policy designs and communication strategies that emphasize shared priorities—in this case animal welfare—may reduce polarization and increase support for taxation of animal-based foods. Clear and credible mechanisms for revenue use can address equity and efficacy concerns. In the German setting, limitations on revenue earmarking and rising inflation rates seem to have reduced political momentum for adopting the tax.

O.2.20-4

Dedicating Public Open Space to Physical Activity: Evidence from 379,000 Adults in the Netherlands

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
Room 8, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: The Netherlands is becoming increasingly urbanised, and policymakers have adopted a densification strategy that puts pressure on multifunctional public open spaces. A new Dutch guideline proposes that 25% of public open space should be dedicated to physical activity (walking, cycling, playing, and sports). However, no studies have yet examined whether this allocation is associated with sufficient physical activity among residents. This study investigates the relationship between the proportion of public open space (POS) dedicated to physical activity and compliance with the Dutch Physical Activity (PA) Guideline (≥ 150 minutes/week moderate-to-vigorous PA and ≥ 2 days/week muscle- and bone-strengthening activities).

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Methods: We analysed cross-sectional data from the Dutch Health Monitor 2024 (N=379,439 adults), assessing PA Guideline compliance using the SQUASH questionnaire. For each participant, the proportion of public open space dedicated to physical activity (PA-POS) within a 1,000-metre crow-fly buffer of the residence was calculated. Spatial data were sourced from the Large-Scale Topography Map (BGT) and enriched with OpenStreetMap and the Dutch Outdoor Play Map to include playgrounds. The percentage was defined as the combined area of pavements, cycling infrastructure, play infrastructure, and sports facilities in open space divided by the total public open space.

Generalised Additive Mixed Models (GAMMs) with a spline term examined the association between PA Guideline compliance and the proportion of PA -POS, as well as compliance with the proposed 25% guideline. Models were adjusted for age, gender, education, income, neighbourhood satisfaction, living status, migration status, and neighbourhood socioeconomic status, with neighbourhood as a random intercept. Stratified analyses were conducted for neighbourhood types defined by amount of POS and population density.

Results: A positive association was found between the proportion PA-POS and PA Guideline compliance, starting at 20% and increasing linearly up to 55%. Residents with more than 25% of PA-POS were more likely to comply (OR: 1.07; 95% CI: 1.03-1.10). Associations were strongest in neighbourhoods with less POS and higher population density.

Conclusion: Dedicating a higher proportion of PA-POS is associated with greater compliance with PA Guidelines among Dutch adults. Urban planners and policymakers should consider allocation of PA-POS to promote PA. Future research is needed to confirm our findings.

O.2.20-5

Warning Labels for Non-nutritive Sweeteners: Impacts on Chilean Parents' Choices and Perceptions

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
Room 8, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: In 2016, Chile mandated that products high in sugar carry warning labels. Following this policy, use and consumption of non-nutritive sweeteners (NNS) increased, raising concerns about NNS intake among children. Chile is now considering adding a text warning to NNS-containing products ("CONTAINS NON-SUGAR SWEETENERS, AVOID CONSUMPTION AMONG CHILDREN"). However, this and other NNS labeling approaches – e.g., Colombia's "CONTAINS NON-SUGAR SWEETENERS" stop signs – have never been empirically tested.

Methods: In 2025, Chilean parents of children ages 2-14 (n=3,523) completed an online experiment. Participants were randomly assigned to see either no NNS label (control), Chile's proposed NNS label, or Colombia's NNS label on NNS-containing products. Participants saw products (one without added sweeteners, two sugar-sweetened, two NNS-sweetened) and were asked to select one for their child, to identify NNS-containing products, and, afterwards, to report which labels they saw. Next, participants saw NNS-containing products and rated the NNS labels' perceived message effectiveness (PME) and products' healthfulness. Lastly, participants rated their intentions to limit their children's future NNS intake. We report average differential effects (ADEs) compared to control in percentage points (pp) or on scales ranging from 1 (low) to 5 (high).

Results: Both the Chile (ADE=67pp, p<0.001) and the Colombia (ADE=69pp, p<0.001) labels led to higher identification of NNS-containing products. Both labels led to *lower* selection of NNS-containing products (Chile label ADE range=22-35pp; Colombia label ADE range=22-33pp; all p<0.001) and to *higher* selection of products without added sweeteners (Chile label ADE range=20-35pp; Colombia label ADE range=22-31pp; all p<0.001). Neither label led to higher selection of sugar-sweetened products. Afterwards, 63% of participants in the Chile NNS label condition and 84% in the Colombia NNS label condition reported seeing NNS labels (p<0.001). Lastly, both labels led to *higher* PME (Chile label ADE=1.53; Colombia label ADE=0.92, both p<0.001), *lower* product healthfulness perceptions (Chile label ADE=1.43, Colombia label ADE=0.81, both p<0.001), and *higher* intentions to limit children's NNS intake (Chile label ADE=0.66, Colombia label ADE=0.17, both p<0.001).

Conclusion: NNS labels greatly improved parents' NNS identification and led to healthier product choices for their children, showing promise for curbing NNS intake in this vulnerable population.

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O.2.20-6

Assessing Gaps in Food Security Status by Exposure to Crime at Food Stores: An Oaxaca-blinder Decomposition Analysis

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
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Purpose: Food insecurity is a persistent issue that affects 14% of U.S. households. Previously, we found that U.S. adults who are exposed to crime at food stores in their community (e.g., grocery stores, dollar stores) are more likely to be food insecure than those unexposed. Given the novelty of this finding, there is little evidence in the literature that describes the drivers of this disparity. To address this gap, we assessed demographic, socioeconomic, and health factors that may explain the disparity using Oaxaca-Blinder (O-B) decomposition.

Methods: We analyzed cross-sectional survey data collected in 2024. The sample included 1,518 adults (mean age: 50; 52% female) who self-reported their demographics and history of exposure to crime at food stores in their community. Food security status was measured using the 6-item US Food Security Module. Respondents who stated they were a witness OR victim of crime at a food store were labeled as “exposed”; all other respondents were “unexposed”. We ran a multivariable logistic regression model to confirm that exposure status was associated with higher odds of food insecurity in this sample (OR: 2.04; 95% CI: 1.48-2.82). Afterwards, we ran several O-B models in Stata 16.1 using the *Fairlie* command to (1) identify factors that contributed to the food security disparity by exposure status (2) quantify the portions of the disparity that were explained by our factors of interest.

Results: Approximately 331 (21.8%) respondents reported exposure to crime at food stores. The O-B model estimated the predicted prevalence of food insecurity to be 72% among those exposed and 39% among those unexposed (a disparity of 33 percentage points). The O-B model that only included age, sex, and race/ethnicity explained 7 percentage points (21%) of the difference. The addition of marital status, number of children, education level, annual income, employment status, car access, and stress score to the O-B model increased the explained portion to 13 percentage points (39%).

Conclusion: While selected demographic, socioeconomic, and health factors explain 39% of the disparity in food security status, a large portion remained unexplained. Future studies should explore the contribution of community- and store-level factors.

O.2.20-7

The Public Health Index: Development of a Benchmarking Tool to Assess the Implementation of Evidence-based Public Health Policies and Application to 18 European Countries

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
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Purpose: Unhealthy diets, physical inactivity, alcohol consumption, and tobacco use account for a substantial share of the disease burden globally. We aimed to develop a benchmarking tool to systematically assess the implementation of evidence-based policies addressing these four major risk factors internationally, and to apply it to 18 European countries.

Methods: We systematically searched for existing benchmarking tools, frameworks and indices, and identified

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suitable existing benchmarking tools for alcohol and tobacco policy. For unhealthy diets, a new index was developed assessing the implementation of health-related food and beverage taxes, nutrition labelling, marketing regulations, and school nutrition standards. Policy databases including the NOURISHING database and the WHO Global Database on the Implementation of Food and Nutrition Action were used as data sources. For physical inactivity, we developed a new index based on the WHO Global Status Report on Physical Activity 2022, integrating data from the WHO NCD Country Capacity Survey 2021 and the WHO Global Status Report on Road Safety. The four sub-indices were then integrated to form an overarching index ranging from 0 (no implementation of any policies) to 100 (full implementation of all policies). We then applied the index to 18 European countries.

Results: Among the 18 countries assessed, the Public Health Index Score ranged from 32 to 72, with a median score of 50 (interquartile range: 43-64). The highest scoring countries (score ≥ 60) included the United Kingdom, Finland, Ireland, Norway, France and Lithuania, and the lowest scoring countries (score ≤ 40) were Luxembourg, Austria, Germany and Switzerland. Scores across the domains of nutrition, alcohol and tobacco policy were correlated, and the lowest scoring countries showed low scores across domains. Scores in the physical activity policy varied less across countries, and correlated less with the scores in the other three domains.

Conclusion: The newly developed Public Health Index allows for a structured and systematic comparison of the implementation of evidence-based policies for addressing unhealthy diets, tobacco and alcohol use, and physical inactivity across countries and risk factor domains. In our sample of 18 European countries, policy implementation varies considerable, and substantial implementation gaps are evident across all countries.

O.2.20-8

International Differences in Sweetener Use in Ready-to-Drink Beverages: An Online Market Scan of Australia, Canada, Chile, Mexico, United Kingdom, and United States Retail Sources

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O.2.20 Policies and environments: Public Spaces, Beverages and Fiscal Tools for Healthier Diets and Activity
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Purpose: Non-nutritive sweeteners (NNS) are increasingly used in beverages worldwide, driven by consumer and government demand for low sugar/low-calorie options. However, as little is known about their use across countries and beverage categories, this study examined cross-country and cross-category sweetener use.

Methods: A market scan of non-alcoholic, ready-to-drink beverages was conducted across six countries (Australia, Canada, Chile, Mexico, the United Kingdom (UK), and the United States (US)) between October 2023 and February 2025. The sample included 14,785 beverages collected from retailer and manufacturer websites via web scraping with available ingredient lists and nutrition labels. Descriptive statistics and binary logistic regression models compared sweetener use (i.e., NNS and added sugar) across countries and categories.

Results: Overall, 7.6% of beverages contained no sweeteners or intrinsic sugars, 27.7% had intrinsic sugars (e.g., milk-/juice-derived), 36.7% contained NNS (alone/with added or intrinsic sugars), 49.7% contained added sugar (alone/with NNS), and 66.3% contained free sugar (e.g., added/juice-derived intrinsic sugars). Over half of beverages (58.0%) contained multiple sweeteners and 34.5% contained combinations involving NNS. NNS use was highest in countries with mandatory sugary drink taxes and/or front-of-package nutrition labels (Chile: 64.5%; the UK: 48.8%; Mexico: 45.4%), and lowest in countries without mandatory national-level policies (the US: 36.1%; Australia: 23.3%; Canada: 16.4%; all $p < 0.001$ vs Chile). Added sugar use was lowest in Chile (40.2%), followed by Australia (40.2%), the UK (49.6%), the US (50.3%), Canada (52.7%), and Mexico (61.0%; all $p < 0.05$ vs Chile, except Australia). By category, NNS were most common in energy drinks (75.2%), followed by sports drinks (49.5%), soft drinks (46.6%), dairy & alternative (18.6%), coffee (18.0%), and low/no-alcohol beverages (16.26%; all contrasts $p < 0.05$ vs energy drinks). Added sugars were least common in water (25.2%), followed by dairy & alternative (45.2%), juice (47.4%), sports (66.1%), low/no-alcohol (72.4%), and coffee beverages (82.0%; all $p < 0.001$ vs water). “Sugar” and “fruit juice concentrate” were the most common sugars, while “sucralose” and “acesulfame K” were the most common NNS, with few cross-country differences.

Conclusion: Sweeteners, including NNS combinations, are prevalent in beverages worldwide. NNS use was greater among countries with mandatory sugar-based tax and/or front-of-package nutrition labelling policies.

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O.2.21-1

The Development of an Accessible Evaluation Method from a Systems Perspective with Adolescents

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

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Purpose: Most adolescents fail to meet the recommended daily physical activity guidelines, while interventions aimed at promoting adolescents' physical activity levels remain to have limited effect. Potential explanations include limited involvement of adolescents during intervention development and evaluation, and limited acknowledgement of physical activity being complex and context dependent. Therefore, complexity-sensitive evaluation is necessary to understand what effects actions achieve, why, how and for whom. Existing evaluation methods are however not accessible to adolescents. Therefore, we aim to present the development and evaluation of an accessible, meaningful and inclusive participatory evaluation protocol that builds on the realist-informed ripple effects mapping protocol.

Methods: The protocol was developed in an iterative and participatory process across six cases in Europe and Africa that aim to evaluate systemic actions designed in co-creation with adolescents. First, an overview of the protocol prerequisites was determined based on scientific literature about realist-informed ripple effects mapping; and in collaboration with experts, researchers and facilitators of participatory processes with adolescents. Second, the protocol was developed step-by-step through continuously reflecting and adapting from both a methodological and participatory perspective. Third, the protocol was pre-tested and further developed with adolescents at schools; and a training program was developed in which facilitators from all cases participated. Fourth, facilitators in various cases applied the protocol. Observation forms, focus groups and questionnaires will be thematically analyzed to evaluate the protocol.

Results: The protocol consists of one discovery meeting and three workshops to map the action effects and the pathways to achieve those. It was mainly applied to evaluate physical activity actions in five countries (Nigeria, South Africa, the Netherlands, Denmark, Portugal) with adolescents. To illustrate our process to translate complex evaluation methods to accessible evaluation methods for adolescents, we provide an overview of the crucial iterations per step, and insights into the protocol evaluation.

Conclusion: The process to translate complexity-sensitive evaluation methods toward accessible, meaningful evaluation methods for adolescents requires scientific rigor (e.g., building on literature, in consultation with methodological experts) and meaningful participation (e.g., co-creation). We reflect on how acknowledging and integrating both may strengthen one another.

O.2.21-2

Culinary Nutrition Needs and Challenges in Individuals with Intellectual Disabilities and their Caregivers in Switzerland

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

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Purpose: Individuals with intellectual disabilities (ID) experience greater health inequalities than the general population. While independent living supports well-being, it is also linked to increased sedentary time and unhealthy dietary habits. Promoting healthy, independent living is therefore essential. Culinary nutrition programs can improve nutritional knowledge, behavior, self-determination, and social participation. However, no structured, evidence-based programs exist for individuals with ID in Switzerland, and the motivational factors, needs, and challenges informing such programs remain largely unexplored. This study examined these factors among individuals with ID and their caregivers.

Methods: A qualitative descriptive design was used. Four organizations supporting independent living in German-speaking Switzerland were recruited via convenience sampling. A focus group interview guide was developed from the

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Cook-Ed™ model and pre-tested. In June and July 2025, eight focus groups were conducted, one with adults with mild to moderate ID and one with caregivers in each organization. Each group included 3-7 participants. Discussions were audio-recorded, transcribed verbatim, and analyzed using qualitative content analysis following Mayring's approach. Triangulation was achieved by comparing perspectives across the two groups.

Results: Four themes, nine codes, and 35 subcodes emerged. Participants showed strong interest in cooking and nutrition and preferred practical, easy-to-understand materials, such as recipes with numbered pictures or simple instructional videos. They described challenges related to limited time and financial resources, difficulties using digital formats, and modifying recipes. Participants emphasized the need for materials and tools that can be tailored to individuals with varying levels of disability. Reported motivation was linked to learning to cook a variety of dishes and participating in menu planning. Caregivers highlighted the importance of supporting residents' independence while providing consistent guidance.

Conclusion: The insights gained will now inform the design of a structured culinary nutrition program that is accessible, adaptable, and aligned with the lived realities of individuals with ID and their caregivers. As part of the participatory EssEntial project, this next phase involves co-creating and piloting program modules, followed by evaluation of their impact on nutritional behavior and autonomy. This process aims to establish a replicable model for inclusive, practical nutrition education in Swiss care institutions.

O.2.21-3

Barriers and Facilitators to Older Adults' Engagement in a Mall-walking Program: A Qualitative Citizen-science Study

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

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Purpose: Physical activity (PA) is essential for maintaining health, mobility, and psychological well-being in later life, yet participation among older adults remains low, especially among those with health, functional, or social disadvantages. Mall-walking, structured walking in indoor shopping centres, offers a safe, accessible, and weather-independent opportunity for PA and social connection. It holds promise as a feasible and sustainable strategy for active ageing, particularly as climate change makes outdoor walking more challenging. Although implemented in some countries, such programs remain understudied and are largely unknown in European contexts. As part of a broader citizen-science initiative, this qualitative study aims to address this gap by exploring psychological, contextual, and motivational factors facilitating or hindering older adults' engagement in mall-walking, to guide development of a peer-led mall-walking program in Austria.

Methods: Using purposive sampling across community and aged-care settings, approximately 40 semi-structured interviews and focus groups are conducted with older adults, caregivers, and professionals working with older adults in Austria. Sessions are audio-recorded and transcribed verbatim, with data collection expected to be completed by early 2026. Guided by the COM-B model (Capability, Opportunity, Motivation–Behaviour) and analysed inductively using reflexive thematic analysis, the study integrates participatory feedback loops in which citizen scientists review and refine emerging themes prior to the co-design of the intervention. This iterative, collaborative approach ensures that findings remain grounded in the lived experiences and needs of older adults.

Results: Findings will be mapped to the COM-B model, enabling a behavioural diagnosis that informs intervention design. Key thematic domains are expected to capture motivational dynamics, perceived accessibility, social aspects, and contextual enablers and barriers to participation.

Conclusion: The study is expected to provide novel insights into the psychological, contextual, and motivational factors underlying older adults' engagement in mall-walking. These insights will inform the subsequent co-design and development of a peer-led mall-walking program in Austria. Beyond its local relevance, the study may offer guidance for developing inclusive, scalable, and sustainable mall-walking programs and other community-based physical activity initiatives that promote active ageing and social connectedness through participatory, community-driven approaches.

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O.2.21-4

Co-creating the Big Food Map App: A Participatory Approach to Understanding Food Environments in Flanders

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

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Purpose: This study describes the participatory development of the Big Food Map app, a large-scale citizen-science tool designed to capture perceptions of the local food environment across Flanders, Belgium. The objective was to co-create an inclusive and practical platform that engages citizens in reflecting on their food environments, raises awareness of environmental influences on diet, and supports action toward healthier and more sustainable food systems.

Methods: The app was co-created with citizens—particularly adolescents and adults on lower incomes—and with local governments, retailers, and short-chain initiatives. Co-creation involved Photovoice workshops to document lived food-environment experiences and Group Model Building sessions with stakeholders to identify key food-environment dimensions and settings. Citizens and actors jointly refined the app's design, question formats, and feedback functions. The app was launched between May and August 2025 to crowdsource data on perceptions and behaviours related to neighbourhood food environments. Descriptive analyses were used to summarise participation patterns, and brief evaluation questionnaires captured perceived usefulness and potential behavioural impact.

Results: A total of 4 707 citizens from 1 320 neighbourhoods (48 % of all in Flanders) evaluated 11 313 food outlets. Participants appreciated visualising and discussing their local food environments; about half liked the app's design, 24 % reported greater awareness of their food surroundings, and 56 % indicated willingness to participate again. Both citizens and stakeholders valued the collaborative process but noted challenges around sustained engagement, technical usability, and inclusion of vulnerable groups. The process strengthened partnerships between research, policy, and practice.

Conclusion: The Big Food Map demonstrates the feasibility of co-creating digital citizen-science tools that integrate public perspectives into food-environment research and policy. Beyond data collection, participatory design enhanced awareness and collaboration among citizens and stakeholders. Future work will focus on sustaining engagement, broadening inclusion, and embedding such tools within municipal food-policy frameworks.

O.2.21-5

Physical Exercise Modalities and Glycaemic Control in People with Prediabetes: GLYCEX Randomised Trial

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

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Purpose: Type 2 diabetes mellitus (T2DM) is a chronic disease with a high prevalence worldwide and multiple associated comorbidities. It is characterised by elevated glucose levels due to a decrease in insulin sensitivity and pancreatic beta-cell dysfunction. Prediabetes represents an intermediate state preceding the development of T2DM, defined by glucose concentrations above the normal range but below the diagnostic threshold for T2DM (fasting plasma glucose (FPG) between 100–125 mg/dL). At this stage, lifestyle interventions have the potential to reverse the condition and restore normoglycaemia. The beneficial role of exercise on glycaemic control is well established; however, further evidence is needed to determine which specific exercise modalities are most effective for improving glucose regulation in individuals with prediabetes. This study aimed to evaluate the effectiveness of different modalities of physical exercise on glycaemic control in adults with prediabetes, using continuous glucose monitoring (CGM).

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Methods: A controlled, parallel, randomised clinical trial with four groups: aerobic training (AT), resistance training combined with aerobic training (RT+AT), high-intensity interval training (HIIT), and a control group. Inclusion criteria were age between 18 and 70 years, FPG 100-125 mg/dL, body mass index between 25-35 kg/m², and not engaging in regular physical exercise. Exclusion criteria were a diagnosis of T2DM, pregnancy, and medical conditions preventing safe exercise. Sociodemographic data, comorbidities, CGM, blood tests and blood pressure were collected at baseline and at 15 weeks of follow-up.

Results: Of 407 individuals screened, 106 were randomised and 91 completed the trial (AT: n=23; RT+AT: n=24; HIIT: n=19; control: n=25). Overall, 50.6% of participants were women. Compared with control, HIIT significantly increased time in range <140mg/dL ($\beta=9.86$; 95% CI: 0.89 to 18.82; $p=0.031$) and reduced FPG ($\beta=-7.77$; 95% CI: -13.01 to -2.52; $p=0.004$) and HbA1c ($\beta=-0.230$; 95% CI: -0.335 to -0.125; $p<0.001$); RT+AT also significantly reduced HbA1c ($\beta=-0.113$; 95% CI: -0.213 to -0.013; $p=0.027$). Finally, AT showed limited effects on glycaemic control, improving HDL-c and triglycerides.

Conclusion: In a population with prediabetes, overweight or obesity and sedentary lifestyles, HIIT, primarily, and to a lesser extent RT+AT, improved glycaemic control. Both exercise modalities could become effective strategies to prevent T2DM.

O.2.21-6

Evolving Experiences of Food Pantry Clients: Three Years of Neighbor Satisfaction Data

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

Room 9, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Food insecurity remains a major public health concern, particularly among rural and low-income households. Charitable food programs play a critical role in addressing hunger, yet limited research has examined client satisfaction and access over time. This study examined changes in neighbor satisfaction, food choice, perceived accessibility, and barriers to food assistance across three years utilizing Northern Illinois Food Bank (NIFB) Neighbor Satisfaction Survey.

Methods: A cross-sectional, mixed-methods study was conducted using three annual survey waves (2022–2024). Surveys were completed by 6,251 individuals across 13 counties in Northern Illinois served by NIFB. Sites included food pantries, mobile markets, and online ordering and delivery programs. Primary outcomes included accessibility to free food, perceived food quality and choice, satisfaction with staff interactions, and likelihood of recommending NIFB services. Descriptive statistics summarized quantitative data. Qualitative responses were analyzed thematically. Independent-samples t tests and one-way ANOVA compared results across survey years.

Results: Across all years, most neighbors reported accessing food assistance was not difficult, though a consistent minority experienced notable barriers. A t-test confirmed a statistically significant improvement from 2022 to 2024 ($p < 0.001$, $d = 0.95$), indicating a large practical effect. Neighbors also consistently prioritized autonomy, convenience, and dignity in their food program experiences. Perceived alignment between pantry offerings and foods neighbors would choose at a store improved over time, increasing from 50% in 2022 to 66% in 2024. Neighbor willingness to recommend services remained high throughout the three-year period. Mean recommendation scores increased from 8.7 in 2022 to 9.2 in 2023 and remained high at 9.1 in 2024. Net Promoter Scores (NPS) followed a similar pattern, rising from 55% in 2022 to 77% in 2023 and stabilizing at 70% in 2024. ANOVA results confirmed statistically significant variation across years ($p \leq 0.007$; $\eta^2 = 0.02$). Qualitative findings revealed three key themes: perceived food quality and variety, access and convenience (e.g., limited hours, online ordering), and unwelcoming atmosphere.

Conclusion: Findings demonstrate progress in satisfaction and accessibility within charitable food programs. Enhancing language assistance, staff training, and client-choice models may further improve dignity and equity in food distribution. Ongoing evaluation is needed to address persistent barriers.

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O.2.21-7

Handgrip Strength Reference Values and Associations with 24-hour Activity Composition in Swedish Preschool Children

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O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

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Purpose: To develop age- and sex-specific reference values for handgrip strength in Swedish preschool children and to examine the associations of device-measured movement behaviours: sedentary time (ST), light physical activity (LPA), moderate-to-vigorous physical activity (MVPA), and sleep duration, with handgrip strength using compositional data analysis.

Methods: This cross-sectional population-based study included 3,218 preschool children (48.5% girls) aged 3.0–5.9 years recruited from 124 public preschools in the Stockholm region between September 2020 and February 2021. Handgrip strength was measured with a validated analog dynamometer (TKK 5825, Takei, Tokyo, Japan). In a subsample of 2,328 preschool children wore a triaxial accelerometer (ActiGraph GT3X+) during 24-hours over seven consecutive days. Time-use data were classified into ST, LPA, MVPA, and sleep according to validated cut-points for preschoolers. Smoothed age- and sex-specific percentiles for handgrip strength were derived using the LMS method. Associations between handgrip strength and the 24-hour movement composition were examined using compositional data analysis, with analyses stratified by sex and adjusted for age, body mass index, and parental education.

Results: Handgrip strength and all age- and sex-specific percentiles increased steadily with age, with median values rising from 4.08 to 7.42 kg in boys and from 3.45 to 6.87 kg in girls, and values at the 95th percentile approaching 9.5 kg by age 5. In compositional models, MVPA was positively associated with handgrip strength ($\beta = 1.22$ kg; 95% CI 0.81–1.62), whereas ST was inversely associated ($\beta = -0.84$ kg; 95% CI -1.31, -0.36). No significant associations were observed for LPA ($\beta = -0.48$ kg; 95% CI -1.23, 0.27) or sleep duration ($\beta = 0.10$ kg; 95% CI -0.37, 0.57). Sex-stratified analyses showed similar patterns, and interaction terms were not significant.

Conclusion: This study provides the first normative handgrip strength reference values for preschool children in Northern Europe and demonstrates that MVPA is a key behaviour positively associated with muscular strength, whereas ST is negatively associated. These findings offer a valuable screening tool for identifying preschool children with low muscular strength and highlight the importance of promoting active lifestyles and reducing sedentary behaviour from the earliest years of life.

O.2.21-8

Co-creating Interventions with Adolescents for Movement and Wellbeing: A Realist-inspired Evaluation of Early Barriers and Facilitators in the Multi-country YoPA Project

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ORAL ABSTRACT SESSIONS

O.2.21 Participatory Research in Health Promotion: Health for All: Tailoring Interventions for Diverse Populations and Vulnerable Groups

Room 9, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Promoting movement behaviours and wellbeing among adolescents is essential for addressing non-communicable diseases and reducing health inequities. The Youth-centred Participatory Action (YoPA) project (<https://www.yopa-project.eu/>) aims to co-design and implement context-specific interventions through participatory action research across diverse socio-cultural contexts in European and African sites. This study presents a realist-inspired process evaluation of YoPA Phase 1, focusing on the establishment of local YoPA communities. It examines barriers and facilitators during early implementation and explores cross-site similarities and differences in initiating co-creation processes within distinct socio-cultural and institutional contexts.

Methods: Semi-structured interviews (average length: 43min27s) were conducted with 22 adult participants, including consortium members and institutional stakeholders (14 female). Additional data sources included facilitator logbooks (n=61). A deductive thematic analysis was performed on MAXQDA24 using the novel co-creation PROSECO framework to identify the main barriers and facilitators. Findings were subsequently interpreted through a Context-Mechanism-Outcome (CMO) lens to explore how contextual conditions influenced early implementation processes and outcomes.

Results: Across the five PROSECO dimensions, Group Dynamics (n=77) and Partnership (n=74) emerged as key facilitators, alongside Resources and support (n=50). Main barriers mirrored these domains, with Group Dynamics (n=76), Contextual Influences (n=74), and Feasibility (n=42) being predominant. Delivery-related elements were less frequently reported at this phase.

The CMO analysis showed that supportive contexts, such as existing collaborative networks and available infrastructure, potentially triggered mechanisms of preparedness and confidence, leading to smoother early implementation and stronger adherence to plans. Power imbalances and lack of trust within groups reduced participation and produced uneven co-creation dynamics, probably activated by mechanisms of discomfort. Cross-site comparisons indicated that cultural norms around hierarchy and communication shaped these mechanisms differently across contexts.

Conclusion: Early implementation of a youth-centred participatory approach was shaped by contextual enablers, social mechanisms, and partnerships. Relational trust, facilitation, and capacity building were key to sustained engagement and meaningful youth participation. The realist-informed PROSECO analysis provided comparative insights into culturally diverse settings. These findings can contribute to advancing participatory health promotion approaches and inform future efforts to design contextually grounded, equitable interventions for adolescent wellbeing and movement behaviour.

O.2.22-1

Cost-effectiveness of 24-hour Movement Behavior Interventions for Secondary Prevention in Patients with Cardiovascular Disease: A Systematic Review

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Cardiovascular disease (CVD) affects 620 million people worldwide, a number projected to reach 1.1 billion by 2050. Consequently, demand for rehabilitation and chronic care will rise, increasing healthcare costs. These trends highlight the need for preventive strategies to ensure sustainable and accessible healthcare. Secondary prevention through modifiable risk factors, such as 24-hour movement behavior (24h-MB; physical activity, sedentary behavior, sleep), plays an important role. Although the clinical benefits of balanced 24h-MB profiles are known, evidence on the cost-effectiveness of 24h-MB interventions remains unclear. This systematic review aims to identify, appraise, and synthesize existing evidence on the cost-effectiveness of 24h-MB interventions in CVD patients.

Methods: A systematic search was conducted in four databases (Embase, PubMed, CENTRAL, CINAHL). Eligible

ORAL ABSTRACT SESSIONS

studies were full economic evaluations from developed countries adopting a healthcare and/or societal perspective, included adults with CVD, and focused $\geq 50\%$ of intervention content on improving 24h-MB or one of its components. Comparators were usual care or no intervention. Two reviewers independently screened studies using ASReview and Rayyan. Quality was assessed with CHEERS, ROB-2, and ECOBIAS. Costs were standardized to 2024 Euros. The primary outcome was incremental net monetary benefit (INMB). Where feasible, meta-analyses were performed by perspective and follow-up, with cost-effectiveness acceptability curves generated across willingness-to-pay thresholds.

Results: Eighteen studies (including a total of 13,987 participants) met inclusion criteria; two used a societal perspective. None targeted all 24h-MB activities: seventeen focused on physical activity, one on sleep, none on sedentary behavior. Reporting quality was good in seven studies and moderate in others. Half showed high risk of bias, mainly due to missing data. Meta-analysis (healthcare perspective, one-year follow-up) showed 24h-MB interventions were cost-effective versus control (INMB MD 2.706; 95% CI 849–4.563; $I^2 = 44.5\%$; 7 trials; $n = 1.199$). Results at 8 weeks, 6 months, and lifetime perspectives were consistent.

Conclusion: Preliminary findings* suggest that 24h-MB interventions may be cost-effective for CVD patients, offering both health benefits and cost savings. These results indicate opportunities for improved care at lower costs and support the integration of 24h-MB interventions into more efficient and sustainable healthcare systems.

*Preliminary results; final analysis December 2025.

O.2.22-3

Exposure to Appearance-focused vs. Body-positive Media Content: Associations with Intuitive and Disordered Eating in Adolescents

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: The association between screen use and eating patterns among adolescents has received considerable attention. However, most studies on this topic provide little detail about how exposure to body image-related media content is linked to eating behaviors. To address this gap, the present study examined the extent to which exposure to appearance-focused media content and exposure to body-positive media content are associated with various eating behaviors: intuitive eating (i.e., eating in response to internal hunger and satiety cues), dieting (i.e., deliberate restriction of food intake to influence body weight or shape), bulimia and food preoccupation (i.e., recurrent thoughts about food and episodes of overeating) and oral control (i.e., efforts to strictly monitor food intake) in adolescents, while controlling for age, sex, and weekly time spent engaging in different screen-based activities (e.g., social media, video gaming).

Methods: This study includes preliminary data from the first measurement time point of a one-year longitudinal study. Participants were 236 adolescents (51% girls, 49% boys), aged 12 to 17 years, recruited from various high schools in Quebec, Canada. Measures included exposure to body image-related media content (*Body Positive Media Scale*), weekly time spent on different screen-based activities (*ABCD Youth Screen Time Survey*), problematic eating behaviors (*Eating Attitudes Test-26*) and intuitive eating (*Intuitive Eating Scale-3*).

Results: The results show that, when controlling for age, sex, and weekly time spent engaging in various screen-based activities, exposure to appearance-focused media content was positively related to dieting ($\beta = .33, p < .001$), bulimia and food preoccupation ($\beta = .24, p < .01$), and oral control ($\beta = .19, p < .05$), and negatively related to intuitive eating ($\beta = -.28, p < .001$). Conversely, exposure to body-positive media content was not significantly related to any of the eating behaviors (all $ps > .05$).

Conclusion: The results of this study highlight that exposure to appearance-focused media content—but not to body-positive media content—is associated with maladaptive eating patterns, even after controlling for overall screen time. These findings underscore the importance of considering the nature of media content adolescents are exposed to when examining the associations between screen use and eating patterns.

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O.2.22-4

Associations between Global Burden of Disease Dietary Risk Factors and Elevated Depressive Symptoms: The Nutrinet-Santé Prospective Cohort Study

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Evidence links overall dietary patterns to mental health, but studies on specific food groups and nutrients aligned with dietary guidelines are needed to inform population-level mental health preventive strategies. Within the Global burden of disease Lifestyle And mental Disorder (GLAD) Taskforce, we aimed to determine the associations between dietary exposures and elevated depressive symptoms, including potential sex-specific differences, in the French NutriNet-Santé cohort.

Methods: Prospective observational study using NutriNet-Santé cohort data (2011-2022). Dietary intake was assessed at baseline and every six months for two years using non-consecutive 24-hour records, defining the “dietary exposure window”. Exposures included food groups (fruits, vegetables, legumes, whole grains, nuts & seeds, milk, red meat, processed meat, and sweet drinks) and nutrients (fibre, calcium, omega 3, polyunsaturated fatty acids (PUFA), and sodium) as defined by the Global Burden of Disease (GBD), as well as ultra-processed foods (UPFs) using the NOVA classification. Participants with self-reported depression at baseline or during the dietary exposure window were excluded. The Center for Epidemiologic Studies Depression (CES-D) scale was administered every two years, using validated French cutoffs (≥ 17 for men, ≥ 23 for women) to indicate elevated depressive symptoms. Associations were estimated using multivariable Generalized Estimating Equations (GEE) adjusting for confounders.

Results: Among 40,658 adults (75.7% women; mean age 46.6 years), 8,739 (21.5%) met criteria for elevated depressive symptoms at least once during a median follow-up of 8.36 years. Overall, higher intakes of fruits ($OR_{100g/d \text{ increase}} = 0.968$; 95%CI=0.948-0.989), vegetables ($OR_{100g/d} = 0.918$; 95%CI=0.890-0.946) and fibre ($OR_{10g/d} = 0.954$; 95%CI=0.930-0.980) were associated with lower odds of developing elevated depressive symptoms, while higher intake of red meat ($OR_{10g/d} = 1.009$; 95%CI=1.001-1.017), sweet drinks ($OR_{100g/d} = 1.046$; 95%CI=1.016-1.076), and the dietary share of UPFs ($OR_{10\%g} = 1.160$; 95%CI=1.126-1.196) were associated with increased odds. Most associations remained only among women, in whom processed meat emerged as positively associated ($OR_{10g/d} = 1.014$; 95% CI: 1.001–1.028).

Conclusion: Fruits, vegetables, and fibre were associated with reduced odds of elevated depressive symptoms, while red meat, processed meat, sweet drinks, and UPFs were associated with increased odds. These results align with official nutritional guidelines in France and in many countries, supporting their promotion to improve population-level mental health.

O.2.22-5

Evaluating the Thriving Communities Lab: A Systems-based Approach to Promote Youth Well-being in a Danish Municipality

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: The Thriving Communities Lab (2025-2029) aims to strengthen youth well-being (ages 12–25 years) through systemic and cross-sector collaboration in the Danish municipality of Faaborg-Midtfyn, based on a Collective Impact design. The overall evaluation seeks to understand how system-level change unfolds over time, notably which mechanisms, processes, and contextual factors enable, sustain, or constrain systemic capacity-building for youth well-being. The study contributes to the growing field of complex systems evaluation by applying an innovative, multi-level approach integrating theory-driven and participatory methods.

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Methods: The evaluation employs a multi-method design encompassing seven interlinked sub-studies. These explore: (1) municipal capacity and readiness for systemic change; (2) identification of leverage points via causal loop diagram analysis, eco-system mapping and youth input; (3) ownership and partnership formation; (4) the application of the Collective Impact design; (5) data use throughout the study; (6) tracking of system changes; and (7) synthesis and refinement of the programme theory. Data methods include focus groups, semi-structured interviews, surveys, ethnographic observations, and participatory mapping (e.g. Ripple Effects Mapping and Action Registry). Analytical frameworks draw on realist evaluation and systems theory.

Results: As a formative, longitudinal design, early results of the evaluation study will document the processes through which municipal actors develop systemic capacity, share data, and coordinate collaboration across sectors. By integrating dynamic tracking tools (e.g., IMPAcT process), the evaluation captures evolving patterns of collaboration, feedback loops, and emergent leverage points within the system. Cross-cutting synthesis will refine the initial Theory of Change and elucidate the mechanisms by which systemic interventions influence youth well-being outcomes. We will present the overall evaluation design and baseline data from sub-study 2 at the conference.

Conclusion: This evaluation represents an innovative contribution to public health systems research by operationalizing complex systems thinking in a municipal context. Through its integrative and participatory design, the Thriving Communities Lab will produce evidence on how cross-sector collaboration, data use, and Collective Impact approaches potentially can foster sustainable system change to improve youth well-being and guide future policy and practice.

O.2.22-6

Stress and Physical Activity in People with Epilepsy: An Ecological Momentary Assessment Study

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Only about 35% of people with epilepsy (PWE) meet the recommended physical activity (PA) guidelines, despite the known antiepileptic and stress-reducing benefits of PA. At the same time, stress is one of the most frequently reported seizure triggers, and may also limit engagement in PA. Understanding how stress and seizures interact with daily PA is therefore highly relevant for PWE. Existing research on seizures, stress and PA is limited to retrospective and cross-sectional studies, which cannot capture daily fluctuations or support causal conclusions. To address these gaps, this study used a 30-day longitudinal ecological momentary assessment (EMA) design. Objectives were twofold: (1) examine how epileptic seizures influence PA and (2) investigate how stress affects PA.

Methods: Thirty adults with refractory epilepsy (mean age: 39.7 years, SD = 12.1; 52.6% male) participated in the study. Daily moderate-to-vigorous physical activity (MVPA) was objectively measured using an ActiGraph accelerometer. Heart rate variability (HRV) was assessed twice daily via the Polar H10 chest strap as an objective marker of stress. Participants completed a time-based EMA survey twice daily via the Eco Emo Tracker smartphone app, which captured self-reported stress and potential confounders (identified using a directed acyclic graph, DAG). Results were analyzed using mixed-effects models.

Results: High within-subject variability was observed in MVPA (82%) and HRV (74%), reflecting substantial day-to-day fluctuations. Preliminary analyses (N = 18) indicated a trend toward higher MVPA the day after a seizure (+11.1%, 95% CI [0.3%; 21.4%], $p = .05$). No significant associations were observed between morning HRV or self-reported stress and subsequent MVPA that day. Final results will be presented at the conference.

Conclusion: High within-subject variability in MVPA and HRV underscores the pronounced day-to-day fluctuations in PA and physiological stress among PWE. Increased MVPA following seizures may reflect compensatory or adaptive coping behavior to regain control or well-being after seizure events. The absence of associations between MVPA, HRV, and stress suggests that daily fluctuations in physiological and perceived stress do not directly translate into changes in PA, or that they influence PA through distinct pathways. These preliminary findings emphasize the need for further research on within-person dynamics in larger samples.

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O.2.22-7

Digital Phenotyping Using Wearable-determined Physical Behaviors and Machine Learning to Detect Depression and Anxiety Symptoms in a General Population

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Depression and anxiety are common mental health disorders, but diagnosing them remains challenging. Digital phenotyping using wearable devices data offers a promising approach for detecting depression and anxiety in the general population. This study aims to explore the extent to which wearable accelerometer-determined physical behavior metrics can be used as digital phenotypes for identifying individuals with and without depression or anxiety symptoms using machine learning (ML) algorithms.

Methods: At age 46, participants (N = 2,810) from the Northern Finland Birth Cohort 1966 carried wrist- and waist-worn accelerometers for 14 consecutive days. Physical activity and sedentary behaviors were measured using data from the waist-worn device, while sleep behavior was identified based on data from the wrist-worn accelerometer. A total of 54 physical behavior metrics were extracted for each participant. The severity of depression and anxiety symptoms was assessed using three validated instruments: the Beck Depression Inventory-II, Generalized Anxiety Disorder-7, and the Hopkins Symptom Checklist-25. Five ML algorithms were applied to identify individuals with and without depression and anxiety symptoms. Model interpretability was enhanced using SHapley Additive exPlanations (SHAP) to assess the contribution of individual features.

Results: Among ML models, random forest achieved the best performance, with accuracy from 66% to 72% and AUC values between 66% to 70% across all three instruments. Physical behavior metrics extracted from accelerometers emerged as potential predictors of depression and anxiety. In the SHAP analysis, wake-up time, time in bed, bed time, physical activity intensity proportions, and prolonged sedentary bouts were identified as the most important features.

Conclusion: Wearable-derived metrics of physical behaviors, combined with ML models, can be utilized with reasonably good accuracy to distinguish between participants with and without depression or anxiety symptoms. Our findings support the utility of wearable-derived digital phenotypes of physical behavior for differentiating between participants with and without depression or anxiety symptoms in a general population.

O.2.22-8

Intermittent-vigorous Intensity Physical Activity as a Strategy for Recovery in Severe Mental Illness

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O.2.22 Mental Health and Wellbeing: Mental Health, Nutrition, and Movement: Integrative Approaches to Well-being Multipurpose Room, May 29, 2026, 12:00 PM - 1:00 PM

Purpose: Due to some people with severe mental illness showing resistance to usual treatment, making their clinical recuperation difficult, non-pharmacological interventions can be a good strategy. This study aimed to evaluate the efficacy of a 28-week intermittent-vigorous intensity program, combining High Intensity Interval Training (HIIT) and Vigorous Intermittent Lifestyle Physical Activity (VILPA), on clinical outcomes compared to a control group who received usual treatment.

Methods: It is a pragmatic clinical trial involving two mental health services located in different geographic areas (Manresa and Vic, Catalonia). All eligible consenting participants from one center (n=34) were allocated to the

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intervention group (IG) and those from the other center (n=23) to the control group (CG). IG took part in a three-stage physical activity intervention. In stage one (weeks 1-8), they participated in two HIIT sessions per week. In the second stage (weeks 9-16), they were involved in one HIIT session per week and asked to start doing VILPA during the day. In stage three (weeks 17-28), participants had to accumulate as much VILPA as they could throughout the day. Data were collected at baseline and at 16 and 28 weeks, including depression symptomatology (HAM-D) and positive and negative psychotic symptomatology (BPRS-S). We used a Per-Protocol approach to evaluate changes over time and between groups.

Results: Compared to baseline, after 16 weeks (HIIT and HIIT+VILPA intervention), the IG significantly improved their depression (14.24 to 11.76 points; $p=0.013$) and positive (4.23 to 2.00 points; $p=0.006$) and negative (2.31 to 1.38 points; $p=0.046$) psychotic symptomatology, compared to the control group, who did not improve in it. During the following 12 weeks (VILPA intervention), the intervention group maintained the improvements achieved before. More importantly, compared to baseline and after 28 weeks (overall intervention), IG significantly improved the depression (14.24 to 12.35 points; $p=0.025$) and positive (4.23 to 2.23 points; $p=0.012$) and negative (2.31 to 0.85 points; $p=0.007$) psychotic symptomatology. Meanwhile, CG did not significantly improve in anyone.

Conclusion: Adults with severe mental illness can significantly improve the clinical outcomes compared to a control group, who only follow a usual health treatment, when participating in this intermittent-vigorous intensity physical activity program.

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SO.1.01-02

A Grade-level Longitudinal Analysis of School and Community Food Environment Impact on Child Weight Status

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Previous research has indicated that child obesity status is influenced by the school and community food environment, with higher obesity rates observed in areas with greater access to unhealthy foods. Leveraging multiple years of measured student data, this study offers new insights into age-specific vulnerabilities by examining whether the impact of the food environment on child weight status differs by grade level.

Methods: At four time points from school year 2013 to 2019, trained school nurses collected height and weight data from K–12 students (n=76,182) across four low-income New Jersey school districts. Obesity prevalence, the primary outcome, was calculated from these measurements. The school food environment (school lunch and competitive foods) was assessed via surveys and characterized using summary scales. The community food environment (i.e. restaurants and stores) were identified as healthy or unhealthy, with the number of outlets within ¼ mile of each school calculated. Mixed-effects logistic regression models measured any association between food environment variables and obesity prevalence by grade level. Models were adjusted for child race and sex, measurement date, school-level sociodemographics, and clustering by school and school district.

Results: Patterns suggested that exposure to more unhealthy competitive foods corresponded with higher odds among those in grades 6–12. This pattern was significant in select grades; e.g., grade 6 students had higher odds of obesity when more unhealthy competitive foods were available (OR = 1.037, $p=0.000$). The associations for lower grades, K–5, were not significant. Similarly, a higher number of unhealthy community food outlets corresponded to higher odds of obesity prevalence for most grades; e.g., grade 10 (OR = 1.035, $p<0.030$). Conversely, a higher number of healthy community food outlets showed negative trends in obesity across several grades; e.g., grade 2 (OR = 0.934, $p = 0.003$). Associations for other grades not reported followed similar directions, though not all grades reached significance. Results will be visualized using forest plots to illustrate grade-specific trends.

Conclusion: These findings support evidence that a healthier food environment, characterized by greater access to nutritious options and fewer unhealthy options, may promote reductions in childhood obesity.

SO.1.01-03

Exploring Associations between Parenting Style, Stress, and Energy-dense Feeding Practices in Low-income Preschoolers: A Pilot EMA Study

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Caregiver parenting style, stress and food-parenting practices (FPPs) shape young children's intake of energy-dense foods (EDF; ultra-processed snacks, sweets, and sugar-sweetened beverages), yet real-time evidence in low-income families is lacking. This exploratory pilot study examined (1) potential associations between baseline characteristics and EDF feeding episodes across one week and (2) whether caregivers' momentary stress during EDF episodes related to FPPs used.

Methods: A pilot sample of 20 caregivers of Head Start children (ages 3–5) completed baseline measures (parenting style, home availability, caregiver emotional eating, baseline stress, baseline FPPs) and 7 days of ecological momentary assessment (up to 7 prompts/day). At each prompt, if the child was present and EDF items were consumed, caregivers reported FPPs used and rated momentary stress (0–100). For Aim 1, we modeled caregiver-level counts of EDF episodes using Poisson regression (log link), robust SEs, and the log of eligible prompts as an offset (continuous predictors z-scored). For Aim 2, we tested momentary stress–practice associations during EDF episodes using GEE (logit link) with within-person stress (per +10 above a caregiver's mean) and between-person mean stress (z-scored).

Results: Authoritarian parenting was associated with a higher weekly probability of EDF episodes (RR = 1.43, 95% CI

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1.23–1.66, $p < .001$); authoritative trended lower ($RR = 0.90$, 0.80 – 1.01 , $p = .065$). Higher baseline stress was associated with more EDF episodes ($RR = 0.80$, 0.70 – 0.92 , $p = .001$). Momentarily, when caregivers felt more stressed than their own average, odds of offering food as a treat/reward increased ($OR = 1.08$ per +10 points, 1.02 – 1.15 , $p = .011$). Caregivers with higher average momentary stress were more likely to eat the same food alongside the child ($OR = 1.59$ per +1 SD, 1.02 – 2.48 , $p = .042$). Domain-level FPP composites (i.e., structure, autonomy, coercive, indulgent) showed no association with momentary stress.

Conclusion: In this pilot study, authoritarian style and higher stress showed preliminary associations with greater EDF episode likelihood, and momentary stress was associated with reward use during those episodes. If replicated in larger samples, these patterns may suggest potential targets for adaptive, just-in-time interventions. These findings should be considered hypothesis-generating and require confirmation in adequately powered studies.

SO.1.01-04

The Food Literacy BITE (Building Informed, Thoughtful, Empowered Eaters) Survey: Development and Measurement Properties in U.S. Elementary Schoolchildren

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions
Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Food education programs aim to support children in the early development of healthy food behaviors, and food literacy has been posited as a promising indicator of program influence on dietary habit formation. Existing tools for assessing children's food literacy, however, have primarily been developed from adult-centered conceptual models. The objective of this study was to develop a novel tool, the Food Literacy BITE survey, from four child-centered food literacy dimensions and evaluate its measurement properties among elementary schoolchildren (~9-12 years) in the U.S.

Methods: Items were developed for the four dimensions: food system and nutrition knowledge, confidence in everyday food skills, valuing shared food practices, and purposeful engagement with food. Item and scale-level content validity indices were calculated for two rounds of expert panel ratings. Group cognitive interviews ($n = 6$) were conducted with elementary students ($n = 43$) to assess comprehensibility in the target population. The survey was then tested with a socioeconomically and culturally diverse developmental sample of $n = 690$ elementary schoolchildren across 10 different schools, primarily in Washington, DC. Structural validity of the proposed model with four first-order factors and a second-order food literacy factor was tested with confirmatory factor analysis (CFA), and internal consistency was evaluated with composite reliability values.

Results: Expert review produced a 20-item survey with acceptable content validity, and cognitive interview findings informed revisions to improve comprehensibility. CFA supported the proposed model structure, with acceptable values across all model fit indices ($CFI = 0.96$, $TLI = 0.95$, $RMSEA = 0.046$, $SRMR = 0.051$) and all item loadings ≥ 0.45 . Two items were removed due to cross-loading. Internal consistency was acceptable for food literacy overall (0.74) and adequate for each of the individual dimensions (range: 0.62 – 0.71).

Conclusion: The 18-item Food Literacy BITE survey offers a tool for measuring food literacy in children, based on child-centered dimensions and validated among a diverse developmental sample. This survey can be particularly useful for tailored food education program planning and evaluation of program efficacy. Future research will focus on testing with rural and peri-urban populations and additional geographic regions to establish suitability for broader use.

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SO.1.01-05

A Quasi-experimental Comparative Effectiveness Study Evaluating the Feasibility and Effectiveness of a Produce Prescription Program in School-based Health Centers among Overweight and Obese Adolescents

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: School-based health centers (SBHC) are a critical solution to improve access to preventive services for children. While produce prescription programs have shown feasibility and impact in adults, data in adolescents receiving care at settings like SBHCs is lacking. This presentation is to share the design, framework, baseline data, and recruitment strategies of a USDA-funded GusNIP produce prescription pilot among under-resourced overweight/obese adolescents in four SBHCs in Galena Park, Texas.

Methods: The Brighter Bites/Legacy Produce Prescription Program is a multi-sectoral collaboration. Our partners include Brighter Bites (BB), a nonprofit providing fresh produce and nutrition education to families to improve child dietary outcomes, and Legacy Community Health (Legacy), the largest Federally Qualified Health Center and school-based health program in Texas. This study uses a quasi-experimental comparative study design (N=60) to assess the effectiveness of a home-delivery produce prescription program combined with evidence-based nutrition education. Participants receive ~20lbs of produce biweekly, coupled with five virtual culinary nutrition education sessions over 32 weeks. Eligible participants are Medicaid- or SNAP-eligible adolescent patients aged 10-17 who are overweight/obese. The control group is de-identified patients with a 1-to-1 match based on participants' demographics and insurance status from electronic health records. Recruitment was conducted in four SBHCs through health record screening, and patients were recruited in-person or by phone. Since January 2025, 52 participants have been enrolled, and the anticipated recruitment end date is November 30, 2025. Primary outcomes are BMI z-scores, blood pressure, hemoglobin A1c, liver and lipid panels. Secondary outcomes include household food insecurity, diet quality, and Patient Health Questionnaire for Adolescents score. Process evaluation includes program dosage, reach, acceptability, and feasibility.

Results: Among 52 currently enrolled participants, 63.5% were female, and 73.5% were Hispanic. At baseline, mean HbA1c was 5.5% (range: 5.1%–6.1%), with 56.3% obese and 43.8% overweight. Baseline lipid panel results showed mean total cholesterol levels at (155.78 mg/dL), HDL (53.93 mg/dL), LDL (83.54 mg/dL), and Triglycerides (122.11 mg/dL).

Conclusion: This pilot study will provide preliminary effect sizes for future trials and inform future strategies to promote the physical, behavioral, and mental health outcomes in under-resourced adolescents.

SO.1.01-07

Predictors of Intergenerational Malnutrition Profiles and Associations with Preschool-age Outcomes among Amazonian Children

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: This study aimed to investigate predictors of latent malnutrition profiles in the mother-child pair at 2 years of age and their association with outcomes at preschool age.

Methods: This analysis is part of the MINA-Brazil Study, a population-based birth cohort in the Amazon region. At

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birth, 1-, 2-, and 5-year follow-ups, data were collected on sociodemographic, health, and lifestyle characteristics. Nutritional status of mothers and children was assessed using maternal BMI and WHO growth standards (height-for-age [HAZ] and BMI-for-age [BAZ] Z-scores). Child blood samples were analyzed for hemoglobin, ferritin, and vitamin A concentrations. Latent profile analysis identified malnutrition profiles at 2 years, using BIC, SABIC model fit indices, and entropy. Multinomial regression analysis identified predictors of the profiles, and equality tests of means assessed nutritional outcomes at the 5-year follow-up.

Results: Three mother-child latent malnutrition profiles were identified: “low ferritin and hemoglobin” (n=40; 5%), mean hemoglobin concentration: 10.97 g/dL (95%CI:10.27-11.67), mean ferritin: 7.71 µg/L (95%CI:5.66-10.49); “reference pair” (n=728; 85%) with all nutritional parameters within healthy cutoffs; “high maternal BMI and child BAZ” (n=86; 10%), mean maternal BMI: 28.38 kg/m² (95%CI:26.37-30.39), mean BAZ: 1.98 Z-scores (95%CI:1.49; 2.47). The chance of belonging to “low ferritin and hemoglobin” profile decreased with higher maternal schooling (OR=0.88; 95%CI:0.80-0.60) and increased in case of consumption of cow milk at 6 months of age (OR=6.69; 95%CI:1.38-32.31). Conversely, the chance of belonging to “high maternal BMI and child BAZ” profile increased with higher maternal schooling (OR=1.14; 95%CI:1.01-1.29), decreased in case of adequate pre-pregnancy maternal BMI (OR=0.27; 95%CI:0.14-0.54), and increased for each additional Z-score in child’s birth weight and in case of use of bottle-feeding at 12 months of age (OR= 1.86; 95%CI:1.17-2.97 and OR=3.70; 95%CI:1.46-9.40, respectively). Children in the “higher maternal BMI and child BAZ” profile showed significantly higher waist-to-height ratio (mean 0.55, p<0.01), HAZ (1.51, p<0.0001), and BAZ (2.77, p<0.001) at 5 years, compared to the other profiles. No differences were found for hemoglobin concentrations at age 5.

Conclusion: Intergenerational malnutrition profiles among 2-year-old Amazonian children depicted micronutrient deficiencies and excessive weight. Predictors included socioeconomic and perinatal factors, with longitudinal associations with higher adiposity indicators at preschool age.

SO.1.01-09

Differences in Elementary-aged Children’s Meal Timing between School and Summer. Three-year Findings from the What’s UP (Undermining Prevention) with Summer Observational Cohort Study

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Later and inconsistent meal timing is associated with chronic disease in adults. Emerging evidence suggests similar associations among children. Few studies examine child meal timing longitudinally, which is a critical gap given established seasonal risk factors for excess summer weight gain compared to the school year. This study examined changes in absolute meal timing and consistency from the school year to summer in elementary-aged children.

Methods: Parents of n=1,298 children (ages 5-14 years, 48% girls) completed a 14-day daily diary during school (April/May) and summer (July) from 2021-2023. Parents reported times their child consumed breakfast, lunch, and dinner. Multilevel models examined changes in absolute timing (clock time) and consistency in timing (individual standard deviation, SD) from the school year to summer, controlling for child age, sex, and household income. These latter variables were further examined as moderators. Only weekdays were included in the analysis.

Results: During summer, children consumed all meals later compared to the school year (breakfast: 89.5min, 95%CI: 88.3-90.7; lunch: 53.8min, 52.8-54.9; dinner: 11.6min, 10.5-12.8). All absolute timing changes during summer were moderated by income*timepoint interactions (breakfast high-income 8.3min earlier; lunch high-income 20.6min earlier; lunch middle-income: 12.8min earlier; dinner high-income: 3.8min earlier; dinner middle-income: 3.8min earlier. Age (age*timepoint) only moderated breakfast (5.8min earlier for every one-year increase) and lunch (0.7min earlier for every one-year increase). During summer, children had less meal timing consistency with 9.2min (7.0-11.3) and 9.8min (8.2-11.4) greater SD in breakfast and lunch timing, respectively, than during the school year with no difference for dinner. Breakfast and lunch consistency was moderated only by age (breakfast: 1.7min later for every

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one-year increase; lunch:1.6min later for every one-year increase).

Conclusion: Children consumed all meals later, with slight increases in breakfast and lunch timing inconsistency during summer compared to the school year. Children from higher-income households compared to lower-income households ate earlier in the summer compared to the school year. As children grew older, they ate breakfast later and lunch earlier in summer compared to the school year. Research is needed to further understand how different summer environments influence changes in meal timing to support the development of healthful dietary habits.

SO.1.01-10

Long-term Grade-specific Weight Trends among K-12 Students Before and After COVID Related School Closures: An Interrupted Time Series Analysis

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Mandatory school closures during the COVID-19 pandemic disrupted access to school meals and structured days for school-age children, especially among low-income households. This interruption exacerbated pre-existing challenges like unhealthy diets, reduced physical activity, and increased sedentary behavior—factors linked to weight gain. This study assessed short- and long-term impacts of COVID-19-related school closures on student weight status.

Methods: Using data from School Year (SY) 2013-14 to SY 2023-24 and a repeated cross-sectional design, we assessed changes in modified BMI z-scores (mBMIZ) among K-12 students (n=117,079) in four low-income New Jersey school districts. De-identified, nurse-measured height and weight data were collected at seven time points across the study period. Interrupted time series models estimated changes in mBMIZ over time by grade level, adjusting for sex, race, date of measurement, and school-level demographics. Models estimated (i) pre-COVID trends (SY 2013-14 to SY 2019-20), (ii) the change in mBMIZ from SY 2019 (pre-COVID onset measurement) to SY 2021 (first measurement, post-COVID onset), and (iii) post-COVID trends (SY 2021 to 2023). Mixed-effects logistic regression models measured changes in obesity prevalence.

Results: Before COVID-19, mBMIZ was stable across grades between SY 2013-2019 ($\beta = 0.001 - 0.054$). There was a significant increase in mBMIZ from SY 2019 to SY 2021 for grades K-6 and 8 ($\beta = 0.243 - 0.534$, $p < 0.05$), indicating a sharp rise after COVID-19-related school closures. Post-COVID slopes showed significant declines in mBMIZ for the majority of grades (K-5 and 8; $\beta = -0.182 - 0.092$, $p < 0.05$), suggesting partial recovery towards pre-pandemic levels. Adjusted mean mBMIZ scores were still higher in SY 2023 compared to SY 2019 for grades 2, and 4-9. Models examining obesity as the outcome showed similar findings.

Conclusion: COVID-19-related school closures were associated with a significant short-term increase in child mBMIZ, followed by a gradual decline after schools reopened. The impact on weight trends did vary by grade, suggesting younger students may be more vulnerable to school closures. These findings underscore the critical role of school nutrition programs and structure in supporting positive health outcomes and preventing excess weight gain among children.

SO.1.01-11

Identifying Schools with High Neighborhood Trauma Levels and Low School Meal Participation: A First Step in Trauma-informed Implementation Science Approaches to Increasing School Meal Uptake

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

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Purpose: Trauma-informed approaches are a promising method for school programming in communities with high trauma prevalence. To date, most trauma-informed school efforts have focused on teaching or discipline, rather than health-related programs such as school meals. Providing free healthy school meals is associated with better nutrition and less food insecurity and obesity in Black and Latino/a/x students – who often have high trauma prevalence. Thus, the purpose of this study was to identify schools where school meal uptake was low and neighborhood trauma levels were high to prioritize sites for future testing of trauma-informed implementation science approaches to school meal delivery.

Methods: This cross-sectional study entailed secondary analysis of data from N=218 Philadelphia PA USA schools from school year 2024-2025 and publicly available spatial data. School meal uptake was operationalized as unadjusted percent of students per school who participated in universal free school meals per month and aggregated to the academic year. A Neighborhood Trauma Score for every Philadelphia census tract was created using 21 spatial data sources and methods validated in a prior study. School neighborhood was operationalized as school catchment, and school Neighborhood Trauma Score was calculated using area-based weights, using the percentage of census tract within each school catchment. School meal uptake and school Neighborhood Trauma Score were each categorized into 3 data-driven quantiles (high, medium, low). Following, both were mapped to assess spatial patterning and identify schools in highest quantiles of neighborhood trauma and lowest quantiles of school meal uptake. Analyses were done using R and ArcGIS.

Results: Mean school meal uptake was $56.6 \pm 15.3\%$, ranging from a minimum of 14.4% and a maximum of 86.4%. Neighborhood trauma was geographically concentrated in north, northeast, and west Philadelphia. N=5 (3%) elementary schools, N=5 (4%) middle schools, and N=1 (4.5%) met priority criteria (both lowest uptake and highest trauma quantiles). Visual inspection of maps demonstrated clusters of high neighborhood trauma and low school meal uptake in north central, south central, and northeast Philadelphia.

Conclusion: Inequities in trauma burden and school meal uptake exist across Philadelphia. Future research can focus on identifying priority schools for trauma-informed implementation science approaches to school meal delivery.

SO.1.01-13

Is Breakfast Quality Associated with Active Commuting, School Physical Activity and Sleep Duration? A Cross-sectional Study among Spanish Youth

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SO.1.01 Children & Families: Healthy Schools: Integrated Nutrition and PA Interventions

Auditorium, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: To examine the association between breakfast quality (BQ) with active commuting to/from school (ACS), school moderate-to-vigorous physical activity (MVPA) and sleep duration (SD) in Spanish youth, stratified by age and gender.

Methods: This cross-sectional study, part of the PACO study, included 786 Spanish youth (children, 6–12 years; adolescents, 13–18 years). The sample comprised 47.3% girls. Data were collected between 2015 and 2021 from 27 schools across 11 Spanish cities. BQ was assessed using the *Spanish Youth Breakfast Consumption Questionnaire* (SYBC-Q). BQ was categorized into two groups: good/high-quality or insufficient/improvable-quality, based on the presence or absence of the main food groups (dairy, cereals, fruits, and healthy oils). ACS was assessed using the PACO questionnaire, school MVPA, using the Young Activity Profile (YAP) questionnaire, and SD was obtained from self-reported bedtimes and wake-up times. School MVPA and SD were dichotomized as meeting or not meeting international recommendations. Binomial logistic regression models stratified by age and gender were used to analyse the associations between BQ and ACS, school MVPA and SD.

Results: In the total sample, consuming a good/high-quality breakfast was significantly associated with being 1.67 times more likely to achieve adequate SD ($p = 0.003$). By age and gender, significant positive associations between good/high-quality breakfast and adequate SD were found only among adolescents ($OR = 1.66; p = 0.007$) and boys ($OR = 1.85; p = 0.014$). In addition, a near-significant trend was observed among children, where those consuming a good/high-quality breakfast were 2.25 times more likely to engage in ACS ($p = 0.055$). No significant associations were found between BQ and the other variables studied. On the other hand, interaction analyses revealed that the association

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between BQ and school MVPA differed by gender ($p = 0.031$), showing stronger association among girls, even though subgroup analyses did not reach statistical significance. No other significant interactions were observed for any of the other variables studied.

Conclusion: Good/high breakfast quality was significantly associated with adequate SD among Spanish youth, with stronger associations observed among boys and adolescents. These findings highlight the importance of promoting good-quality breakfasts to improve health-related behaviours in the school-aged population.

SO.1.02-01

Estimating Student School Meal Consumption Using Novel AI Methodology

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

Room 1, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Advancements in artificial intelligence (AI) have led to its enhanced accuracy, enabling the use of AI as an effective dietary assessment tool. The implications of AI for measuring dietary intake are particularly important in school settings, where the current objective plate waste methodology can be both time-consuming and resource-intensive. Therefore, this project aimed to test the validity of innovative AI methods used for estimating the percent consumption of different components of school meals and comparing them with estimates derived from objective plate waste measurements and those made by trained observers.

Methods: Images of student lunch trays ($n=844$) were collected across five elementary public schools. Three methods were used to estimate the proportion of different food items consumed (i) estimation with AI algorithms for area and volume, (ii) plate waste methods, and (iii) estimation by trained observers. For AI estimates, the pre-consumption images were compared with post-consumption images. The images of student trays were annotated using a large language-based model, the Mobile Segment Anything model. For object detection, the AnyLabeling software was utilized to label the food items and generate segmentation masks for each object. Subsequently, an image processing method computed the difference in pixel area from the generated segmentation masks using the Shoelace formula. An AI depth estimation network was also used to estimate food item volume using a pre-trained deep learning model (Mask RCNN) and adjusting for parameters including the distance and angle between the camera and tray to predict the depth map for each food item. Standardized plate waste measures were used to estimate the weight of items pre- and post-consumption. Observer estimates were determined by trained evaluators estimating the percent consumption of food items left on each student's tray compared to pre-consumption images.

Results: The validation analyses will compare the AI area and volume percent consumption estimations with (i) the objective plate measurements and (ii) the observer estimates using Bland-Altman plots and intraclass correlation coefficient analyses.

Conclusion: The usage of AI in school settings can have important implications for facilitating data collection to inform evidence-based policies and interventions for improving the nutritional quality of school meals.

SO.1.02-02

A Novel Approach to Shaping Effective School Food Policies to Improve Children's Healthy Eating

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

Room 1, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Despite current public health guidance, most children do not meet nutrition recommendations. Schools are a key location for implementing food policies, with evidence of approaches that have positive impacts on children's diets. However, there is a lack of policy coherence due to uncertainty around how to bring effective elements together in a way that addresses barriers to implementation in schools and creates a coordinated approach across UK local

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authorities. Hence, there is a need to move towards the development of coherent and evidence-based policy that meets the needs of schools, can be implemented at scale, and shapes decision-making processes.

Methods: This collaborative study between academia, policy, and schools took a novel four-phase approach: (1) scoping of policies which aim to improve healthy eating in primary schools; (2) engagement sessions with stakeholders (primary school staff) and end-users (primary school children); (3) consultation with academics and experts in food policy; and (4) triangulation of insights gained.

Results: Phases 1-3 identified 14 separate policy components across 42 healthy eating policies. Six potential mechanisms by which the component could affect eating behaviour were also identified. The triangulation of insights showed that all policy components are appropriate for implementation in schools. Findings also suggested that 'learning about food', 'modelling', and 'eating with others' were the most likely components to be practical and effective in schools.

Conclusion: This novel approach which included multidisciplinary insights from academia, policy, and the public sector identified key policy components which can be implemented in primary schools to improve children's healthy eating. Future research is needed to develop our recommendations into a practical tool for policymakers and school staff.

SO.1.02-03

How Were Youth Perspectives Integrated in the Development of a National Ban on Harmful Food Marketing to Children – A Case Study from Norway

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

Room 1, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Youth have a recognized right to participate in the development of policies that affect them. Including their voices ensures that their unique perspectives and lived experiences are acknowledged and contributes to strengthening policy relevance and sustainability. Currently, evidence of youth involvement in national-level policymaking to promote healthier diets is scarce. This study examines the extent to which youth perspectives were integrated into the development of Norway's legislation banning harmful food marketing directed at children under 18—a pioneering policy aligned with WHO guidelines and the first of its kind globally. Our research question was: What is the content, extent, and nature of references to youth opinions and perspectives in the policy process of the proposed marketing regulation?

Methods: In August 2024, the Norwegian Ministry of Health and Care Services submitted for consultation a proposal for a new regulation prohibiting the marketing of certain food products aimed at children. We conducted a quantitative content analysis of the 109 publicly available stakeholder responses submitted to the consultation using a predefined analytical framework. The framework included key indicators to examine whether the stakeholders supported or opposed the proposed regulation, identify arguments used to justify their position, and references to youth voices, a child rights'-based approach and to other legislative frameworks.

Results: The 109 stakeholder responses were divided into five stakeholder groups; 2 (1.8 %) were from youth organisations, and 33 (30.3 %) from other NGOs or civil society organisations, which included six organisations who have child rights or youth health as main interest. Further, 46 (42.2 %) stakeholders represented the private sector or the food industry, 15 (13.8 %) were research or academic institutions and 13 (11.9 %) public authorities/agencies. Results from the analysis of the presence of youth perspectives and opinions and how they are distributed among stakeholder groups will be presented.

Conclusion: Findings from this study will reveal whether policy development at national level adequately aligns with the aspiration of integrating youth perspectives in decision-making and identify gaps that may inform strategies for meaningful youth participation in future food policy design.

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SO.1.02-05

Active Travel to School among 7–16-Year-olds in Wales: Socio-demographic Inequalities and the Role of School Policies

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

Room 1, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Active travel to school (AST) offers an important source of daily physical activity and supports overall wellbeing. Despite policy interest, evidence on how schools actively promote AST remains limited at a national level. This study explores school policy efforts within a nationally representative sample, offering insight into how AST is supported across different educational settings. The study aimed to i) estimate the prevalence and socio-demographic variations of AST among 7–16-year-olds in Wales, UK, ii) assess school policy support for AST, and iii) test associations between individual and school-level factors and pupil-reported AST.

Methods: Survey data were collected from a nationally representative sample of 177,715 pupils (47.1% female). Of these, 51,662 were primary school pupils (aged 7–11 years; N=510 schools) and 126,053 were secondary school pupils (aged 11–16 years; N=204 schools). Pupil survey data were linked with a School Environment Questionnaire completed per school by a designated teacher, capturing school-level policies supporting AST. Multilevel logistic regression models examined associations between pupil (age, gender, and ethnicity) and school characteristics (socioeconomic status and location) and AST, adjusting for clustering by school.

Results: Overall, 34.1% of pupils reported AST, with higher rates among primary-aged pupils ($p < .001$). At the individual level, AST varied significantly by age, gender, and ethnicity. Pupils attending medium- or high-socioeconomic status schools were more likely, and those attending rural schools less likely, to report AST. Most schools reported at least one AST policy (primary: 96.7%; secondary: 93.3%), averaging four policies per school. These could be grouped into four types: promotion, infrastructure, training, and partnership initiatives. Among primary-aged pupils, each additional policy was associated with a 5% increase in odds of AST (OR=1.05, 95% CI: 1.01–1.09), the trend among secondary pupils was non-significant (OR=1.06, 95% CI: 0.99–1.14).

Conclusion: Schools are making considerable efforts to promote active travel, yet national findings demonstrate significant inequalities exist in reports of AST across Wales. As the first population-level analysis linking pupil and school data on active travel in Wales, these findings provide valuable lessons for policymakers seeking to design equitable, context-sensitive approaches to school-based physical activity promotion.

SO.1.02-06

Predictors of Discontinued Participation in a Fruit and Vegetable Voucher Program: The Role of Community Organizations in Engaging Non-English Speakers

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

Room 1, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Healthy food voucher programs (HFVPs) are an important fiscal tool for addressing inequities in healthy food consumption. Fresh Bucks, a HFVP in Seattle, Washington, USA, provides US\$40/month for fruit and vegetable (FV) purchases to low-income households, encouraging long-term participation and utilizing a community-supported enrollment model to engage non-English speaking households. Previous research demonstrated that Fresh Bucks participation reduced food insecurity and increased FV consumption; yet 46% of participating households chose to discontinue participation when requested to re-apply ~2 years post initial enrollment. We sought to identify factors that predict discontinuation of Fresh Bucks participation, particularly among non-English speakers.

Methods: Administrative Fresh Bucks data from Jan 2020 (first program enrollment) and Oct-Dec 2021 (program

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re-application) were used to identify those who discontinued participation (outcome); $n=12,813$. We fitted a linear probability model with predictors obtained from baseline administrative and survey data: participants' age, race/ethnicity, preferred language, program enrollment pathway (public vs. Community-based organization [CBO]-assisted), FV consumption frequency (low [$\leq 1-3$ times/month], medium [$1-2$ times/week], or high [$\geq 5-6$ times/week]), household income, presence of children, and food security status. We further stratified analysis by preferred language.

Results: Rates of discontinuation were lower among non-English (37.6%) vs. English (53.3%) speakers. In the whole sample, age ≥ 30 years (vs. 18-29 years); presence of children; an income-to-poverty ratio (IPR)=100-200% or IPR>200% (vs. IPR<100%); self-identifying as Asian (vs. White); speaking Chinese, Vietnamese, or Spanish (vs. English); being food secure (vs. insecure); and having a high or medium FV consumption (vs. low) were significantly associated with lower probability of program discontinuation. Similar factors were associated with lower probability of program discontinuation among English speakers, while only age, FV consumption, and enrollment pathway were associated with program discontinuation among non-English speakers. CBO-assisted enrollment (vs. public) was associated with lower probability of discontinuation for non-English speakers (-6.2 percentage points [pp], 95% confidence interval [CI]= -9.5, -3.0) and higher probability of discontinuation for English speakers (2.9 pp, 95%CI=0.3, 5.5).

Conclusion: Age, income, race/ethnicity, preferred language, food security, and FV consumption predicted program discontinuation. Community engagement played an important role in retaining non-English speakers. These results could inform Fresh Bucks' and similar HFVPs' retention efforts.

SO.1.02-07

A Qualitative Study of Sociocultural and Behavioral Influences on Dietary Acculturation among First-generation West African Immigrants in the United States

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

Room 1, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Dietary acculturation—the process by which immigrants adapt their eating habits to a host culture—has important implications for chronic disease. However, the concept has not been adequately studied among West African (WA) immigrants, a rapidly growing yet underrepresented population in the USA. Given the unique cultural, linguistic, and historical diversity of WA, existing acculturation measures may not accurately capture their dietary transitions. This study aimed at identifying constructs to inform the development of a dietary acculturation scale for WA immigrants in the USA.

Methods: The qualitative study was informed by the social ecological and social cognitive models. Over four months, we conducted 6 online focus groups via video conference with 30 first-generation WA immigrants (age 19-67 years) from Virginia, Maryland, and Washington, DC were conducted. Participants were stratified by length of stay in the U.S. (<10 years or ≥ 10 years; 50% in each group). Discussions explored influences on food choices, tribal identity, drivers of dietary change, and social interactions. Audio-recorded sessions were transcribed verbatim and analyzed thematically using grounded theory and MAXQDA software. To enhance credibility, member checking was performed to validate emergent themes.

Results: Countries represented included Benin, Cameroon, Ghana, Ivory Coast, Sierra Leone, Togo and Nigeria. Five major themes emerged: (1) availability/accessibility of African food, (2) cost of food, (3) social networks, (4) perceived level of adaptation to American dietary habits, and (5) preparation of African foods (time and responsibility). Subthemes frequently overlapped; ingredient availability and adapted recipes and information shared within social networks. Cost and social connections were emphasized as central to food choices and perceived adaptation. Participants with ≥ 10 years emphasized the cost and preparation time of African foods and had a higher perceived adaptation level compared to those with <10 years. Participants with <10 years emphasized procurement of African food as a factor influencing their eating habits.

Conclusion: Findings highlight the multidimensional nature of dietary acculturation among WA immigrants with variations based on duration of residence. These findings will inform the development of a culturally tailored dietary acculturation scale to guide interventions aimed at improving diet quality and reducing chronic disease risk in WA immigrants.

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SO.1.02-08

A Preliminary Analysis of Adolescents' Exposure to Social Media Advertisements Promoting Unhealthy Foods and Beverages and Reflection on Children's Digital Food Environment in Sweden

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces
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Purpose: Social media use is increasing within adolescent populations globally, mainly through the increased use of mobiles. Within this landscape, food and beverage marketing is dominating the digital advertisements targeting adolescents, often promoting unhealthy items, such as fast food and sugary snacks. Such marketing has been previously associated strongly with higher consumption of unhealthy foods by children. However, in Sweden, there is limited research on this matter, especially focusing on the digital food environment and social media use. Thus, this cross-sectional study measured children's exposure to food advertisements and examined long-term implications on adolescents' digital food environment.

Methods: We recruited 314 participants from high schools in Stockholm, Sweden (59.4% females; mean age: 15.6 ± 1.7 years). Screenshots of advertisements encountered during social media use were uploaded by the participants through a purpose-built mobile application (Arbisense AB). Each participant took part in two data collection actions: i) A controlled data collection session within their classroom, taking screenshots of all the advertisements encountered on social media for 10 minutes. ii) Afterwards, children continued to upload screenshots of food advertisements during real world use of social media for two weeks. Screenshots were then annotated, using an image annotation software developed internally, with the intention of describing the population's exposure to food advertisements.

Results: In total, we analysed 22,247 pictures from 314 adolescents (59.4% females; mean age: 15.6 years). Within the controlled data collection setting, we identified that 30.6% of the received advertisements marketed food, appearing with a frequency of up to 22.5 and 17.2 per hour for Instagram and TikTok, respectively. Additionally, a preliminary analysis of the advertisements collected during the 2-week real-world data collection revealed that 29.5% of advertisements marketed food or beverages and that 70.1% of those promoted products that were considered unhealthy. As before, Instagram and TikTok were the main channels for delivering advertisements to adolescents (43% and 48%, respectively).

Conclusion: The digital food environment within social media for Swedish adolescents is dominated by targeted food advertising of unhealthy foods and beverages, mainly served by Instagram and TikTok. Further studies identifying the long-term effects of this environment to food selection are needed.

SO.1.02-09

Co-creating Research and Policy Priorities to Support Healthy Food Environments in Canadian Early Learning and Child Care Settings

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces
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Purpose: Nutrition in early life is critical, shaping children's life-long diets and relationships with foods. However, there is limited information on the current state of food environments in Canadian Early Learning and Child Care (ELCC) settings, and the potential research and policy needs that could support healthy ELCC food environments.

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Therefore, the objective of this participatory research activity was to identify and co-create research and policy priorities for food environments in Canadian ELCC settings.

Methods: To identify research and policy gaps, we conducted a regulatory overview for ELCC centres and a scoping review of ELCC nutrition guidelines at the provincial and territorial levels. Based on the findings, a diverse panel of stakeholders (n=40), including researchers, dietitians, ELCC professionals, policymakers, food service providers, and other community partners, were invited to participate in virtual and/or in-person discussions to discuss facilitators and barriers to creating and supporting healthy ELCC food environments. Using a Delphi approach, stakeholders anonymously ranked research and policy questions before- and after- discussions to identify the top five priorities.

Results: Research and policy questions were developed across eight major themes: (1) diets of children attending ELCC centres; (2) long-term effects of ELCC food environments; (3) leadership and institutional support; (4) food choices and menu planning; (5) infant and early childhood feeding practices; (6) ELCC staff food and nutrition literacy; (7) budgeting and economic considerations; and (8) caregiver engagement and nutrition literacy. Approximately 30 stakeholders participated in the discussion rounds to identify the top five research and policy priorities to strengthen ELCC food environments.

Conclusion: Engaging diverse, interdisciplinary stakeholders to co-create research and policy priorities was an effective and systematic approach to integrating multiple perspectives. The stakeholder meetings also facilitated networking and collaboration among participants who might not otherwise connect. Participatory approaches to co-developing research agenda represent a promising strategy for establishing actionable priorities and advancing an understudied area of research.

SO.1.02-10

Fidelity, Acceptability and Feasibility of a Student-led Curriculum for School Wellness Policy Implementation

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces
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Purpose: Youth are critical change agents for improving nutrition and physical activity environments within schools. However, school-based advocacy trainings for youth (particularly children and younger adolescents) are difficult to implement in a school setting. This study describes implementation fidelity, feasibility, and acceptability of Student Wellness Champions for Change (SWC), an education and advocacy training focused on improving nutrition and physical activity policy implementation in U.S. elementary and middle schools.

Methods: SWC consisted of 15 lessons delivered by a wellness educator during students' lunch period. In 30-minute lessons, students learned media literacy, leadership, and policy advocacy, then took action in their schools to improve policy implementation. We assessed implementation fidelity, feasibility, and acceptability of SWC in 9 schools (5 elementary, 4 middle). Fidelity was defined as Adherence to learning objectives and Competence of delivery (3-point Likert scale), measured using the Fidelity of Implementation Observer Checklist for a subset of randomly-selected lessons. Feasibility was defined by overall number of lessons taught and lesson deviations. Acceptability was described from student focus groups and Student Engagement/Responsiveness (3-point Likert scale) on the observer checklist.

Results: For implementation fidelity, 41 lessons were observed across 9 schools. Adherence to learning objectives ranged from 56% to 100%, and Competence ranged from 2.7 to 3.0. For feasibility, the range of lessons delivered across schools was 7 to 15. Deviations occurred at every school for between 7–93% of lessons. Common deviation reasons included inadequate time, behavioral challenges, and waning student interest over time. For acceptability, average student engagement across lessons ranged from 2.0–3.0 across schools, with higher scores for middle schools. Focus group data suggest that the curriculum content was acceptable and students learned leadership skills, but missed social experiences during lunch, wanted more movement during lessons, and wanted more „quick policy wins.“

Conclusion: SWC was acceptable and useful to students, but engagement was inconsistent over time. Fidelity and feasibility varied widely across schools and lessons and deviations were common, particularly due to limited time during lunch. While lunchtime lessons ensure accessibility for all students, future efforts to implement SWC could consider before or after school time to improve fidelity, feasibility and acceptability.

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SO.1.02-12

Students' Fruit and Vegetable Consumption, Selection, and Waste Is Associated with Eating Duration Rather Than Lunch Duration

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

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Purpose: Children in the United States chronically consume inadequate amounts of vegetables, fruits, whole grains, and dairy. The National School Lunch Program has the potential to improve diet quality by serving 30 million children daily meals that meet high nutrient standards. However, short lunch periods may limit students' opportunity to eat, contributing to lower fruit and vegetable (FV) consumption. Although prior research has focused on the length of the lunch period, less is known about how much time students spend eating is associated with FV intake. This study explored if eating duration is related to FV selection, consumption, and waste during school lunches.

Methods: A cross-sectional analysis was conducted using data from 37 Arizona elementary, middle, and high schools collected between 2017 and 2019. FV selection, consumption, and waste were measured using digital scales to the nearest 2 grams from pre- and post-meal tray weights. Eating duration was estimated as the interval between timestamped barcode scans of students' trays at lunch line exit and at tray disposal. Mixed-effects zero-inflated negative binomial regression models were used to estimate associations of lunch period duration and eating duration with FV outcomes, accounting for school-level clustering and student-level demographics.

Results: A 10-minute increment in lunch period length was associated with an additional 36 seconds of eating time. Every 10-gram increase in FV selected was associated with eating 3 seconds longer, and each 10-minute increment in eating time corresponded to 20 g more FV consumed and 5.5% less waste. With eating duration included in the models, lunch period length was not independently associated with FV consumption or waste.

Conclusion: Lunch period length was not associated with FV consumption or waste, suggesting that eating duration is the more meaningful factor influencing dietary outcomes. Future research can explore methods to increase students' time spent eating. Extending eating duration by 5 minutes per day could result in 50 g additional FV consumption, roughly half an extra serving of FVs per week. These findings suggest that increasing eating time, rather than simply extending lunch periods, may be more effective in improving student health and reducing food waste.

SO.1.02-13

Practices and Capacity to Promote Health and Wellbeing across Key Childcare, Healthcare, and School Settings: Results from Five Danish National Surveys

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SO.1.02 Policies and environments: Shaping Healthy Eating in Schools and Digital Spaces

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Purpose: To strengthen system-wide capacity for health promotion, more knowledge is needed about existing practices and enabling factors across sectors that influence children, youth, and families. This study introduces a coordinated national effort to assess practices and capacity for promoting health and wellbeing across five Danish settings: (1) general practice (GP), (2) childcare institutions, (3) primary and lower secondary schools, (4) after-school services, and (5) municipal administration.

Methods: Survey development followed established methodological guidance, including: (1) literature review and mapping of existing instruments, (2) qualitative interviews and a Delphi process with national experts, and (3) pilot testing. A key methodological focus was the operationalization of setting-specific health promotion capacity indicators while ensuring comparability through shared core items. The school and GP surveys were conducted with Statistics Denmark, using national employment registers for sampling and distributed via the national digital mail system (e-Boks). The school survey was fielded in summer 2025 to a random sample of ~30,000 leaders and staff, while the GP survey was distributed to the full population of ~9,000 GPs and clinic staff in autumn 2025. During winter 2025, Epinion Consultancy will collect data from smaller, targeted samples – including n=2,100 childcare institutions

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and n=1,600 after-school institutions - and data collection at the administrative municipal level will cover all 98 Danish municipalities.

Results: To date, n=8,125 school professionals (n=1,124 principals and n=4,826 staff) and n=1,234 respondents from the GP sector have completed the survey. The GP sample included n=343 general practitioners, n=201 doctors in training, n=532 nurses, and n=158 other clinic staff. Preliminary analyses within school settings indicate that principals report higher levels of health promotion capacity than staff, and that the capacity varies across health domains – for example, being higher for promoting social relations than for nutrition. When data collection across all settings is complete, descriptive analyses will provide a national overview of key capacity dimensions, such as perceived knowledge and competencies, motivation, and organizational conditions.

Conclusion: This study provides the first comprehensive assessment of practices and capacity for health and wellbeing promotion across Danish school, childcare, and healthcare systems – and will inform tailored strategies to strengthen professional competencies and organizational capacity.

SO.1.03-01

School-based Interventions to Improve Fruit and Vegetable Intake among Latin American Children: A Scoping Review

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
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Purpose: This scoping review synthesized evidence from school-based interventions to increase fruit and vegetable (FV) consumption among children aged 6–12 years in Latin America and examined how intervention design and behavioral theories relate to dietary outcomes. We highlight the features of effective, scalable interventions in low- and middle-income settings, with a particular focus on experiential components and school food environments.

Methods: A scoping review of PubMed, Web of Science, APA PsycINFO, and CINAHL was conducted following the PRISMA-ScR guidelines, identifying studies targeting FV consumption among children aged 6–12 years in Latin American schools. Eligible designs included randomized controlled trials, quasi-experimental studies, and single-group pre-post designs with FV-related outcomes. Studies were included if they evaluated school-based programs or policies and were published in English, Spanish, or Portuguese; protocols, reviews, descriptive studies, and grey literature were excluded. Study selection followed a PICOS framework; data were charted on setting, design, theoretical framework, intervention components, and outcomes, and synthesized narratively.

Results: We identified 59 eligible interventions from Latin American school settings, ranging from small pilot studies to large cluster-randomized trials. Most were multi-component. Social Cognitive Theory was the most frequently used framework, alongside the Theory of Planned Behavior, socio-ecological models, and game-based or experiential learning approaches; however, many studies did not explicitly report a guiding theory. FV intake was the most common primary behavior, and most interventions reported significant improvements in FV intake or related diet indicators, particularly when programs combined classroom nutrition education with hands-on cooking or gardening, cafeteria or canteen changes, and parental engagement. Across studies, nutrition knowledge and psychosocial constructs (preferences, self-efficacy, attitudes) improved more consistently than FV intake, especially in short, curriculum-only, or low-dose programs. Implementation fidelity, intensity, and alignment with the school food environment emerged as key determinants of effectiveness and sustainability.

Conclusion: School-based programs in Latin America can improve children's FV-related knowledge, preferences, and, under the right conditions, intake. The most effective interventions are theory-driven, multi-component, and experiential, targeting classroom learning, food environments, and family contexts. Future research should prioritize the use of theory, standardized outcomes, fidelity tracking, and cost-effectiveness to support scalable behavioral nutrition policies and practices.

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SO.1.03-02

Perceived Experiences, Barriers, and Facilitators of Sedentary Behaviour, Physical Activity and Dietary Behaviour among Hybrid Workers while Working from Home

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
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Purpose: Since the COVID-19 pandemic, there has been an increase in hybrid working amongst desk-based workers. On home working days, greater sitting time, lower physical activity levels, and increased calorie intake have been reported compared to office working days. There is limited understanding of the factors that influence enacting such health-related behaviours when working from home. The aim of this study was to understand perceived barriers and facilitators which could inform future potential intervention components, designed to help reduce sedentary behaviour, increase activity levels, and improve dietary behaviours while working from home.

Methods: Semi-structured interviews with 15 hybrid workers were conducted. The interview schedule was informed by the Theoretical Domains Framework (TDF) and Capability, Opportunity and Motivation - Behaviour (COM-B) model to understand perceived barriers and facilitators to increasing activity, reduce sedentary behaviour and improve dietary behaviours. Interviews were transcribed and inductively analysed using reflexive thematic analysis, then mapped deductively onto COM-B and TDF.

Results: Hybrid workers had mixed perceptions of their levels of sedentary behaviour and physical activity. Key barriers to reducing sedentary behaviour and increasing movement while working from home included small indoor home working environments, lack of motivation, workload and workflow demands, mindset and guilt of online presence, lack of knowledge, and sedentary work lifestyle. To facilitate behaviour change, key enablers included habit formation and increased motivation supported by the availability of equipment, environmental prompts, increased knowledge, and goal setting. Employers' help and support were seen as important factors in enabling these changes. The home working environment was perceived as more supportive of healthier dietary behaviours compared to the office working environment, offering individuals greater capability, and providing a more conducive setting for making conscious efforts to improve diet quality.

Conclusion: Many participants perceived home working environments to negatively impact sedentary behaviour and physical activity levels. Key perceived barriers and facilitators to behaviour change in the home setting were identified. These results suggest a need for intervention to reduce sedentary behaviour and increase activity levels on home working days. Home working was perceived to support healthier dietary behaviours, indicating less need for intervention development in this area.

SO.1.03-03

Psychometric Validation of the Short Nutrition Literacy Scale for Adults in the United States

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
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Purpose: Validated tools to assess nutrition literacy among U.S. adults are limited, particularly those that are brief, mobile-friendly, and capture multiple literacy domains. This study evaluated the validity, reliability, and feasibility of the Short Nutrition Literacy Scale for Adults (SNLS-USA), an internally developed instrument measuring functional, interactive, and critical nutrition literacy. Developed within the Delivering Food, Exercise, and Nutrition Education for the Prevention of Chronic Disease (DFEND) project, the SNLS-USA advances prior work by confirming its three-factor

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structure and refining the tool for large-scale implementation.

Methods: The SNLS-USA was developed through literature review, expert panel review (n = 10), and a community-based focus group (n = 15). The pilot survey was administered via Qualtrics to 800 U.S. adults (mean age = 43.6 ± 13.8 y; 68% female). All items were rated on a 5-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. Parallel analysis and exploratory factor analysis were conducted to identify the underlying factor structure. Confirmatory factor analysis (CFA) using maximum likelihood estimation validated three domains: Functional Knowledge, Interactive/Motivation, and Critical Literacy/Advocacy.

Results: Across the full sample (n=800), item means ranged 3.4–4.2 with modest variability and minimal ceiling effects. Parallel analysis suggested up to seven factors, but the three-factor model showed adequate fit (RMSEA = 0.061, CFI = 0.872, TLI = 0.840) and conceptually represented functional, interactive, and critical literacy. Refinement from 31 to 16 items yielded a concise, psychometrically sound scale with coherent domain loadings (e.g., advocacy 0.62–0.89; subskills 0.56–0.83) and minimal cross-loading, supporting the intended multidimensional structure.

Conclusion: The SNLS-USA demonstrates adequate validity, reliability, and theoretical alignment across the three domains of nutrition literacy: functional, interactive, and critical. The tool provides a brief measure for assessing nutrition literacy among adults in the United States.

SO.1.03-04

Factors Influencing Dietary and Physical Activity Behaviours among Adolescents in Urban Ghana and Kenya: Qualitative Insights from Key Stakeholders in the Generation H Study

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Purpose: Dietary, and physical activity behaviours are shaped by multiple factors at multiple level. Developing a contextualised behavioural intervention to change unhealthy behaviours necessitates apriori understanding the underlying influencing factors. This study explored factors influencing adolescents' (10 -19 yr) dietary and physical activity behaviours in urban Ghana and Kenya, and the mechanisms through which these factors operate.

Methods: As part of the Generation H (<https://www.generationh.org/>) study, 362 participants including adolescents, parents, church leaders, health and educational professionals were engaged through 38 focus groups and 45 in-depth interviews in Ghana and Kenya. During analysis, influencing factors were identified with both theory-driven (i.e. mapping factors onto a socio-ecological framework (individual, social, physical and macro environment levels) and data-driven (i.e. emerging themes) approaches. The mechanisms through which these factors operate to influence behaviours were mapped onto the COM-B model: *Capability* (psychological and physical), *Opportunity* (physical and social) and *Motivation* (automatic and reflective).

Results: Twenty-four factors were identified and operated across multiple socio-ecological levels. Most factors (n=10) occurred at the individual level, while the social (n=7) and physical (n= 6) environmental levels showed a relatively even distribution of influencing factors. At the individual level, limited diet and physical activity knowledge and skills reflected reduced *Capability*, while financial challenges, time constraints and competing priorities limited *Opportunity*. Social influences, such as unhealthy household diet and inactive behaviours and negative peer influence hindered social *Opportunity* and *Motivation*. The physical environments (availability and accessibility of (un)healthy foods and physical activity equipment and facilities (i.e. recreational spaces) at home, school and neighborhood influenced *physical Opportunity*. At the macro level, unhealthy food marketing, constrained *Opportunity* and undermined *Motivation* to consume a healthy diet.

Conclusion: Our findings underscore the complex multi-level factors influencing adolescents' diet and physical activity

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behaviours in the studied settings. These factors span multiple socio-ecological levels, which influences adolescent's *Capability, Opportunity* and *Motivation* to adopt healthy diet and physical activity behaviours. The Generation H study now has the information needed to design an intervention to improve dietary and physical activity behaviours among adolescents which integrates capability enhancing components, social support and motivation, and actions to create supportive physical opportunities.

SO.1.03-05

Exploring Experiences of Remote Call Centre Workers and the Barriers and Challenges Towards Enacting Health Behaviours: A COM-B and Theoretical Domains Framework-based Interview Study

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
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Purpose: Recently, remote working has become increasingly common. Whilst working remotely has benefits, it can lead to harmful behaviours such as reduced physical activity, increased sedentary time and poor diet. Call centre workers have been found to be at particular risk, compared to those in other sectors. Therefore, this study aimed to examine the experiences of remote call centre workers (RCCW) the impacts of remote working on health and lifestyle behaviours, and the barriers and strategies related to adopting healthier routines. Findings would inform the development of a tailored health behaviour intervention.

Methods: This study employed an interview-based interpretive thematic qualitative approach. One-to-one online interviews were conducted with RCCW from a national UK charity. Guided by the COM-B model and Theoretical Domains Framework (TDF), the interview schedule focused on the capability, opportunity, and motivation of remote workers to adopt healthy behaviours. Topics included lived experiences of remote working, perceived impacts on health behaviours, psychological and physical health, challenges to adopting healthy behaviours, strategies to overcome these, and workplace ergonomics. Verbatim transcripts were analysed on NVivo using inductive thematic analysis to generate themes which were then deductively aligned to the COM-B and TDF.

Results: Twenty RCCW (19 female, 1 male), aged 30–62 with 6 months to 22 years role experience, participated in 30-minute interviews. Themes were categorised into positive and negative factors, and potential strategies. Positive factors included convenience, lack of commute, organisational facilitators of health behaviours such as comprehensive ergonomic provision, health awareness, and reduced expenses. Negative factors involved organisational barriers to health behaviours such as reduced empowerment due to time and service optimisation, and impacts such as increased sedentary behaviour, declining physical health, and social isolation. Strategies to improve health behaviours included flexible scheduling and monitoring, active meetings, and organisation-led group physical activity initiatives.

Conclusion: The psychological capability and physical opportunities for RCCW to increase physical activity appear well supported. However, RCCW generally remain sedentary and feel socially isolated. These findings can inform intervention to ensure organisations promote social opportunities, and nurture reflective and automatic motivation among RCCW to capitalise on existing movement opportunities.

SO.1.03-06

Do Social Norms Amplify or Dampen the Relation between Climate Worries and Pro-environmental Health Behavior? Evidence from a Dutch Nationally Representative Panel (2019 – 2024)

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Purpose: Transitions toward plant-based diets and reduced car use are key for planetary and population health but remain difficult to achieve despite increasing public concern about climate change. This study investigates whether social norms amplify or dampen the relationship between climate worries and two pro-environmental health behaviors: meat consumption and car use for short distances. We further explore whether these associations differ by income and urbanicity.

Methods: We used longitudinal data from the Dutch Longitudinal Internet Studies for the Social Sciences (LISS) panel (N = 1,708), collected in 2019, 2023, and 2024. Climate worries were measured regarding personal and global impacts. Descriptive and injunctive social norms were assessed in 2023 for both behaviors. We applied within-between mixed-effects models with random intercepts for individuals to separate intra-individual changes from stable between-person differences. Models included interactions between climate worries and perceived social norms, adjusted for age, gender, income, and urbanicity. Analyses were stratified by income and urbanicity.

Results: Between-person differences in climate worries were associated with lower meat consumption ($\beta = -0.12$, 95% CI: $-0.18, -0.07$) and less frequent car use ($\beta = -0.14$, 95% CI: $-0.21, -0.07$). However, within-person increases in climate worries were not linked to behavioral change over time. Descriptive norms strongly predicted behavior, particularly for meat consumption ($\beta = -0.41$, 95% CI: $-0.45, -0.37$), but did not moderate the relationship between climate worries and behavior. No consistent variation was observed across income or urbanicity strata.

Conclusion: Although climate worries are rising, they do not automatically translate into behavioral change. Social norms appear to influence sustainable behaviors directly rather than by amplifying the effects of worry. Promoting population-level transitions toward sustainable diets and active transport therefore requires shifting prevailing social norms and structural conditions, making sustainable choices easier, more visible, and socially endorsed.

SO.1.03-08

Barriers and Facilitators Associated with Health-enhancing Behaviours among Bus Drivers

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes Room 2, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Bus drivers' working environments are not conducive to health-enhancing behaviours, with their job involving prolonged sitting, limited opportunities for movement, long working hours and shift work. Bus drivers have been identified as high-risk, in terms of health conditions, and are underserved in terms of health promotion efforts. There is a dearth of evidence in UK bus drivers on potential facilitators and barriers to enacting health-enhancing behaviours. This study therefore examined health challenges, and facilitators and barriers to adopting healthy behaviours in a sample of bus drivers, to inform tailored interventions.

Methods: Face-to-face semi-structured interviews with bus drivers were conducted at their worksite. Interview content was informed by the Theoretical Domains Framework (TDF) and Capability, Opportunity and Motivation - Behaviour (COM-B) model to understand barriers and facilitators to enacting health-enhancing behaviours. Interviews were transcribed verbatim and analysed inductively using thematic analysis then deductively mapped onto the COM-B model and TDF.

Results: 39 bus drivers (90% male, average age ($\pm$ SD): 47 $\pm$ 11 years) provided interview data. Chronic conditions including diabetes, hypertension, sleep apnoea, and obesity were reported by participants as widespread among bus drivers. Knowledge of contributory risk factors was demonstrated, with participants identifying irregular shifts, limited access to nutritious food, the sedentary nature of the job, inadequate facilities, and workplace stress as major contributors to poor health in drivers. It was also frequently reported that male drivers are less likely to proactively seek healthcare support. To facilitate improvements in drivers' health, participants identified the need for health behaviour-focused education/training to improve knowledge and awareness of health in general and of health-enhancing behaviours. The need to improve aspects of the working environment was identified, with particular emphasis on access to healthier food options, adequate restroom access, and revised policies to address driver fatigue and working hours. The provision of onsite wellness checks was identified as a potential solution to address barriers in accessing healthcare support.

Conclusion: Participants identified multiple barriers faced by bus drivers to engage in health-enhancing behaviours.

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This study highlights the need for multi-component interventions targeting the individual, environment and policy, to improve bus drivers' working conditions and health.

SO.1.03-09

Physical Activity and Gestational Weight Gain in the Brazilian Birth Cohort

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
Room 2, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Excessive gestational weight gain is associated with gestational diabetes, hypertension, cesarean section, postpartum weight retention, macrosomia, and child obesity. The guidelines suggest physical activity as an effective strategy for preventing excessive gestational weight gain. This study aims to investigate the relationship between physical activity during pregnancy and gestational weight gain.

Methods: Mothers who participated in the 2015 Brazilian (Pelotas-RS) Birth Cohort study were analyzed. Physical activity (PA) was measured using the nondominant wrist accelerometer model wGT3X-BT (ActiGraph, Pensacola, FL). Moderate-to-vigorous physical activity (MVPA) were measured in bouts of 5 minutes (MVPA 5-min bout). Activities were characterized as sustained, and overall physical activity was expressed in mg, and MVPA (non-bouted) activities were characterized as not sustained. A woman's weight is calculated as gestational weight gain (GWG) at the end of gestation minus the prepregnancy weight, and categorized as adequate, insufficient, and excessive, according to the classification of the U.S. Institute of Medicine (IOM). Linear regression models were used to evaluate the association between PA and GWG.

Results: The original sample of the Cohort was composed of 4,219 mothers. The analytical sample consisted of 1,938 women with information on PA and GWG. The mean GWG in the analytical sample was 12,030.78 g (SD = 6,658.8), and 35.7% (95%CI 34.2; 37.2) of women presented excessive GWG, according to prepregnancy Body Mass Index (BMI). The mean of moderate-to-vigorous physical activity was 95.1 minutes (SD = 42.3), and when considering only the activities lasting at least five consecutive minutes, it was 15.2 minutes (SD = 16.7). After adjustments, for every 15 minutes of sustained physical activity (MVPA 5-min bout), the GWG decreased by 369.2 g [β = -369.2 (95%CI: -644.8; -93.6)].

Conclusion: MVPA with 5-min bouts is associated with lower GWG. New studies could focus on understanding the main barriers to engaging in physical activity during pregnancy.

SO.1.03-10

Should Dental Practices Introduce Routine Screening of Weight and Offer Weight Management Interventions to People Living with Obesity?

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
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Purpose: Innovative collaborations across healthcare are required to support the increasing number of people living with obesity and associated comorbidities including cardiovascular disease and type 2 diabetes. Dental teams may be well placed to provide weight screening and support given their contact with millions of people every year, but research is limited on whether this approach would be acceptable to the public and dental professionals.

Methods: First, a systematic review and meta-analysis synthesised the evidence concerning the views of the public and dental teams about delivering weight screening and weight management interventions in dental settings. Five databases were searched from inception to 3 April 2023. Proportional meta-analyses and thematic analysis were used to summarise data. Secondly, a survey explored acceptability amongst the public about receiving weight management interventions led by dental teams. Participants were recruited from 22 dental sites in England and the NIHR Be Part of Research Service.

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Results: 7,851 studies were screened and 33 were eligible for inclusion. The average prevalence of height/weight screening in dental settings was 29% (range:4%–87%; 95% CI:14–46). A significant proportion of the public were supportive of weight screening (83%;95% CI:76–88) and discussion (85%;95% CI:70–96) in dental settings. Enablers of discussion by dental professionals included associating weight with oral health. Fear of offending patients was the barrier reported most often (57%;95% CI:45–68).

3580 adult participants completed the survey and 60% (n=2055/3430) reported they would be comfortable with their height/weight being measured by dental professionals. 57% (n=1915/3375) reported it would be acceptable for their dental professional to offer weight management support. Male (OR:1.79,95% CI:1.49–2.13) and non-White ethnicity (OR:1.62,95% CI:1.11–2.37) participants had significantly increased odds of accepting support. The most acceptable form of support was information on local weight management programmes (n=1989/2379, 83.6%). 57.5% (n=399/694) of parents/carers felt comfortable with their child's height/weight being measured.

Conclusion: There is support from dental teams to offer weight management interventions to patients. The public appear receptive to receiving this novel approach to care. The feasibility of delivering weight screening and support in routine dental settings are required, to ensure it can be implemented into existing dental services.

SO.1.03-11

Combinations of Lifestyle Behaviours and Diabetes Incidence: A Bayesian MAIHDA Survival Analysis of 259,448 UK Biobank Participants

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
Room 2, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Lifestyle behaviors often cluster and interact to influence health outcomes, yet their combined influence on type 2 diabetes (T2D) onset remains unclear. Understanding how these behaviors interact helps distinguish independent from joint effects and guide prevention strategies. This study examines how adherence to multiple lifestyle recommendations influences diabetes onset.

Methods: We analysed data from 259,448 adults (52% men) in UK Biobank, followed for up to 16 years for diabetes incidence. Four behaviours (fruit and vegetable intake, physical activity, sleep duration, and alcohol intake) were classified as meeting or not meeting public health guidelines; smoking was categorised as never, former, or current. Combining the categories of the five lifestyle behaviours resulted in 48 lifestyle strata, each representing a unique pattern of adherence to public health recommendations. Sex-stratified Bayesian Weibull survival multilevel analysis of individual heterogeneity and discriminatory accuracy (MAIHDA) models were fitted with individuals nested within strata. Three models were tested: Model 1 (null), Model 2 (adding lifestyle behaviours), and Model 3 (adding lifestyle behaviours plus confounders). Posterior summaries provided variance partitioning coefficients (VPC), proportional change in variance (PCV), and median diabetes-free survival times by lifestyle strata.

Results: During follow-up, 8,204 men and 3,365 women developed T2D. In Model 1, 11% of variance in diabetes onset was attributable to between-strata differences. In Model 2, VPCs dropped to 0.7% in men and 0.5% in women, indicating that most between-strata variance was explained once individual lifestyle behaviors were included. Large PCVs indicated that >93% of the between-strata variance from Model 1 was explained by additive effects. Strata-specific predictions revealed men and women with the longest diabetes-free survival met most recommendations, while those with the shortest met fewer. Strata with the longest predicted survival consistently included never smoking and meeting physical activity guidelines.

Conclusion: Our findings show that variation in diabetes onset was primarily driven by additive rather than multiplicative effects of lifestyle behaviours. Each additional recommendation met extended diabetes-free survival, underscoring the cumulative benefit of healthy behaviours. This supports a cumulative approach to diabetes prevention, whereby even small, lifestyle improvements, especially increasing physical activity and avoiding smoking, can substantially delay diabetes onset.

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SO.1.03-12

Cycle Nation - A Feasibility Study of a Multi-component Community-based Cycling Intervention

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
Room 2, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Cycling offers health and environmental benefits, yet participation in the UK remains low. Community-based organisations have the potential to support cycling uptake, but many existing programmes are short-term or single component, limiting sustained behaviour change. Cycle Nation (CN) is a 9week, multi-component group-based intervention developed for adults who have not recently cycled. Originally workplace-based, this project aims to assess the feasibility of delivering CN in community settings in Glasgow to support adults to cycle more.

Methods: CN was adapted for community settings and delivered by trained facilitators from a local cycling charity. The programme combined practical cycling skills, bike maintenance, and behaviour change techniques, with participants offered a free bicycle, ebike loan, or repairs to overcome financial barriers. Pre and postintervention online questionnaires assessed cycling engagement (leisure, commuting, errands; frequency and duration), transport use (car, public transport, walking), cycling confidence, motivation, vitality, and self-esteem. Attendance and completion were recorded. All sessions were observed, and interviews were conducted with participants (n=15) and facilitators (n=3) to understand their experiences. Quantitative data were analysed descriptively, while qualitative data was thematically analysed.

Results: A total of 32 participants (74% female) were recruited, with a completion rate of 84%. Completing participants reported increases in cycling at post-intervention: 5.2 more rides and 144.3 additional minutes per week, including leisure rides (+1.97 rides, +88.0 minutes/week), commuting (+1.8 rides, +38.4 minutes/week), and errands (+1.4 rides, +17.8 minutes/week). Private car use decreased, and confidence and vitality increased, although self-esteem decreased. Post-intervention interviews highlighted participants' positive experiences, describing it as a "very worthwhile experience", being part of a group as "very powerful" and reporting mental and physical benefits gained, boosting confidence and encouraging higher physical activity levels.

Conclusion: This study demonstrates that delivering CN in the community is highly feasible and was positively received by participants and facilitators. Cycling levels increased and there was high recruitment and retention rates. Community-based cycling organisations should consider delivering CN in the future. Currently, a randomised controlled trial is underway across Glasgow, delivered by multiple cycling organisations, to provide robust evidence of its effectiveness and cost-effectiveness, alongside a process evaluation.

SO.1.03-13

Promoting Healthy Behaviors after Colonoscopy through a Targeted Risk-based Lifestyle Intervention: Findings from the PRECÔTION Study

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SO.1.03 Motivation and Behavior Change: Nutrition Behavior: Policy, Messaging, and Dietary Outcomes
Room 2, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Colorectal cancer (CRC) is largely preventable through lifestyle changes targeting diet and physical activity. Colonoscopy offers a timely opportunity to promote awareness of CRC risk factors. PRECÔTION is a digital intervention using motivational and community-based strategies to encourage preventive actions based on individual risk level. This study assessed its feasibility, acceptability, adherence, and preliminary impact on lifestyle behaviors and CRC risk awareness.

Methods: PRECÔTION was a single-center, prospective, single-arm interventional study. Participants with a normal colonoscopy result were assigned to one of three risk groups (low, moderate, high) based on physical activity (IPAQ), dietary behavior (WCRF), and BMI. Over six months, all participants received personalized digital support (videos,

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podcasts, interactive app) using motivational strategies. Group physical activity sessions and health education workshops were offered depending on risk level. High-risk participants also received individual motivational coaching and a connected watch to track daily steps. Initial and final assessments measured behavioral changes and satisfaction.

Results: Between October 2022 and October 2023, 90 participants were enrolled (n=33 low risk, n=21 moderate risk, n=36 high risk), with a mean age of 53 years and 69% women. The intervention showed good feasibility: 60% of participants who completed follow-up engaged with all tools provided, with higher adherence in moderate and high-risk groups (62%) compared to low-risk (56%). Early outcomes were promising, with notable improvements in lifestyle scores (WCRF: +0.44 and +1.12) and physical activity levels (+5.09 and +7.45) in moderate and high-risk groups, respectively. Overall, 38.6% of participants improved their WCRF score by at least one point—rising to 61.9% in the high-risk group—highlighting the program’s potential to drive meaningful behavior change.

Conclusion: The PRECÔTION study demonstrates that a personalized, risk-based digital intervention is both feasible and well accepted among individuals undergoing colonoscopy. The program showed good levels of commitment and promising behavioral improvements, particularly in individuals with unhealthy lifestyles. These findings suggest that colonoscopy can serve as a strategic entry point for initiating lifestyle change. Scaling up this approach through a randomized controlled trial could validate its effectiveness in reducing modifiable risk factors and ultimately contribute to lowering the incidence of preventable CRC.

SO.1.04-01

Using Fuzzy Cognitive Mapping to Include the Voices of Equity Deserving Groups in Framing Age-friendly Community Science Initiatives

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
Room 3, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: The purpose of this work is to understand the needs of older adults to inform the development of community science initiatives that support active aging and age-friendly communities. Due to the historic exclusion of the voices of older adults from equity deserving groups, a particular emphasis was placed on recruitment of older adults who identified as BIPOC (Black, Indigenous, People Of Colour), LGBTQSIA2+, linguistic minorities, religious minorities, or low income.

Methods: Community champions were identified through municipal partners across the Region of Durham (Ontario, Canada, population ~750,000) to support recruitment. Eligible older adults completed consent, an online survey, and participated in a fuzzy cognitive mapping session. Fuzzy cognitive mapping is a method used in participatory action research that allows participants to generate their own ideas, and work in homogenous groups to create maps and priorities. The center of each map included the following question: *As a resident in the Region of Durham, what is the biggest local concern you would like to see fixed/addressed?* Participants were placed in groups of 5-8, and were given 90-120 minutes to complete the activity. Data collection is ongoing, and will be analyzed using mixed methods approaches that allow for issues to be prioritized according to weights inputted on the map by participants.

Results: Preliminary data indicate that while there are some commonalities in terms of the challenges that older adults face, the issues that older adults from equity-deserving groups face are distinct, and often unaddressed. For example, older adults from equity-deserving groups are highlighting their needs for employment, more affordable programming and financial aid, engagement in civic opportunities through a trusted community contact, and job retraining. Such programming requests did not arise among white Canadians, even those from low-income groups.

Conclusion: Our work is highlighting the need to engage with older adults from equity deserving groups to redefine our concept of healthy, active aging and age-friendly communities. This work can be used to inform the development of community science programs that address the needs of older adults and address health inequities.

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SO.1.04-03

Morning-dominant MVPA Is Associated with Lower Extracellular Water in Older Adults: A Waist-worn Accelerometry Study

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
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Purpose: Extracellular water percentage (ECW%) is a sensitive marker of cellular health and muscle quality in older adults. While total moderate-to-vigorous physical activity (MVPA) benefits body composition, the role of MVPA timing remains unclear. We examined whether the diurnal distribution of MVPA is associated with ECW% in community-dwelling older adults.

Methods: We analyzed 172 adults aged ≥ 65 y (mean 72.0 y; 78.5% women). Physical activity was measured with a **waist-worn ActiGraph GT3X+** for 7 consecutive days and processed in ActiLife using **Troiano et al., 2007 cut-points** (≥ 2020 counts $\cdot$ min⁻¹) with **60-s epochs**. A valid day required ≥ 10 h wear; participants needed ≥ 4 valid days including ≥ 1 weekend day. MVPA minutes were binned as **morning 06:00–11:59**, **afternoon 12:00–17:59**, and **evening 18:00–23:59**. Participants were classified as morning/afternoon/evening-dominant if **>50%** of total MVPA occurred in that window; **no-dominant** served as reference. ECW% was assessed by bioelectrical impedance analysis (Tanita 780 MA). Multiple linear regression adjusted for age, sex, marital and living status, education, occupation, and **body-fat percentage**.

Results: The model was significant ($R = .531$; $R^2 = .281$; **adjusted $R^2 = .237$** ; $F(10,161) = 6.306$; $p < .001$). Compared with the no-dominant group, **morning-dominant** MVPA was associated with **lower ECW%** ($B = -1.226$ percentage points; **95% CI $-2.048, -0.405$** ; $p = .004$). Afternoon ($B = -0.330$; $p = .440$) and evening ($B = -0.229$; $p = .690$) groups did not differ. **Body-fat percentage** was positively associated with ECW% ($B = 0.119$; $p < .001$).

Conclusion: Allocating >50% of daily MVPA to the morning is associated with lower ECW% independent of sociodemographic factors and adiposity. Given the cross-sectional design and potential residual confounding, prospective and experimental studies should test causality, dose-response, and mechanisms. If confirmed, chrono-activity prescriptions may provide a novel, low-cost lever to improve cellular hydration and healthy ageing at scale.

SO.1.04-04

Frailty and Dietary Status of Older Adults Differ by Centrality in a Network Established by Community Activities at a Community Center in Japan

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
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Purpose: The social networks of older adults, which are built through various community activities, are effective in promoting healthy behaviors. However, previous studies have reported distinct patterns in older adults' participation in community activities, suggesting that the connections within their social networks are also diverse. This study aims to evaluate the differences in frailty and dietary status by centrality in a network established by community activities at a Japanese community center among older adults.

Methods: Through May to July 2025, we conducted a survey at one community meeting place (A) and one public community center (B) in Takasaki City, Japan. Participants in community activities at each site were asked to complete a self-administered anonymous questionnaire. The questionnaire included demographic characteristics (age, gender, employment status, medical conditions, and household size), frailty score, and three diet-related items: community activities they participated in at the site, healthy eating literacy (HEL), dietary variety score (DVS), and the number of days per week they consumed two or more meals consisting of a staple, main, and side dish (SMS meals). Using the data on community activity participation, we conducted a network analysis and calculated individual eigenvector centrality, which higher score indicates higher centrality. Correlations between the centrality and diet-related variables or frailty score were examined using Kendall's tau-b.

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Results: We analyzed responses from 63 participants at site A (median age: 77 years, 31.7% male) and 305 participants at site E (median age: 73 years, 22.3% male). The median eigenvector centrality values (25th, 75th percentiles) were 0.149 (0.133, 0.220) at C and 0.944 (0.944, 0.947) at B. At site A, no correlations were observed between eigenvector centrality and the health-related indicators (range of r : -0.11 to 0.08), whereas small effects were observed for DVS ($r = 0.19$) and SMS meals frequency ($r = 0.16$) at site B.

Conclusion: These findings support that the correlations between positions in a network and health-related variables differed by place. In one place, centrality in a network were associated with food-related indicators. Future research should include additional places and increase the number of participants within each place.

SO.1.04-05

Self-report and Device-measured Sedentary Behaviour and their Associations with Cognitive Functioning: A Cross-sectional Study from LBC1936 Cohort

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
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Purpose: Research examining sedentary behaviour (SB) and its associations with health in older adults commonly uses either self-report or device-based measures. However, these measures often yield discrepant estimates of SB levels, which may contribute to inconsistent associations between SB and health. This study aims to examine and compare cross-sectional associations between self-report and device-measured SB and cognitive functioning among older adults.

Methods: The sample included 254 participants (78.9±0.4 years old, 52% males) from Wave 4 of Lothian Birth Cohort 1936. Participants completed 13 cognitive tests assessing general cognitive functioning, crystallised ability, visuospatial ability, verbal memory, and processing speed expressed in z-scores. Total sitting time (TST) per day was assessed using a paper-and-pencil questionnaire (7 days average) and a seven-day thigh worn activPAL accelerometer. Associations between TST and cognitive functioning were assessed with linear regression with different levels of adjustment: Model 1: self-report or device-measured TST; Model 2: Model 1, adjusted for age, sex, and marital status; Model 3: Model 2, adjusted for physical activity, BMI, self-rated health, and depression. False discovery rate (FDR) correction was applied to control for multiple comparisons.

Results: Mean (SD) was 390.2 (149.1) and 625.3 (109.5) minutes per day for self-report and device-measured TST respectively. Longer self-report TST was significantly associated with better general cognitive functioning and across all four cognitive domains in all three models. In Model 3, longer self-report TST was significantly associated with greater general cognitive functioning (Unstandardised Beta [B]=0.193, 95%CI: 0.066-0.320, $p=0.003$), crystallised ability ($B=0.326$, 95%CI: 0.108-0.544, $p=0.004$), visuospatial ability ($B=0.262$, 95%CI: 0.108-0.416, $p=0.001$), verbal memory ($B=0.298$, 95%CI: 0.093-0.503, $p=0.005$), and processing speed ($B=0.205$, 95%CI: 0.028-0.382, $p=0.024$). Device-measured TST was not significantly associated with any cognitive domain across all three models.

Conclusion: Among Scottish older adults, self-report SB was associated with general and domain-specific cognitive functioning, whereas device-measured SB was not. Caution is warranted when interpreting findings across measurement approaches, as discrepancies between self-report and device-measured SB may arise from cognitively patterned, heteroscedastic, and scale-dependent biases, thereby undermining reliability and potentially distorting conclusions, interventions, and policy development related to healthy ageing.

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SO.1.04-06

Cardiorespiratory Fitness and Cerebral Blood Flow during Ageing

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
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Purpose: The main aim of this study is to examine the association between cardiorespiratory fitness (CRF), assessed through the 6-minute walk test (6MWT) and peak oxygen uptake (VO₂peak), and cerebral blood flow (CBF), both globally and in specific regions of interest, in older adults with and without coronary artery disease (CAD). We hypothesize that this association will be stronger among individuals with CAD. This research is cutting-edge as it explores the relationship between CRF and CBF in populations at risk of dementia and cognitive decline.

Methods: 79 older adults from the AGUEDA trial and 84 individuals with CAD from the Heart-Brain trial were included in this cross-sectional analysis. Participants underwent 6MWT and a 3D arterial spin labelling magnetic resonance imaging scan. In the Heart-Brain project, the participants conducted additionally a cardiopulmonary exercise test and VO₂peak was determined.

Results: Linear regression models showed that greater CRF was associated with higher CBF in the global gray matter [6MWT: 0.26(0.01; 0.50), p=0.04; VO₂peak: 0.33(0.07; 0.58), p=0.02], the posterior cingulate cortex [6MWT: 0.26(0.01; 0.50), p=0.04; VO₂peak: 0.31(0.05; 0.57), p = 0.02], the anterior cingulate cortex [6MWT: 0.29(0.05; 0.54), p=0.02], the precuneus [6MWT: 0.28(0.04; 0.51), p=0.02; VO₂peak: 0.32(0.07; 0.58), p = 0.01] and the hippocampus [VO₂peak: 0.29(0.02; 0.55), p=0.03] in the Heart-Brain sample, but not in the AGUEDA sample (all p > 0.05), when adjusting for age, sex, education, mean arterial pressure and APOEε4 carrier status. When adding BMI to the model, associations became not statistically significant in both samples. The association between VO₂peak and CBF was significantly mediated (i.e. indirect effect) by BMI (β=0.250, p=0.013).

Conclusion: CRF, was positively associated with CBF in individuals with CAD, but not in older adults without CAD. However, this association was partially explained and mediated by BMI, suggesting that fitter individuals with CAD have better brain perfusion, but due to the fact that they have a lower BMI. Further studies are warranted to clarify the role of CRF and BMI in relation to CBF, the mechanisms involved and the implications for dementia risk prevention.

SO.1.04-07

Socioeconomic Status and Cognitive Function in Later Life: Examining 24-H Time-use Composition as a Potential Mediator

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
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Purpose: Socioeconomic status (SES) is linked to cognitive function in later life, though underlying mechanisms remain unclear. 24-h time-use is associated with both SES and cognition. However, whether 24-h time-use statistically mediates the SES-cognition associations has not been investigated.

Methods: Baseline data from 589 cognitively unimpaired older adults (mean age 69.8 ± 3.7 years; 70.5% female) enrolled in the Investigating Gains in Neurocognition in an Intervention Trial of Exercise (IGNITE) study collected across three U.S. sites. Multiple dimensions of SES were used, including area-level SES (Area Deprivation Index), subjective SES, and a latent objective SES measure based on the MacArthur Socioeconomic Status Index. Time use was measured using wrist-worn accelerometers and classified as either sleep, SB, light PA, or moderate-to-vigorous PA (MVPA). Cognitive performance in five domains (executive function (EF)/attentional control, episodic memory, processing speed, visuospatial function, working memory) were used as dependent variables. Compositional mediation analysis using a structural equation modelling framework was used to investigate the potential mediating role of time-use composition in the relationship between SES and cognitive function. Age, sex, site, and race/ethnicity were used as covariates in all analyses.

Results: Higher objective SES was associated with better performance across all cognitive domains (standardised total effects: $\beta = 0.14-0.26$). 24-h time-use, driven mainly by time spent in MVPA, was a significant mediator of this relationship for processing speed, working memory and EF/attentional control (standardised indirect effects: $\beta = 0.015-0.018$); however, relationship was modest. Subjective SES showed similar, but weaker, total effect, with non-significant indirect pathways via 24-h time-use. Area-level SES demonstrated a significant indirect effect through time use for processing speed, working memory and EF/attentional control that was of similar to that observed for objective SES (standardised indirect effects: $\beta = 0.019-0.024$). However, the total effect was smaller and not statistically significance.

Conclusion: Daily time use, particularly time spent in MVPA, partly explains SES-related disparities in cognitive performance amongst older adults. However, the strength of these relationships differs depending on the marker of SES and cognitive domain. This study provides evidence that time spent in daily MVPA could meaningfully contribute to narrowing cognitive gaps linked to socioeconomic disadvantage.

SO.1.04-09

Co-creating an Intergenerational Intervention to Enhance Physical Activity in the Older Adult Population: A Qualitative Study of the Engage Project

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors
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Purpose: Older adults are the most sedentary segment of the population, and effective, sustainable interventions are needed to modify these behaviours. Intergenerational and participatory approaches may enhance adherence and help sustain benefits over time. The primary purpose of this study was to co-create an intergenerational intervention to promote physical activity (PA) and social interaction among older adults, focusing on supporting functional independence. A secondary aim was to explore the potential role of immersive virtual reality (VR) projections as a complementary element to increase motivation and engagement during PA sessions. This research is innovative in combining co-creation and intergenerational participation within a community-based setting, integrating immersive technology as an engaging tool to support behavioural change.

Methods: A mixed-methods design was applied, guided by the Health CASCADE framework and the Behaviour Change Wheel (BCW). The intervention was co-created with older adults, children, teachers, professionals, and policymakers. Qualitative components included expert interviews, workshops with older adults and children, and an advisory board workshop, with data analysed thematically to identify key needs and preferences. In the quantitative phase, an online survey among older adults assessed acceptability, feasibility, and interest in participation, and descriptive analyses were conducted to summarise responses.

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Results: Four themes informed the intervention: (1) building on prior technology experiences; (2) designing with empathy to ensure safety, enjoyment, and adaptability; (3) valuing intergenerational engagement; and (4) aligning with older adults' priorities. Workshops with 26 older adults (84.1 ± 7.6 years) and 19 children (11.5 ± 2.9 years) highlighted shared preference for outdoor activities. Findings were translated into an intervention proposal during the advisory board workshop. Survey results from 53 older adults showed that 67.9% were willing to participate, reflecting high acceptability and perceived relevance of the programme.

Conclusion: Co-creation is a feasible approach to developing inclusive intergenerational PA interventions. Outdoor activities were widely preferred, and while VR shows motivational potential, its use should emphasize accessibility, user acceptance, and gradual integration.

SO.1.04-10

Eating and Aging: Assessing the Impact of Social versus Solitary Eating on Diet Quality in Older Adults Living in Community

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors

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Purpose: By 2030, a 56% increase in individuals aged sixty years and older is expected compared to 2015. Despite this increase, dietary interventions are failing to support increased healthspan. Namely, 41% of community-dwelling older adults are reported to have or be at risk for malnutrition. This research aims to examine the factors that impact the nutritional quality of older adults, with a focus on solitary versus social eating environments.

Methods: This mixed-methods project used hybrid thematic analysis. Individual, semi-structured interviews were conducted with 15 participants, aged 65 years or older, living in a community setting and using on-site food services (female = 94%). Deductive coding for thematic analysis was supported by the National Institute on Aging Health Disparities Framework. Three interprofessional team members independently coded the interviews; a final codebook was created using inductive codes. Additionally, all participants completed the Dietary Quality Questionnaire (DQQ) for quantitative analysis of diet quality.

Results: Of the participants, 42.9% reported eating more in a social eating environment ($n = 6$), while 73.3% reported eating two or more meals a day alone ($n = 11$). Participants (average age = 78.8 ± 8.4) had an average DQQ Dietary Diversity Score of 7.2 ± 1.4 , compared to the national average of 6.5 (target is >5), indicating higher diversity. A Global Dietary Recommendations Score of 11.9 ± 2.2 , compared to the national average of 9.7 (out of 18), also supported a higher-than-average dietary quality in this cohort. Thematic analysis showed four main themes impacting diet quality with additional subthemes (1) environmental (transport, education, income, kitchen access), (2) sociocultural (view of aging, food labeling, social network, self-concept, loneliness), (3) behavioral (health behavioral, energy conservation), (4) biological (co-morbidities, effect of aging processes on food choice). Strengths derived from these themes are reflected in higher DQQ scores.

Conclusion: This project provided insights into the factors affecting diet quality in highly educated, older adults living in the community, with environmental, sociocultural, behavioral, and biological factors all playing a significant role in determining diet quality. Interventions targeting the themes and subthemes are needed to increase healthspan in an ever-aging population.

SO.1.04-11

Identifying Aerobic-fitness Responses to Aerobic Exercise in Alzheimer's Disease to Tailor Adaptive Interventions

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors Room 3, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Improvements in cardiorespiratory fitness following moderate-intensity continuous aerobic training (MICT) are well-documented but show variability across individuals. This heterogeneity among older adults may contribute to inconsistent findings regarding the effects of MICT on cognition in individuals with Alzheimer's disease (AD).

Methods: This study will examine the feasibility of using aerobic fitness, as measured by peak oxygen consumption (VO₂peak) through a symptom-limited cycle-ergometer test, to identify non-responders to MICT and adapt exercises from the FIT-AD Sequential, Multiple Assignment, Randomized Trial (SMART). FIT-AD SMART aims to enroll 108 older adults with early AD, assigning 72 to MICT and 36 to stretching exercises for six months. After three months, VO₂peak is reassessed to identify non-responses, defined as <5% improvement in VO₂peak from baseline. Non-responders are re-randomized to either high-intensity interval training or a combined aerobic and resistance exercise program, while responders continue with MICT for another three months.

Results: Among 19 participants who passed the 3-month assessment period, they were 70.95±5.75 years of age, had 16.05±2.74 years of education, and scored 22.74±3.51 on the Montreal Cognitive Assessment (MoCA). About 57.1% of the participants were female, and 28.6% were Hispanic. Their VO₂peak averaged 18.72±4.75 mL/kg/min at baseline and 21.73±6.91 mL/kg/min at three months, representing a mean improvement of 6.93%±10.43%. Among the 19 participants, 13 were randomized to MICT and 11 completed 3-month exercise testing. The 11 MICT participants' VO₂peak was 19.05 mL/kg/min at baseline and 20.40 mL/kg/min at 3 months, representing a 15.2% increase. Six of the MICT participants were classified as non-responders (VO₂peak change: -2.96%±8.85%), and five were responders (VO₂peak change: 36.9%±51.9%). In contrast, VO₂peak of the stretching group (n=6) decreased 6.2%.

Conclusion: The findings indicate that VO₂peak did not improve among half of participants assigned to MICT following 3-months of training, although the amount of improvement was considerable among responders. These findings underscore the importance of using VO₂peak as a key physiological marker for identifying exercise non-response in older adults with AD early during exercise interventions. Subsequent tailoring of exercise interventions following non-response to MICT may help maximize the benefits of aerobic exercise on cognitive health.

SO.1.04-12

Evolving Engagement: A Longitudinal Qualitative Study of Physical Activity and Social Connectedness in Older Adults

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SO.1.04 Ageing: The Ageing Mind in Context: Integrating Biological, Social, and Environmental Factors Room 3, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Physical activity (PA) and social connectedness are central to healthy ageing, yet older adults often experience transitions such as retirement, shifting caregiving roles, bereavement, or health changes that disrupt routines. Adaptation to these transitions shapes the ability to remain active and socially engaged, particularly in socioeconomically disadvantaged communities where structural constraints amplify vulnerability. This study provides one of the first longitudinal qualitative examinations of how PA and social connectedness evolve through such transitions among older adults in deprived settings. It aimed to identify behavioural trajectory typologies and examine mechanisms that support or undermine sustained engagement.

Methods: A qualitative longitudinal study was conducted with mid-older adults in two socioeconomically deprived Scottish local authorities. Semi-structured interviews were completed at three timepoints between December 2022 and October 2024 (T1: n=27, T2: n=22, T3: n=16, and n=4 combined T2–T3 interviews). Participants (mean age 64.7 ± 5.5 years) described their social networks, PA practices, life transitions, and neighbourhood environments. Interviews were supported by maps of participants' local areas and social network diagramming to explore relational and spatial influences. Analysis combined inductive and deductive coding informed by the Socio-Ecological Model and COM-B. Longitudinal Synchronic Framework Analysis captured within- and between-person change over time.

Results: Five trajectories were identified. Sustained engagers maintained stable participation, supported by resilience, flexible identities, routines, strong social networks, and accessible environments. Gradual disengagers experienced slow reductions in PA and social contact due to cumulative health, social, and environmental challenges

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despite intentions to remain active. Increasers/late-life adopters expanded engagement following transitions such as retirement or changes in caregiving, supported by family, friends, and community resources. Fluctuating engagers experienced intermittent engagement shaped by variable health, caregiving responsibilities, or seasonal and environmental limitations. Persistent strugglers faced longstanding constraints including poor health, mobility limitations, shrinking social networks, and inaccessible environments, with disengagement shaped more by structural barriers than preference.

Conclusion: These trajectories highlight the dynamic and context-dependent nature of engagement in later life. Identifying characteristics that underpin resilience, such as flexible social identities, local social infrastructure, and supportive social ties, can inform multi-level interventions that are contextually grounded and adopt life-course approaches to active ageing, particularly within disadvantaged communities.

SO.1.04-13

Examining the Association between Social Support and Physical Activity in Rural-dwelling Older Adults: An Analysis of the Canadian Longitudinal Study of Aging

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Purpose: Approximately one in five older adults in Canada lives in rural communities and reports poorer health than their urban counterparts. Social support and physical activity are key modifiable determinants of health, associated with improved physical, cognitive, and psychosocial health outcomes. This cross-sectional study investigated the association between social support and physical activity among Canadian adults aged 65 years and older residing in rural areas.

Methods: Data were from the Canadian Longitudinal Study of Aging (CLSA), a national health study that tracks participants aged 45–85 years at recruitment for 20 years. We analyzed data from participants aged 65 years and older, living in rural communities, to examine the association between social support and physical activity. Social support was assessed using the Medical Outcomes Survey (MOS), and physical activity was assessed using the Physical Activity Scale for the Elderly (PASE). Covariates included age, education, self-reported health status, body mass index, retirement status, smoking, alcohol use, years living in their community, living arrangements, marital status, sex, gender identity, and household income. Multivariable linear regression with model-building procedures was used to examine associations between social support and physical activity, adjusting for key covariates.

Results: Of the 2,766 adults in our sample, the majority were female (52.6%), completely retired (55.4%), and considered their health to be good or very good (68.1%). On average, participants reported strong overall social support ($M = 83.96$, $SD = 17.08$) and moderate levels of physical activity ($M = 122.65$, $SD = 60.35$) compared to norms for community-dwelling older adult populations. Social support had a weak association with physical activity ($r^2 = .006$, $F\text{-value} = 11.930$, $p < .001$). The fully adjusted model to predict physical activity included social support, age, sex, retirement status, and general health and explained 22% of the variance ($F\text{-value of } 80.10$ ($p < .001$)) in physical activity.

Conclusion: While the association between social support and physical activity was weak, several demographic variables (i.e., age, sex, retirement status, general health) accounted for significant variance. Interventions targeting rural older adults in Canada should consider these demographic factors and their impact on the association between social support and physical activity.

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SO.1.05-01

Identifying Intentional Walking Sessions in Older Adults Using a Heuristic Accelerometry-based Algorithm

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based Assessment AI and Smart Tools for Movement Tracking
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Purpose: Conventional accelerometer metrics (e.g., step counts or UK Biobank-derived walking measures) don't reliably distinguish intentional walking sessions (structured exercise) from habitual ambulation. We aimed to design and implement a heuristic algorithm to detect intentional walking sessions in wrist accelerometry evaluations.

Methods: Fifty overweight/obese older adults (70.2 ± 3.8 years) in Benalmádena, Spain wore wrist accelerometers (GENEActiv) for 7–10 days. Variables included cadence (steps/sec), ENMO (milligravitational units, mg) and moderate-vigorous physical activity (MVPA). Data were collected in May 2020 during the easing of COVID-19 restrictions. Temporarily imposed time slots regulating outdoor mobility facilitated structured outdoor exercise routines. Participants reported walks (days and times), which two experts visually verified in the accelerometer data. The first two confirmed walks per participant were used to develop the algorithm. A *walking set* was defined as a bout with ≥3 min with ≥0.1 steps/sec for ≥90% of the bout. Walking sets were merged if interruptions <2 min. A second merge applied when interruptions were <25% of the combined bout duration. Merging was repeated iteratively. A *walking session* was defined as the final outcome of this merging process. The algorithm was then applied to all evaluated days to verify the detection of reported and nonreported walks.

Results: Walking sessions were confirmed in 31 participants. The algorithm identified 100% of expert-confirmed walks and 36 additional unreported walks. 70 walks were detected among non-reporters (347 sessions in total). Men performed 204 (58.8%) of the total walking sessions.

The walking sessions had a mean duration of 36.1 ± 27.7 min (men 35.2 ± 27.8; women 37.3 ± 27.5); mean intensity 116.0 ± 62.0 mg (men 130.3 ± 71.6; women 95.5 ± 36.2; $p < 0.001$). Sessions comprised 2.3 ± 1.4 walking sets, which represented 90.3% of session duration (32.6 ± 23.4 min) with an intensity of 120.6 ± 62.9 mg. MVPA accounted for 62.4% (22.5 ± 23.3 min) of the total duration of the walking sessions.

Conclusion: The heuristic algorithm accurately identifies intentional walking sessions from wrist accelerometry in older adults, revealing unreported exercise and enabling objective characterization of the duration and intensity. Its application may improve the quantification of walking exercise in epidemiological and intervention studies.

SO.1.05-02

Move More, Sleep Well, Work Better? An Ambulatory Assessment Study on Physical Behavior, Sleep, and Productivity

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Purpose: Workplace productivity is influenced by behavioral and physiological factors, including physical activity, sleep, and sedentary behavior. Understanding how 24-hour activity patterns influence workability could provide insights for optimizing productivity and recovery.

Methods: We conducted a 15-day Ambulatory Assessment with 203 adults (56.2% female; mean age=35.8). Physical

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activity, sedentary bouts, and sleep quality were captured via accelerometers and daily e-diaries. Workability and sleep quality were assessed through smartphone-based prompts. Multilevel modeling was applied to examine within-person associations, with exploratory moderation analyses on workplace settings (remote vs on-site).

Results: Sleep quality was positively associated with daily workability ($\beta=0.007$, $p<.001$). Higher step counts were linked to higher ratings of workability ($\beta=1.78$, $p=.004$), while sedentary bouts ($>40\text{min}$) showed no significant relationship. Exploratory interaction analyses indicated that the workplace setting moderated the relationship between sleep quality and workability.

Conclusion: The findings suggest that both higher ratings of sleep quality and daily step counts contribute to better self-perceived workability, reinforcing the importance of maintaining active and well-rested lifestyles. Consequently, workplace policies supporting regular physical activity and sufficient sleep could potentially enhance employee well-being and productivity in different work settings.

SO.1.05-03

Continuous versus Fragmented Intense Physical Activity and Mortality Risk: A Prospective US-based Population Study

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based Assessment AI and Smart Tools for Movement Tracking
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Purpose: This study investigated how the associations of the intensities of the most active 1-60 minutes of the day and all-cause and cause-specific mortality are moderated by the fragmentation of physical activity (PA) in US adults.

Methods: Data from adults aged >19 years in the National Health and Nutrition Examination Survey 2011-2014 were analysed. Wrist-worn accelerometers measured PA over seven days. Intensity was quantified as the most active continuous (MX_{CONT}) and accumulated (MX) 1, 5, 10, 15, 20, and 60 minutes of the day and their ratio ($MX_{\text{RATIO}} = MX_{\text{CONT}} / MX$). Outcomes included all-cause (766 events), cardiovascular disease (231 events), and cancer (192 events) mortality. Survey-weighted Cox proportional hazard models were used including restricted interactions between MX_{CONT} and MX_{RATIO} . Hazard ratios (HR) and 95% confidence intervals (CI) are reported for 400 milli-gravitational units (fast walking) relative to 100 milli-gravitational units (slow walking), except for the 60-minute duration, where 200 milli-gravitational units (brisk walking) were used.

Results: Among 8,426 adults (52% women), the median follow-up was 81 months (interquartile range: 69, 94).

For all-cause mortality, continuous moderate-intensity PA for 10-60 minutes was associated with lower mortality risk compared to more fragmented PA. Fragmentation showed little influence for shorter durations (<5 minutes) of vigorous-intensity PA.

For cardiovascular mortality, sporadic vigorous-intensity PA for up to the most active 5 minutes appeared to be more strongly associated than continuous PA, though uncertainty was greater for sporadic patterns. There was little evidence of an interaction with fragmentation for the most active 10 minutes. For 20-minute ($HR_{\text{continuous}}=0.15$, 95% CI:0.04-0.49 vs $HR_{\text{sporadic}}=0.24$, 95% CI:0.04-1.31) and 60-minute durations ($HR_{\text{continuous}}=0.09$, 95% CI:0.03-0.27 vs $HR_{\text{sporadic}}=0.39$, 95% CI:0.10-1.59), continuous moderate-intensity PA showed stronger associations than those of sporadic PA.

For cancer mortality, moderate-to-vigorous-intensity PA accumulated continuously was associated with lower risk than sporadic PA across all durations, i.e. 5 minutes ($HR_{\text{continuous}}=0.06$, 95% CI:0.01-0.37 vs $HR_{\text{sporadic}}=2.43$, 95% CI:0.65-9.11) and 20 minutes ($HR_{\text{continuous}}=0.02$, 95% CI:0.00-0.24 vs $HR_{\text{sporadic}}=0.85$, 95% CI:0.20-3.62).

Conclusion: Associations between PA intensity and all-cause and cause-specific mortality appear to differ according to the degree of PA fragmentation. Patterns characterised by shorter, vigorous-intensity PA and longer, moderate-intensity PA were associated with more favourable mortality outcomes.

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SO.1.05-04

The Active Family Mhealth Intervention: A Pilot Just-in-Time Micro-randomized Controlled Trial on the Physical Activity and Sedentary Time of Parents and their Young Children

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based Assessment AI and Smart Tools for Movement Tracking
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Purpose: This study examined parental acceptability and preliminary effectiveness of the *Active Family* mHealth intervention on the physical activity (PA) levels and sedentary time (ST) of parents and their young children (aged 3-4 years). The study contributes to understanding how micro-interventions can promote real-time parent-child co-activity in everyday life.

Methods: Employing a just-in-time micro-randomized controlled trial design, the parents from 25 parent-child dyads received seven daily text message prompts for 14 days. Each prompt included a short questionnaire to assess availability for PA and to tailor the micro-intervention messaging. When available, parents were randomized to receive a micro-intervention (contextually tailored PA suggestion) or a control (no suggestion). Throughout the trial, dyads wore ActiGraph accelerometers to measure ST, light PA (LPA), and moderate-to-vigorous PA (MVPA). After the trial, parents completed an online acceptability questionnaire. A centred and weighted least square regression was used to analyze the effect of PA suggestions on the proximal 60-minute ST, LPA, and MVPA of parents and children following each prompt. Descriptive statistics and content analysis were used to analyze acceptability questionnaire responses.

Results: The *Active Family* mHealth micro-interventions were not found to be effective at changing children's or parents' proximal ST ($p = .878$; $p = .485$), LPA ($p = .714$, $p = .729$) or MVPA ($p = .511$, $p = .480$), respectively. However, micro-interventions became more effective at increasing parental MVPA in the second week of the intervention ($b = 0.47$, $95\%CI = 0.12, 0.83$, $p = .013$). For children, the intervention effectiveness varied by contextual factors (e.g., weather conditions). Overall parents reported that the intervention was largely acceptable, appropriate, and feasible for their families; however, provided suggestions for improvement, including customized prompt schedules and context specific PA ideas.

Conclusion: While the PA micro-interventions did not lead to significant change in PA or ST, findings indicate a potential for increasing parental PA over time and enhancing child PA under specific conditions. This study contributes to growing, albeit limited, evidence on the feasibility of mHealth interventions to promote PA in early childhood, particularly through scalable, low-cost digital health strategies targeting families.

SO.1.05-05

Beyond Cut-points: Deep Learning for Physical Behaviour Measurement From Multi-wear-Site Accelerometers among Preschoolers

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based Assessment AI and Smart Tools for Movement Tracking
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Purpose: This study aims to develop and validate Long Short-Term Memory (LSTM) deep learning (DL) models for classifying physical behaviour in preschoolers and compare them with validated cut-point methods; and to evaluate

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model performance between wrist, thigh, and combined wrist-and-thigh placements using video observation as ground truth.

Methods: A total of 79 preschoolers (3.0 - 5.5 years; 50% male) wore a thigh-worn Fibion SENS (Fibion Inc., Jyväskylä, Finland) and a wrist-worn ActiGraph GT3X+ (ActiGraph, Florida, USA) during a 2-hour free-living session and a 20-minute semi-structured session within a kindergarten. All sessions were video recorded. Videos were annotated and cross-validated by independent raters, using the Children's Activity Rating Scale. Activity intensity was categorised as sedentary behaviour (SB), light physical activity (LPA) and moderate-to-vigorous physical activity (MVPA). LSTM-based models were trained on raw triaxial acceleration and device orientation, with participants' characteristics as additional inputs. Performance was evaluated via 10-fold cross-validation. Cohen's weighted kappa (κ) quantified agreement across overall categories, and per-category unweighted kappa quantified category-specific agreement; 95% confidence intervals (CI) were reported.

Results: Across 157.4 hours of labelled data, DL models outperformed cut-point methods at both placements for overall category agreement (κ): thigh DL = 0.940 (95% CI: 0.935-0.944) versus thigh cut-points = 0.768 (95% CI: 0.602-0.897); wrist DL = 0.743 (95% CI: 0.730-0.757) versus wrist cut-points = 0.424 (95% CI: 0.408-0.442). The combined wrist-and-thigh DL model achieved similar overall agreement (κ = 0.945, [95% CI: 0.942-0.949]) as thigh DL. Category-specific agreement (κ) for the combined model was 0.977-0.986 (SB), 0.813-0.836 (LPA), and 0.792-0.834 (MVPA). For the thigh model, κ values were 0.974-0.983 (SB), 0.796-0.824 (LPA), and 0.793-0.840 (MVPA). For the wrist model, κ values were 0.658-0.690 (SB), 0.667-0.697 (LPA), and 0.707-0.768 (MVPA).

Conclusion: Compared with cut-point methods, LSTM-based DL model provides higher agreement for measuring physical behaviours in preschoolers, with absolute increases in weighted kappa of 0.172 and 0.319 on thigh and wrist accelerometers respectively. The combined wrist-and-thigh and thigh DL models show almost perfect agreement for SB and LPA, and substantial-to-almost perfect agreement for MVPA. A thigh-worn accelerometer paired with a DL model is recommended for measuring physical behaviours in preschoolers.

SO.1.05-06

Co-designing Gamified EMA with Children: Improving Engagement and Data Quality in mHealth Research on Movement Behaviors (The ReDiKid Study)

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based AssessmentAI and Smart Tools for Movement Tracking

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Purpose: mHealth research on movement behaviors in children presents challenges due to their ongoing cognitive development, often resulting in difficulties with using self-report measures, understanding procedures, and maintaining engagement and compliance. To obtain accurate, valid, and reliable data in mHealth studies involving children, it is essential to adapt the study design to suit their developmental and motivational needs. The ReDiKid study demonstrates how a user-centered approach in the Ecological Momentary Assessment (EMA) study design can effectively address these challenges.

Methods: To adapt the design of our EMA study for children aged 9 to 11 years, we implemented a two-phase participatory design. First, children helped redesign our EMA survey app, HealthReact, for their use. In focus groups, children suggested gamification elements to make the app more engaging, and then assessed proposed modifications (Group 1: n = 4, 3 girls, mean age 9.2; Group 2: n = 6, 2 girls, mean age 9.6). Second, the resulting gamified version was validated for comprehensibility and appeal through individual interviews (n = 12, 5 girls, mean age 10.1). Additionally, we conducted cognitive interviews to test specific items on affect, stress, sleep, digital behavior, and physical activity in the gamified version of the app (n = 17, 9 girls, mean age 9.7).

Results: Children perceived rewards and fun as key engagement motives, suggesting implementing gamification elements such as collecting points, badges, streaks, and personalized options (e.g., naming an app mascot). They considered the resulting gamified app appealing and comprehensible, except for the streak logic. In cognitive interviews, children struggled with questions on digital behavior and resilience (particularly with comprehension

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and/or retrieval) and also with long lists of response options, preferring numbered Likert scales.

Conclusion: The ReDiKid study demonstrates that involving children in EMA study design is an effective way to adapt the study to suit their developmental and motivational needs. The gamified app, co-designed by children, was perceived as both appealing and comprehensible. Children's involvement also contributed to improved items for EMA study. Although a pilot study is necessary to evaluate other key aspects of EMA study design, the user-centered approach promises to ensure reasonable compliance and data quality.

SO.1.05-07

Not All Screen Time Is Sedentary: Evidence from Objective Smartphone and Accelerometer Data

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based AssessmentAI and Smart Tools for Movement Tracking

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Purpose: Screen time has historically been used as a proxy for sedentary behavior, originally based on television viewing, a primarily sedentary activity. However, smartphones have diversified what “screen time” represents and can be used when non-sedentary (e.g. standing or walking). Although people with higher smartphone screen time tend to be more sedentary overall, this does not mean that smartphone use itself only occurs during sedentary behavior. Most existing evidence relies on self-report measures prone to recall bias, offering limited insight into when smartphone use and sedentary behavior coincide. This study demonstrates a novel approach to quantifying the overlap between smartphone use and sedentary behavior using objective data and describes the associated movement intensities and app use patterns.

Methods: A convenience sample of 44 parents of preschool-aged children (97% female; mean age 36.7 ± 6.7 years) completed a two-week monitoring protocol. Smartphone use (screen on) was objectively measured using the Chronicle passive-sensing app, and movement behaviors were captured with wrist-worn Axivity AX3 accelerometers. Data streams were time-aligned at 5-second epochs. Accelerometer data were processed in GGIR (v 3.3.0) to estimate non-wear, sleep, and activity intensity. The SedUp algorithm classified sedentary and non-sedentary behavior. Descriptive statistics summarized the smartphone use during sedentary and non-sedentary behaviors, and the activity intensities.

Results: When using a smartphone, 36.5% (range: 22.7-55.2%) of use occurred during non-sedentary behavior. During this non-sedentary use, acceleration intensity was predominantly inactive (64.1%) and light-intensity (28.5%), with a smaller proportion at moderate intensity (7.4%). The most common app categories used during non-sedentary behavior were Games, Social & Communication, and Lifestyle, respectively. This differed from the order in sedentary behavior; Social & Communication, Entertainment, and Games.

Conclusion: Over one third of smartphone use occurred when participants were not sedentary. Smartphone use and sedentary behavior are related but not interchangeable constructs. Replication in a larger sample using posture-sensitive measures could further refine these estimates. Distinguishing sedentary from non-sedentary smartphone use may inform more nuanced and context-aware digital health interventions, such as optimally timing prompts or app-level nudges based on real-time movement and context. These findings underscore the need to reconsider what “screen time” represents today.

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SO.1.05-09

Designing Just-in-Time Adaptive Interventions with Commercial Wearables: Opportunities and Challenges

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based AssessmentAI and Smart Tools for Movement Tracking

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Purpose: To describe current opportunities and challenges in using commercial wearables and no-code platforms to design Just-in-Time Adaptive Interventions (JITAI) for promoting physical activity.

Methods: We designed and piloted a JITAI (*Activeverse*) that delivered tailored daily exercise recommendations based on users' previous-day moderate-to-vigorous physical activity (MVPA), as recorded by the Apple Watch, and their self-reported daily motivation and exercise preferences. The intervention was developed using *Pathverse*, a no-code research platform that enables rapid app creation without programming expertise. Development involved a multidisciplinary team of behavioural scientists, graduate students, and software engineers. The study integrated Apple HealthKit data (active minutes) with daily self-report diaries delivered each morning. Adaptive exercise prompts were triggered when MVPA fell below personalized thresholds or when motivation levels were low. Lessons learned across the design, testing, and deployment phases were summarized through structured monthly meetings.

Results: Key opportunities included rapid prototyping through visual no-code workflows, seamless integration with validated consumer sensors, and the ability to deploy hybrid study designs that combined daily diary data with wearable-based triggers. Maintaining truly "live" adaptivity, however, remains a major challenge. On most mobile platforms, data from consumer wearables can be used to trigger adaptive messages or interventions within a few hours of a behavioural threshold being reached. However, the speed and reliability of these triggers can vary depending on the device and its operating system. For example, iOS devices tend to collect data consistently but limit background activity, which can occasionally delay or prevent triggers from being delivered in real time. When planning studies, researchers should keep in mind factors such as data delays, Bluetooth connectivity, and system-level restrictions. Understanding these constraints early on can help guide more realistic and effective intervention designs.

Conclusion: Commercial wearables and no-code platforms are accelerating the development of JITAI and broadening access for behavioural scientists. However, achieving truly "just-in-time" adaptivity requires addressing interoperability, latency, and background-processing limitations. Stronger collaboration among behavioural researchers, engineers, and device manufacturers is essential to enable scalable, real-time adaptive interventions for physical activity promotion.

SO.1.05-10

Behind the Wheel and Beyond: Physical Activity and Sedentary Time in Occupational Drivers and their Associations with Health Outcomes

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Purpose: The purpose of this study was to: 1) objectively measure and compare physical activity (PA) and sedentary time between workdays and non-workdays across occupational driver subgroups, namely, long-haul drivers (LHDs), short-haul drivers (SHDs), and local delivery drivers (LDDs), and 2) to explore how PA and sedentary time relate to health outcomes.

Methods: This cross-sectional study was part of the Milestone Study, approved by the Ethical Committee of Antwerp University Hospital (reference number 3126). Dutch-speaking occupational drivers working in Flanders who owned a smartphone were included. PA (steps, light, moderate, and vigorous activity) and sitting time were measured using

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the Fitbit Charge 5. Health-related outcomes, including musculoskeletal burden, quality of life, perceived stress, depression, anxiety, stress, sleep quality, daytime sleepiness, and fatigue, were assessed via validated self-report questionnaires administered through Qualtrics. Linear mixed-effects models examined differences in PA and sedentary time between workdays and non-workdays, and across driver subgroups. Multivariate linear regression analyses assessed associations of PA and sedentary time with health outcomes, adjusting for driver type and driving experience.

Results: Thirty-three drivers (43.2 ± 10.7 years; 30 men, three women) participated. Participants engaged in 63 ± 65 minutes of moderate-to-vigorous PA (MVPA), accumulated $10,485 \pm 5,314$ steps/day, and spent 617 ± 194 minutes sitting/day. Steps ($10,937 \pm 4,978$ vs. $9,701 \pm 5,776$; $p = 0.002$) and light PA (310 ± 101 min vs. 253 ± 88 min; $p < 0.001$) were higher on workdays, while vigorous PA (26 ± 41 min vs. 24 ± 32 min; $p = 0.006$) was higher on non-workdays. LHDs were more active on non-workdays, exhibiting higher step counts, MVPA, and less sedentary time, whereas LDDs were more active during workdays, with higher step counts, more light and moderate activity, and less sedentary time. These patterns reflect job differences, as LHDs spend long hours seated while LDDs move frequently during deliveries. No significant associations were found between PA, sedentary time, and health outcomes.

Conclusion: This study offers valuable insights into the activity patterns of the hard-to-reach driver population. The findings highlight the need for targeted interventions that address the distinct movement profiles of each driver subgroup.

SO.1.05-11

A Just-in-Time Adaptive Intervention to Increase Healthy Habits in People Living with Multi-morbidity

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based AssessmentAI and Smart Tools for Movement Tracking

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Purpose: The growing prevalence of multimorbidity presents major challenges for sustaining health-promoting behaviours such as physical activity. Traditional behaviour change interventions often lack the flexibility to adapt to the contexts of individuals lives. Just-in-Time Adaptive Interventions (JITAI) offer a promising alternative by delivering personalised support “at the right time,” responsive to users’ changing internal states and external environments.

The primary purpose of this study was to evaluate the effect of a JITAI implemented within the Holly Health (HH) mobile app on habit formation among individuals living with multimorbidity. Specifically, we examined whether JITAI-triggered notifications increased

- (1) the completion of healthy habits and
- (2) overall app engagement.

Methods: A JITAI was implemented within the HH app using a model predictive control (MPC) framework with a one-day horizon. At each daily decision point, the system selected one of 15 intervention options (three message types $\times$ five delivery times) to maximise expected habit completions, balancing exploration and exploitation via an ϵ -greedy strategy. Tailoring variables included recent adherence, mood, engagement, perceived impacts, and day type.

A pre-post design was employed in which users engaged with the app for three months before and after JITAI activation. Participants were adults with multimorbidity who had completed onboarding and logged at least one healthy habit during baseline. Primary outcomes were (1) habit ratio (completed/scheduled habits) and (2) new engagements (distinct user-initiated interactions). Negative binomial mixed-effects models, accounting within-individual variability, tested for pre-post differences in outcomes.

Results: Data from 181 users (75% female; 49% > 45 years) were analysed. Compared with the pre-JITAI activation, habit ratio was 10% higher post-JITAI (Incidence Rate Ratio [IRR] = 0.90, $p < 0.001$). App engagement increased by 21% (IRR = 0.79, $p < 0.001$). These effects remained significant after adjusting for individual variability.

Conclusion: Embedding a JITAI within the Holly Health app significantly improved both habit completion and engagement among individuals with multi-morbidity. These findings highlight the potential of adaptive, data-driven digital interventions to enhance sustained behaviour change. Future research will explore the long-term impact of the JITAI beyond three months to assess whether improvements in engagement and habit formation are maintained over time.

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SO.1.05-12

Comparison of Physical Activity Estimation Performance between Wear Locations Using a Random Forest Classifier

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SO.1.05 E- & mHealth: Innovation In Digital Studies and Methods Wearable Technology and Sensor-Based Assessment AI and Smart Tools for Movement Tracking

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Purpose: Currently, there is no consensus on a single wear-site recommendation for predicting activity type and energy expenditure (EE) estimation using wearable devices. Few studies have compared activity classification and EE estimation performance across wear locations using a dataset inclusive of multiple types of activities. The purpose of this analysis was to compare activity classification and EE estimation performance between wrist, hip, and ankle wear locations using a random forest (RF) classifier utilizing a comprehensive dataset.

Methods: Forty-one participants (21 males; mean±sd, age: 33.6±13.5 yrs, body mass index: 24.8±3.4 kg/m²) completed a semi-structured protocol consisting of twenty activities, ranging from sedentary to vigorous intensities. The start and stop times of each activity were annotated in real time. Participants wore a portable indirect calorimeter (Cosmed K5) and five ActiGraph GT9X devices (right/left wrists (RW/LW) and ankles (RA/LA), right hip). Temporal features were calculated from 100Hz triaxial accelerometer and gyroscope data. Five RF models, one per location, were trained on 15-sec sliding, 10-sec overlapping, windows to predict activity type and EE (METs). Estimates were compared to direct observation labeled activities and METs from the K5. A between-subject 10-fold cross-validation method was used for model evaluation, with performance metrics averaged across the folds reported. F1-scores and root-mean squared error (RMSE) were used to assess model performance for activity classification and MET estimation, respectively.

Results: The right wrist had the highest activity classification (F1-score, mean±sd; 0.61±0.07) compared to the other locations (LW: 0.58±0.06, RA: 0.54±0.04, hip: 0.53±0.03, LA: 0.52±0.06). The hip had the lowest MET estimation error (RMSE; 1.42±0.22) compared to the other locations (RA: 1.44±0.24, LW: 1.54±0.20, LA: 1.55±0.40, RW: 1.56±0.20).

Conclusion: Model performance was poorer than expected due to the large number of activity labels: activities with similar movement patterns were often misclassified. Future work should continue to include a variety of activities to challenge the limits of wearable devices. Additionally, more research should be conducted in varying populations and contexts to determine an optimal single-site wear location, if one exists.

SO.1.05-13

Effects of the Diameter App: A Blended-care Lifestyle Intervention for Individuals with Type 2 Diabetes

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Purpose: Type 2 Diabetes Mellitus (T2DM) is a chronic lifestyle-related condition that significantly affects quality of life and healthcare costs. Many patients lack knowledge and motivation for effective self-management, highlighting the need for personalized, motivational interventions. Real-time monitoring of glucose, nutrition, and physical activity combined with lifestyle coaching may improve diabetes management. The use of real-time monitoring of glucose

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values, nutrition and physical activity in combination with coaching aimed at lifestyle-related behavior change may improve patients' diabetes management. Therefore, the Diameter app was developed to support individual goal setting and lifestyle change in type 2 diabetes (T2D). The DIAMETER-1 study aimed to evaluate the Diameter as blended-care intervention in primary and secondary care to evaluate its feasibility.

Methods: A mixed-method, single-arm, longitudinal design was used among patients with T2D to evaluate the feasibility of the Diameter app. Patients were recruited in a regional hospital and in a general practice, both in the east of the Netherlands, Almelo. Patients used the Diameter app for 6 months, received a Fitbit and a Freestyle Libre for continuous glucose monitoring, and received daily tailored coaching messages for physical activity and diet. Body weight, waist circumference, and medication use were measured at baseline, three, and six-month follow-up, while glucose regulation and physical activity (step count and moderate-to-vigorous activity) were measured continuously. Changes were analyzed using linear mixed models. Data collection has been completed.

Results: A total of 74 patients were included, of them 67 participants completed the study (mean age 60.1 ± 9.4 years; mean diabetes duration 12.7 ± 8.8 years; 46% female). Interim analyses showed positive and clinically relevant effects for BMI and waist circumference after six months. Fitbit and Freestyle Libre data showed high adherence, whereas low completion rates were seen for dietary logbooks. The Diameter app was rated positively. Final data analysis is ongoing.

Conclusion: These findings indicate that the Diameter tool is feasible for use in routine diabetes care and may provide short-term benefits. Reductions in BMI, waist circumference, and medication needs suggest that the app's real-time feedback and coaching can support lifestyle changes, enhance self-management, and lessen treatment burden for individuals with type 2 diabetes.

SO.1.06-02

Why Context Matters When Evaluating the Impacts of Playground and Park Renovations on Park Use and Physical Activity

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings

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Purpose: The few studies indicating positive effects of park or playground renovations occur within a single highly specific context and thus lack generalizability. To begin to understand the importance of context within natural experiments, we compared evaluations of two studies of park and playground renovations on park use and physical activity in low-income and high racial minority U.S. neighborhoods.

Methods: A quasi-experimental pre-post study design was used to evaluate the impacts of the renovations on park use, playground use, and park-based moderate-to-vigorous physical activity (MVPA) in Rocky Mount, NC (2023-2025), and in Baltimore, MD (2018-2022). For both studies, one intervention park received park/playground renovations, which was matched to one control park on neighborhood-level measures (income, race, population). The System for Observing Play and Recreation in Communities (SOPARC) measured outcomes at renovated and control parks over 5-11 days pre/post renovation. Difference-in-difference (DiD) mixed effects negative binomial regression models estimated renovation effects, adjusted for day of week. Placer.ai's mobile device data measured weekly average visitors to the parks/playgrounds over 3-5 months pre/post renovation. Descriptive statistics determined the pre/post change in visitors with mobile devices at each park/playground.

Results: For the renovated park in Rocky Mount, analyses indicated significantly greater increases in park use (IRR = 43.6, 95% CI: 11.8-161.4), playground use (IRR = 28.5, 95% CI: 6.1-133.6); and park-based MVPA (IRR = 40.0, 95% CI: 11.1-144.8) from 2023 (pre) to 2025 (post), compared with the control. For the renovated park in Baltimore, interaction terms were not statistically significant ($p > 0.05$), indicating no difference in study outcomes from baseline (2018) to post-renovation data collection waves (2019-2022) compared with the matched control. However, analyses of Placer.ai data indicated weekly average visitors increased by 176% for renovated playgrounds in Baltimore and by 102% for renovated playgrounds in Rocky Mount, and declined by 74% and 62%, respectively, for controls parks.

Conclusion: As both studies implemented similar methods, differences in evaluation findings may be best interpreted by the unique social (community-engagement), temporal (length of closure, COVID-19), economic (renovation funding), geographic (access, neighborhood turnover), and other contextual factors that occur over the course of natural experiments.

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SO.1.06-03

Climate Change Mitigation Interventions and their Impact on Physical Activity: A Systematic Review

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: Climate change mitigation measures have the potential to generate co-benefits for human health, including increased physical activity. However, empirical evidence from real-world mitigation interventions compared to simulation studies remains scarce. To date, no systematic synthesis has examined how such interventions affect physical activity - either intentionally or incidentally. This systematic review therefore aims to summarise the available evidence on climate change mitigation interventions that impact physical activity as a co-benefit.

Methods: Three databases (PubMed, Scopus, and GreenFILE) were searched for peer-reviewed English-language studies from inception until July 2025 using terms related to 'mitigation', 'climate change', 'intervention' and 'physical activity'. Studies were included if they evaluated real-world climate change mitigation interventions and assessed impacts on physical activity using controlled pre-post designs. Methodological quality of included studies was assessed using five binary criteria applied in previous active travel intervention reviews. Due to heterogeneity in intervention types, participants and outcome metrics, a narrative synthesis was conducted, categorising studies by intervention level according to the socio-ecological model. Effects on physical activity were summarised descriptively and based on their statistical significance. The study protocol was prospectively registered with PROSPERO (CRD420251136610) and the review followed PRISMA guidelines.

Results: The initial search yielded n=8061 articles, of which ten studies were finally included. Most studies were conducted in high-income countries using quasi-experimental or natural experimental designs. Interventions were implemented at three main levels: (1) policy measures (n=4) such as emission control zones and national low-carbon development programmes; (2) environmental and infrastructure changes (n=2) including improvements to walking, cycling, and public transport facilities; and (3) individual-level approaches (n=4) involving behavioural, educational, or incentive-based strategies. The most studied physical activity outcomes were cycling (n=6) and walking (n=4). Seven studies reported positive effects on physical activity, while three found no statistically significant, though positive, changes. Study quality was rated as high in 20% of studies, moderate in 60% and low in 20%.

Conclusion: This review demonstrates that climate change mitigation interventions can positively influence physical activity, highlighting their potential as co-beneficial strategies for planetary and public health. Further studies across different intervention levels using similar strategies are needed to substantiate these findings.

SO.1.06-06

Catalyzing a Paradigm Shift in Neurodegenerative Care: Endorsement of Exercise Consultation in Physical Therapy for Multiple Sclerosis and Parkinson's Disease

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: The safety, benefits, and effectiveness of exercise for people with multiple sclerosis (MS) and Parkinson's disease (PD) are well documented. Despite this evidence, people with MS and PD are less physically active than those without the disease, and this gap widens as the diseases progress. Physical therapists (PTs) are uniquely positioned and can facilitate exercise behavior change. However, traditional physical therapy focuses on function restoration rather than proactive activities to prevent the advancement of morbidity. This study evaluated the perceived acceptability, appropriateness, and feasibility of an innovative consultative low-dose model of Proactive Physical

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Therapy (PAPT) across interested groups and assessed organizational readiness for implementation.

Methods: This study employed a cross-sectional design using an online survey. Participants included people with MS and PD, Caregivers, PTs, and Healthcare Administrators. Measures included the Acceptability (AIM), Appropriateness (IAM), and Feasibility (FIM) scales, perceived organizational change interest (Organizational Readiness for Implementing Change, change commitment sub-scale), and an open-text section for feedback. One-way ANOVAs were conducted to test group mean differences on the scales of AIM, IAM, and FIM.

Results: The sample consisted of 106 respondents recruited from two health systems in the Midwest, USA. Perceptions of the PAPT model were overwhelmingly positive across all groups as evidenced by mean scores ≥ 4.15 on the AIM, IAM, and FIM scales. Descriptive analysis showed a strong consensus, with 80% to 100% of respondents agreeing (≥ 4) on nearly all individual items. One-way ANOVAs revealed no significant differences in mean scores across stakeholder groups for Acceptability ($F(4, 93)=0.308, p=0.87$), Appropriateness ($F(4, 92)=0.467, p=0.76$), or Feasibility ($F(4, 93)=0.665, p=0.62$). Open-text responses confirmed high support from patients, but identified reservations related to financial cost and clinic capacity. Provider groups reported high perceived organizational readiness for change commitment (ORIC Mean: PT=4.33, Admin=4.50).

Conclusion: The PAPT model is rated as highly acceptable, appropriate, and feasible, demonstrating a strong level of consensus across the entire stakeholder spectrum. The high consensus and perceived organizational change commitment support immediate pilot testing in clinical practice to advance sustained physical activity engagement in MS and PD populations.

SO.1.06-07

Implementation Outcomes and Scalability Potential of a Land- and Water-based Multicomponent Exercise Program for Women with Fibromyalgia: The al-Ándalus Project

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: The benefits of exercise for women with fibromyalgia are well-documented. The effectiveness of the al-Andalus project exercise intervention program has been reported. Thus, we aimed to evaluate the implementation outcomes (adherence, fidelity, and safety) of a 24-week supervised multicomponent exercise program carried out in land and water settings for women with fibromyalgia, and to assess its readiness for scale-up within community-based rehabilitation contexts.

Methods: A total of 244 women with fibromyalgia (mean age=50.8 $\pm$ 7.6 years) from seven Andalusian provinces were assigned to land-based ($n=80$), water-based ($n=79$), or control ($n=85$) groups. Intervention arms, developed in 17 groups (5 provinces), completed 24-weeks (3 days/week) of supervised multicomponent 60 min/sessions (aerobic, strength, flexibility). Implementation outcomes included adherence (attendance rate), fidelity to planned training intensity (Rate of Perceived Exertion -RPE- and %Heart Rate -HR- max), and safety (adverse events registered). Contextual implementation factors, including facility availability and suitability (costs, schedules and depth and water temperature) were documented through a qualitative log of logistical challenges encountered during facility recruitment. Descriptive continuous data were presented as mean and standard deviation, whereas categorical data as percentages.

Results: Mean attendance was 82.9% in the land-based and 79.1% in the water-based groups. Fidelity analyses confirmed that both interventions were performed at a moderate intensity (mean RPE=12.2 $\pm$ 1.6; %HRmax=58.5 $\pm$ 5.1 for land-based and 53.4 $\pm$ 5.2 for water-based sessions), consistent with protocol expectations. Regarding safety, only one minor adverse event was reported (a skin allergy related to pool water). Concerning contextual implementation factors, challenges were encountered in identifying suitable facilities: none of the fibromyalgia associations had access to pools (0%), and in two provinces, no pools met the required availability and suitability criteria, allowing only the land-based intervention.

Conclusion: A 24-week multicomponent exercise program for women with fibromyalgia was safe, implemented with high fidelity to the prescribed protocol, and maintained a high adherence in both land- and water-based settings.

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These findings suggest strong readiness for community-level scale-up. However, the water-based format entailed greater logistical and economic demands, making the land-based format a more feasible option for the general population of people with fibromyalgia.

SO.1.06-08

A Leaner Approach to Remotely Delivered Behavioral Weight Management: 3-month Outcomes from the EVO Decentralized Comparative Effectiveness Clinical Trial

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: Obesity is a leading public health challenge, with high economic and cardiometabolic costs. Intensive lifestyle intervention is the gold standard for behavioral treatment of obesity, but the burden and expense of available programs limit scalability. In a previous trial, we used the Multiphase Optimization Strategy to identify a lower cost, remotely delivered obesity intervention that achieved clinically meaningful weight loss, which we call EVO. Our ongoing trial tests EVO for non-inferiority versus a currently available program in achieving weight loss over 6 months. Herein, we present complete interim findings at 3 months.

Methods: We recruited adults (ages 18-70) with obesity (BMI 30–45 kg/m²) to participate in a 2-arm randomized controlled trial. We randomized participants, stratified by sex, to receive EVO (a mobile app, online lessons, and 12 bi-weekly, 10-15 minute telephone coaching sessions) or DPP (Center for Disease Control's PreventT2 curriculum, delivered remotely in 16 one-hour, one-on-one video sessions). Assessors masked to condition collected weight with wireless scales during remote video assessments.

We modeled weight as a function of treatment (EVO or DPP), time (Baseline or 3-month) and treatment*time using a linear covariance pattern model. We defined EVO non-inferior if the upper 90% confidence limit for the estimated mean difference in weight change between EVO and DPP is below 3.2kg.

Results: We randomized 524 participants (90% female, mean age 54 years) from 46 U.S. states and the District of Columbia. 263 participants (Mean baseline BMI/weight: 35.96/98.96kg) received EVO; 261 (Mean baseline BMI/weight: 35.31/97.65kg) received DPP. Slightly fewer than half of all participants (43%; n=227) achieved 5% weight loss by 3 months (EVO: 46%; DPP: 41%). Over 3 months, EVO participants lost an estimated 4.14kg and DPP participants lost an estimated 3.36kg. The estimated mean difference in weight change for EVO participants compared to DPP is -0.78kg (p=0.02, 90%CI [-1.34, -0.21]).

Conclusion: Our initial findings suggest that EVO is not only non-inferior but superior to DPP in achieving weight loss over 3 months. Forthcoming analyses will test EVO's non-inferiority over 6 months (our primary endpoint), evaluate EVO's cost-effectiveness, and test effects at 12-months to inform policy and clinical translation.

SO.1.06-09

Boundary Spanning in Project Starting Block: Engaging Marginalized Youth through Sport and Mentoring

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: Project Starting Block (PSB) is a Danish civil-society initiative that combines sport and mentoring to engage 18–29-year-olds not in education, employment, or training (NEET). Central to PSB is the Bridge Builder—a boundary-spanning role designed to translate program components into everyday routines that participants can relate to and sustain. This study examined how the Bridge Builder influenced participant engagement and early outcomes during PSB’s pilot phase, providing insights into relational implementation mechanisms in community-based interventions.

Methods: A mixed-methods process evaluation was conducted across four club–municipality clusters ($n = 89$). Data sources included a baseline questionnaire (63% response rate, $n = 56$), attendance logs, ten structured observations, and semi-structured interviews with participants, Bridge Builders, caseworkers, and club staff ($n = 34$). Quantitative data were analyzed descriptively, while qualitative data were thematically coded in two cycles to identify recurring patterns and mechanisms of engagement.

Results: Participants (mean age = 24.5 years) attended two to five weekly sessions combining sport and mentoring. Median attendance ranged from 52% to 86%, described by staff as higher than comparable municipal programs. Thematic analysis showed that the Bridge Builder

- (1) linked silos by coordinating across welfare, club, and community settings;
- (2) built relational trust—participants described the Bridge Builder as a “lifeline” providing safety and continuity;
- (3) translated intervention elements into motivating, individualized routines; and
- (4) mediated tensions, such as balancing flexible attendance with job center requirements.

Many participants reported improved daily structure, energy, and social connectedness, with a subgroup showing initial steps toward employment or education.

Conclusion: The boundary-spanning Bridge Builder role helped embed PSB’s activities in participants’ everyday lives, supporting strong attendance and functional gains. Findings illustrate how relational implementation roles can enhance participation and transition outcomes among marginalized youth. By linking sport, social inclusion, and boundary-spanning practice, this study contributes to understanding how community-based initiatives can foster meaningful engagement and help bridge the gap between welfare systems and everyday life for specific groups of young adults.

SO.1.06-10

Exploring General Practice Nurses’ Capacity for Screening and Advising on Movement Behaviours

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: The primary healthcare setting has been supported as an appropriate setting to target changes in individual movement behaviours, helping address the growing burden of non-communicable disease. The existing challenges for General Practitioners in providing physical activity counselling have been extensively reported; however, more research is required to understand the role of General Practice Nurses in delivering these types of interventions. This study aimed to develop a deeper understanding of the capacity, opportunities, and challenges for nurses working within Australian general practice to complete screening and provide brief advice on sedentary behaviour and physical activity within existing models of primary healthcare.

Methods: A qualitative descriptive study design utilising individual interviews with 19 General Practice Nurses was conducted. Participants completed online, audio-recorded, semi-structured interviews that were digitally transcribed. Inductive thematic analysis was completed in line with the six-phase approach as described by Braun and Clarke.

Results: Four primary themes were identified. Theme 1- *Opportunities*; highlighted the different opportunities that exist for General Practice Nurses to conduct PA and SB screening and provide subsequent advice to patients, such as during health assessments or the provision of wound care. Theme 2- *Capabilities*; identified gaps in the current knowledge and skills of General Practice Nurses in delivering these interventions, with nurses having more confidence in providing physical activity-related advice than promoting sedentary behaviour-related changes. Theme 3- *Challenges*; reflected the barriers, such as patients’ expectations and the time constraints that exist for General Practice Nurses in delivering this assessment and advice within primary healthcare. Finally, Theme 4- *Enablers*; identified the personal, organisational, and system-structural enablers that exist. These included having relationships and strong referral pathways with allied health professionals, and the use of specific screening tools to

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help nurses assess patients' movement behaviours.

Conclusion: While further research is needed, these findings recognise the role and opportunities that exist for General Practice Nurses in delivering physical activity and sedentary behaviour interventions within primary healthcare. Policymakers may wish to support the provision of training and education material to upskill General Practice Nurses in providing movement behaviour change assessment and advice to their patients.

SO.1.06-12

Anchoring Active Communities: Long-term Impact of a Co-created Social Prescribing Intervention Linking Municipal Rehabilitation Programs with Civil Society Engagement for Active Living

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings
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Purpose: Understanding how social prescribing interventions are anchored in local health care and civil society is crucial for developing sustainable models. This follow-up study explores how a co-created social prescribing intervention promoting physical activity engagement is anchored in a Danish socioeconomically disadvantaged rural municipality 1.5 years after completion of project Active Communities.

Methods: This was a qualitative multi-methods study, including a process log, focus groups, and interviews. The *process log* was based on field notes and minutes from twelve meetings between the research project leader, the municipal link worker, and the municipal consultant on civil society organizations, documenting activities and other indicators of adaptation and anchoring of the intervention in practice. We conducted three *focus groups* with civil society representatives, municipal employees, and citizens in rehabilitation programs; and two *interviews* with the municipal link worker and the team leader to investigate experiences with the intervention.

The process log was made from January 2024 to May 2025 and condensed into a chronological overview of key developments. Focus groups and interviews were conducted and audio-recorded in June-July 2025, transcribed, and thematically analyzed across domains: original linking elements (link worker, digital platform, visiting program, co-created activities), organizational development, cross-sector collaboration, and citizens' engagement.

Results: Focus groups included five citizens in the target group (three men, two women; aged 46–78), five civil society representatives (two patient associations, two community-based fitness centers, and one sports club), and seven municipal employees (a consultant on civil society organizations, a team leader, a community health nurse, and four physiotherapists).

The main result was that the linking activities were embedded into organizational structures, including implementation of social prescribing in health professionals' practice. The initial co-creation process continued to build trust, while policy and budgetary contexts supported the linking activities. This included anchoring of the link worker function in municipal practice; transforming the digital portal into a publicly community platform; and strengthened collaboration with the civil society.

Conclusion: This study provides insights into the local anchoring of a co-created social prescribing intervention. Findings may inform scaling and adaptation of social prescribing models to strengthen cross-sector collaboration to support citizens' physical activity engagement.

SO.1.06-13

Organizational Mechanisms through which Implementation Strategies Lead to Implementation Fidelity in a National Study of Churches in the United States

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SO.1.06 Implementation and scalability: Scaling Implementation Strategies Across Community Settings Room 5, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Churches can be important community settings for promoting physical activity (PA) and healthy eating (HE), but more implementation science research is needed to understand the mechanisms of change through which implementation strategies lead to positive implementation outcomes. This study examined whether church committee completion of a web-based training and submission of a program plan (“training engagement”) was associated with PA and HE implementation fidelity directly and/or indirectly, mediated via the number of committee meetings and committee meeting attendance (“committee implementation engagement”).

Methods: This study occurred in churches across the US (n=103) participating in the Faith, Activity, and Nutrition (FAN) program. Church committee training engagement (primary independent variable) was comprised of three levels based on two indicators: full engagement (completed 7-8 of 8 lessons and submitted a program plan), partial engagement (completed 7-8 lessons but did not submit a plan), or low engagement (completed <7 lessons and did not submit a plan). Committee implementation engagement (mediating variable) was operationalized with two indicators: number of committee meetings in the past 12 months and average meeting attendance. Implementation fidelity (outcome variable) for both PA and HE were composite scores comprised of baseline to 12-month changes in four FAN components: messages, opportunities, policies, and pastor support. Structural equation modeling was used to examine associations between committee training engagement, committee implementation engagement, and implementation fidelity.

Results: Overall, 43.7%, 42.7%, and 13.6% of churches had full, partial, or low engagement in training, respectively. Structural equation modeling results showed that a higher level of committee training engagement was significantly related to greater committee implementation engagement, with full engagement (path coefficient=1.40, p=0.002) twice as impactful as partial engagement (0.70, p=0.098). In turn, committee implementation engagement was significantly related to PA (0.77, p<.001) and HE (0.77, p<.001) implementation fidelity. The effects of committee training engagement on PA and HE implementation fidelity outcomes were fully mediated through committee implementation engagement.

Conclusion: These findings provide increased understanding of how key implementation strategies may lead to stronger implementation fidelity in church settings with the potential to reach large numbers of individuals experiencing health disparities (e.g., African American, rural, older adults).

SO.1.07-01

Evaluating Place-based Whole Systems Approaches: A Realist and Configurational Comparative Analysis of Systemic Change

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: The National Evaluation and Learning Partnership (NELP), commissioned by Sport England, has developed a whole-system realist approach to evaluate Place-Based Whole Systems Approaches (PBSAs) aimed at reducing physical activity inequalities. This responds to the complexity of social determinants and seeks to understand mechanisms through which local collaborative initiatives may contribute to systemic changes plausibly associated with shifts in population-wide physical activity.

Methods: This paper details two evaluative practices

1. Configurational Comparative Analysis (CCA) to identify patterns across local Places, each representing a Local Authority adopting PBSAs. Attributes were dichotomised to produce crisp-set data and analysed using EvalC3 software, generating decision-tree models to identify configurations predicting outcomes. Data collection in 2024 included 46 attributes per Place (n=47) across:
 - Context indicators (geography, demographics, socio-economic conditions).
 - Resource measures (investment and deployment).
 - System maturity measures (extent of systemic ways of working), assessed via a System Maturity Matrix and moderated for consistency.

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2. Participatory Sense Making to interpret and explain the models generated through the CCA. This enabled us to co-produce rich cross and within place explanations of change complemented by documentary evidence.

Results: We will share illustrative findings from our analysis of 2024 data, focusing on the outcome of “inclusive cultures and practices”, and our latest (2025) round of data collection. Our analysis of 2024 data (47 cases) found configurations strongly predicting development of an inclusive social environment for physical activity included stronger community voice and influence in the work, as well as high levels of supported community-led action. Sense-making workshops highlighted mechanisms such as cultivation of leadership within the community along with the need for agencies holding power in the system to relinquish control and enable communities to act autonomously, while offering supportive and empowering interaction where needed.

Conclusion: This approach demonstrates the value of combining realist theory-building with CCA to explore complex causal patterns in systems change. The methods offer a structured, complexity-sensitive approach for evaluating systemic conditions and pathways to impact, with potential applicability beyond physical activity. Future work will refine models, deepen mechanism testing, and explore international relevance.

SO.1.07-02

Healthy School Lunches in Europe: A Causal Loop Diagram to Identify Opportunities and Challenges

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: Most children worldwide show poor dietary habits, especially for children in poverty this is a great public health concern. School lunches can contribute to healthy dietary behaviours and food equity, ensuring that all children have access to at least one nutritious meal per day, like stated in the European Child Guarantee. However, only some European countries currently offer school meal programs. Therefore, the aim of this study is to identify factors and their interactions within the complex system of providing school lunches in Europe and to visualize and analyse this in a causal loop diagram (CLD). The CLD serves as a tool to identify leverage points for improving existing or developing new school lunch programs.

Methods: This study is part of the European Healthy Wave project and presents the results of Group Model Building (GMB) sessions which took place in 2024 and 2025 with experts from European cities and regions in Bulgaria, Italy, Latvia, Netherlands, Portugal, Romania and Sweden. In Italy, Portugal, Romania and Sweden, experts joined two GMB sessions to firstly identify factors influencing the dynamics of the healthy school lunch system in European local contexts and secondly to connect those factors in a visualized relation map. The four country specific maps were comprised by researchers in one CLD and afterwards discussed in a GMB session with twenty Healthy Wave partners from all seven countries (schools, municipalities, NGO's). Researchers adapted the final version of the CLD according to this feedback and identified feedback loops to show leverage points within the complex system.

Results: The CLD demonstrates three main themes: child & family, school, policy & regulation. It also demonstrates the interactions within and between those themes. We identified two main factors affecting the successful implementation of school lunches: 'children enjoying the school lunch' and 'level of food and diet quality and safety'. Those factors relate to each other, but also depend on or affect other practical, motivational and policy factors.

Conclusion: This study identifies important factors affecting the system of providing school lunches and offers policymakers and researchers insights into the factors that need to be considered when implementing school lunches.

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SO.1.07-04

Complex System of Factors and Actors Promoting Physical Activity in Young Children. Results from Different Dutch Regions and Developmental Stages (0–3, 3–6 Years)

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: Physical activity in young children is shaped by interrelated factors that operate as a complex system. Gaining insight into these factors and their connections within local contexts is essential for designing regionally tailored approaches that can catalyse systemic change. This study identifies system factors and actors influencing physical activity among children aged 0–3 and 3–6 years, and examines similarities and differences across regions and developmental stages.

Methods: First, a national expert panel completed an online survey to select, from a literature-based list, the 15 most influential factors affecting physical activity in the Netherlands for both developmental stages. Next, local stakeholders in five regions (three for ages 0–3 and two for ages 3–6) prioritized the factors relevant to their regional context. In each region, two group model building sessions were held with local stakeholders. During the first session, stakeholders identified the underlying causes of the prioritized factors and mapped relationships between them. System maps were digitized using Vensim, and reinforcing and balancing feedback loops were identified and added to the map. In the second session, stakeholders reflected on their region's system map and identified potential places to intervene, including which actors were positioned to intervene. Cross-cutting mechanisms across regions were identified through comparative analysis of the system maps.

Results: Five system maps (one per region) illustrate how interrelated factors influence physical activity, including feedback loops representing mechanisms that reinforce or balance system behaviour. Cross-cutting mechanisms were identified across developmental stages and regions, highlighting shared places to intervene as well as stage- and context-specific differences. Two powermaps (one per developmental stage) show which stakeholders hold the potential to drive system change.

Conclusion: This study demonstrates a regionally tailored, systems-based approach to understanding the complex factors and actors that shape physical activity in early childhood. The system maps and powermaps provide practical insights into both what drives physical activity and who is positioned to create change. Repeatedly making system maps participatory is time-consuming, which makes it relevant to use the cross-cutting mechanisms to support future whole-system approaches to promote physical activity in young children.

SO.1.07-05

Baseline Socioeconomic Status, Readiness to Change, Knowledge, and Engagement in Intervention Communities: Findings from the Children's Cooperation Denmark (Child-COOP) Systems Trial

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: Participatory systems approaches may help promote childhood health. The Child-COOP trial examines if such an approach can promote (sustain and increase) childhood physical activity in disadvantaged communities. This study assesses baseline socioeconomic levels in the intervention communities relative to national averages and examines variations in socioeconomic status, readiness to change, and knowledge/engagement within these communities.

Methods: The five intervention communities were delineated by the populations living within the respective school district boundaries. The populations were individually linked to national registers using unique personal identification numbers. Baseline (2023) socioeconomic factors (education level, income, unemployment rate, civil status, and immigration) were obtained from Statistics Denmark and categorized according to national guidelines.

Readiness to change was assessed, using a modified version of the readiness to change brief assessment tool, through focus group interviews in each community. A total score (1-9) was calculated based on three dimensions.

Knowledge and engagement were assessed using an adapted version of the Stakeholder-driven Community Diffusion survey, distributed to participants prior to participatory workshops. Average domain scores comprised the total knowledge and engagement scores (1-5).

Results: Compared to national averages, intervention communities had an average population age 4.4 years higher and a 10% lower proportion of children aged 6–12 years. Further, the population in the intervention communities had a 12% lower income, a 44% lower proportion of immigrants and descendants, a 34% higher proportion who had a short education, a 11% higher unemployment rate, and a 7% higher proportion who were married than the national averages.

Four communities scored at stage 4 (Pre-planning phase: action needed) for readiness to change; one scored at stage 5 (Preparation phase: action initiated). Knowledge and engagement scores were similar across the communities and at a medium level (knowledge: 3.72 (SD: 0.07); engagement: 3.76 (SD: 0.05)).

Conclusion: The Child-COOP trial is ongoing with the participatory systems approach being implemented. Baseline findings showed lower socioeconomic status in the five intervention communities compared to national averages. We observed a uniform starting point for socioeconomic status, readiness to change, and knowledge/engagement across the intervention communities - an advantage for the subsequent evaluation of Child-COOP.

SO.1.07-06

Chrono-nutrition and Risk of Type 2 Diabetes: A Prospective Cohort Study

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: Temporal eating behaviors may influence metabolic health when misaligned with circadian rhythms, contributing to impaired glucose regulation and increased type 2 diabetes (T2D) risk. Meal-timing variables, such as timing of the first and last eating occasions, nighttime fasting duration, and time elapsed between wake-up and first meal (wake-up-to-firstmeal) or from dinner to bedtime (dinner-to-bedtime) are strongly interrelated, leading to multicollinearity that limits conventional analytical approaches. This study applied alternative methods to better capture the multidimensional structure of chrono-nutritional behaviors and their associations with T2D.

Methods: GCAT is a prospective cohort investigating genetic and environmental determinants of chronic diseases in adults from Catalonia, Spain. Multivariable logistic regression models estimated associations between individual meal-timing variables and incident T2D diagnosis from electronic health records. Quantile g-computation was used to assess the joint association of the mixture of meal-timing variables and to estimate each variable's relative contribution to overall risk.

Results: A total of 6,858 participants were included, with 151 developing T2D during a median follow-up of 6 years. The 58.6% of the study population are women and the median age is 52 (IQR 47-58). A later first meal was associated with lower T2D risk (OR for 1h increase 0.81 [95% CI: 0.70–0.94]), while a later last meal was associated with higher risk (OR 1.35 [95% CI: 1.07–1.70]). Longer nighttime fasting was inversely associated with T2D (OR 0.74 [95% CI: 0.59–0.93]). A longer wake-up-to-firstmeal was linked to lower odds, whereas dinner-to-bedtime showed weaker evidence. Eating

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jetlag and the number of eating occasions were not associated with T2D in single exposure models. When analyzed jointly as a mixture, a one-IQR increase across all variables was associated with lower T2D risk (OR 0.61 [95% CI: 0.41–0.90]). Nighttime fasting contributed most strongly to the overall association, followed by eating frequency and dinner-to-bedtime reflecting potential synergistic effects among correlated chrono-nutritional behaviours.

Conclusion: Mixture-based analytical methods provide a valuable approach to assess the joint associations of correlated meal-timing variables. Nighttime fasting appears to play a central role, independently of meal timing. Promoting awareness of the importance of chrono-nutritional behaviors may help prevent T2D in the general population.

SO.1.07-08

Leveraging Multi-sectoral Collaboration and Co-benefits for Physical Activity Promotion: A Local Government Case Study from Fujisawa City, Japan

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: To analyze the process of developing and implementing a municipal physical activity (PA) policy in Fujisawa, Kanagawa, under the national *Health Japan 21* framework. This presentation aims to examine how the city's multi-sectoral collaboration efforts align with systems-based principles, and to offer valuable insights for sustainable health promotion in the Japanese local context.

Methods: The study adopted a multi-phase qualitative approach focused on institutional practice. The initial phase involved benchmarking the city's PA policy against the four strategic objectives of the WHO Global Action Plan on Physical Activity 2018–2030 (GAPPA). Subsequently, in August 2021, qualitative interviews were conducted with relevant municipal departments including health, sports, urban planning and policy planning, to understand their perspectives and challenges regarding multi-sectoral collaboration. This was followed by a joint departmental workshop to facilitate shared understanding and identification of co-benefits in January 2022. A follow-up interview survey was conducted with the relevant departments in August–September 2024 to assess the ongoing progress of collaboration and joint actions.

Results: The initial GAPPA benchmarking and inter-departmental interviews revealed significant opportunities for co-benefit realization, which fueled the subsequent multi-sectoral workshop. Although the city didn't explicitly adopt the term „systems approach“ methodology, the process of deliberately leveraging co-benefits and adopting a multi-sectoral perspective to oversee the entire policy landscape was proved effective in aligning disparate departmental efforts toward a shared public health goal. The 2024 follow-up interviews provide timely data on how this collaborative momentum is being sustained, formalized, or challenged in the „action phase,“ reflecting the realities of working within established governmental structures.

Conclusion: The approach taken by Fujisawa offers a practical, domestically-driven model for systemic change. While the city's efforts predate the full rollout of the national *Health Japan 21 (Third Edition)* (starting in 2024), which explicitly provides detailed logic models and action plans suggestive of a national systems-based strategy, the city's experience with bottom-up multi-sectoral collaboration, centered on shared objectives and co-benefits, serves as a crucial case study. The findings demonstrate the feasibility and relevance of systemic thinking, even without the formal label, for Japanese local governments seeking to operationalize sustainable PA promotion under new national guidelines.

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SO.1.07-09

Implementing and Sustaining Systems Approaches within Local Governmental Structures: Lessons Learned in Two Systems-based Projects in the Netherlands

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

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Purpose: Systems approaches have the potential to address complex public health problems, such as adolescent mental health. These approaches are often initiated and led by researchers, who typically guide the problem analysis. However, the resulting actions often need to be implemented, adapted and sustained by local governments and organizations. Little is known about how to effectively shape this transition from researcher-led analysis to practice-led action. This study reflects on two researcher-initiated approaches to achieve systemic change for better adolescent mental health in three Dutch municipalities. Thriving Teens focuses on enhancing the mental wellbeing of preadolescents (9-12 years old) in three neighborhoods in Amsterdam. Minding the Gap aims to improve the mental health of adolescents (12-25 years old) growing up in poverty in two neighborhoods in Utrecht and Amersfoort.

Methods: A qualitative evaluation examined how both projects approached collaboration between researchers and local partners, and the impacts of the employed systems tools at different system levels. Data collection included realist-informed Ripple Effects Mapping (RREM) workshops, document analyses, and semi-structured interviews with project stakeholders for both projects. All data were integrated into a RREM map for each project to trace how impacts evolved over time and to explore mechanisms driving or constraining change. Underlying mechanisms were compared between projects and analyzed following the broad and narrow path theory as described by Gadsby & Wilding (2024).

Results: We found differences and similarities regarding researchers roles, involvement of decision-makers, the use of systems tools and reflections on narrow versus broad pathways. Key lessons include:

- (1) successful implementation requires multisectoral engagement from local government beyond public health departments;
- (2) systems tools can help in building systems thinking capacity and shared understanding within local governments; and
- (3) embedding actions in existing initiatives can foster ownership and short-term outcomes, though it may constrain broader systemic focus.

Conclusion: Embedding systems approaches into local government structures to address adolescent mental health requires cross-sectoral collaboration, capacity building in systems thinking and strategic alignment with ongoing initiatives. These lessons can inform researchers, policymakers and practitioners seeking to operationalize systems thinking to address complex public health issues in local contexts.

SO.1.07-11

Building Capacity as Implementation Strategy for Systems Change – Insights from the Children’s COOPERation Denmark Participatory Systems Trial Promoting Physical Activity (Child-COOP)

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

Room 6, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Building capacity in dynamic, adaptive systems such as municipalities is essential for sustaining health promotion initiatives. In particular, strengthening collaborative capacity – the ability of diverse actors to work collectively toward sustainable community development – is critical, yet challenging. The Child-COOP Denmark trial is a three-year participatory systems approach across five local communities in five municipalities. This study investigates the relationship between capacity-building strategies and the implementation of actions as indicators of system change. Specifically, it explores if and how tailored capacity-building elements within the Child-COOP participatory systems trial catalyze action development across five local communities, thereby assessing the impact on systems transformation.

Methods: Municipal staff, including Child-COOP coordinators, participated in a 2+1 day systems training course covering modules on positioning theory, storytelling, evidence briefs, facilitation techniques, group model building elements and systems mapping. Additional capacity-building components included weekly network-of-practice meetings, stakeholder recruitment support, establishment of a school leadership network, cross-municipal leadership meetings, and several anchoring meetings within each municipality. A regional backbone office provided ongoing support. The IMPACT Process were used to document number and level of actions and emergent systems changes.

Results: Although all five municipalities received the same capacity-building elements, preliminary findings reveal substantial variation in the number and level of documented actions across communities. Analysis of action development and identification of mechanisms influencing capacity-building outcomes are ongoing and will be presented at the conference.

Conclusion: Despite a uniform implementation strategy, marked differences in number and level of action development emerged across the five communities. Early insights from the Child-COOP trial suggest that the competencies of the local municipal team – particularly the coordinator – play a pivotal role in catalyzing systems change. Further research is needed to inform the design of local teams capable of driving sustainable health-promoting transformations.

SO.1.07-12

Building Capacity for Whole Systems Realist Evaluation: Stakeholder Engagement, Learning, and Policy Influence in Place-based Systemic Working to Tackle Physical Activity Inequalities

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

Room 6, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Whole systems approaches and realist evaluation are positioned as antidotes to reductionist methods, offering nuanced understanding of context and causality in complex health systems. Despite their growing credibility, challenges persist in embedding these approaches and ensuring evaluation findings inform policy and programme design. This study explores how stakeholders engaged in a Whole Systems Realist Evaluation (WSRE) approach value, use, and translate evaluation evidence into action.

Methods: The National Evaluation and Learning Partnership (NELP), commissioned by Sport England, collaborated with multiple Place Partnerships implementing whole system place-based approaches to tackle physical inactivity. Over four years, NELP supported capacity-building through participatory evaluation methods, iterative learning cycles, and realist-informed frameworks. Eleven in-depth realist interviews were conducted with stakeholders to examine experiences of WSRE, focusing on mechanisms enabling capability development and evidence use. This was supplemented by stakeholder survey data (N=X). Data were analysed to refine programme theories and identify strategies for influencing policy and practice.

Results: Findings reveal that initial uptake required recognition of uncertainty and openness to alternative evaluation paradigms. Key enabling factors included senior leadership advocacy, external credible voices championing innovation, and social spaces for knowledge exchange. Stakeholders reported that evaluation findings informed programme design through evidence-based policy briefs, co-interpretation workshops, integration into planning cycles, and Theory of Change refinement. However, challenges emerged: entrenched beliefs about evaluation as a

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performance metric, funder-driven compliance pressures, resource demands for capacity-building, and difficulties translating complex findings into actionable language. Reflexive learning evolved gradually, complicated by multi-level governance and competing agendas.

Conclusion: WSRE can catalyse shifts in policy and programme design when supported by relational capacity-building, iterative feedback loops, and strategic communication of findings. Yet, sustaining engagement is challenging due to cultural resistance, historical practices, and perceptions of the competitive funding landscape. Embedding evaluation within decision-making requires leadership advocacy, external support, and mechanisms for translating evidence into actionable strategies. Future work should address scalability, resource constraints, and strategies to overcome institutional inertia.

SO.1.07-13

The Thriving Communities Lab – Driving Systems Change through Data-informed Learning and Cross-sector Action with a Danish Municipality

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SO.1.07 Systems Science: Systems Thinking and Whole Systems Approaches to Health Promotion: Evidence, Methods, and Implementation

Room 6, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: The Thriving Communities Lab aims to develop, implement, and evaluate a data-driven systems approach to promote the health and wellbeing of young people (aged 12–25) in Faaborg-Midtfyn Municipality. The Lab is a partnership between the municipality, the Centre for Childhood Health, and two Danish universities (University of Copenhagen and Aarhus University). Building on the municipality's ambition to strengthen data use and cross-sector collaboration, it works within and across municipal structures to move from fragmented efforts toward coherent, data-informed learning and action.

Methods: The Lab runs from 2025 to 2029 in a mid-sized Danish municipality (~50,000 inhabitants). It operates through two focus areas: (1) Interventions, identifying leverage points for systems change and coordinating cross-sector actions; and (2) Data use, strengthening the municipality's capacity to use data for ongoing learning and informed decision-making. Guided by the Collective Impact Framework, the Lab is anchored in a shared backbone between Faaborg-Midtfyn Municipality and the Centre for Childhood Health – with the municipality leading local efforts and the Centre ensuring overall coordination and coherence between research and practice. Embedded researchers contribute through formative evaluation, data analysis, co-creation and facilitation of participatory processes.

Results: In 2025, data analysis and involvement of local leaders, professionals, and youth led to the selection of three Intervention Areas: Sleep, Timely support for school disengagement, and Participation in community life. During 2025–2026, local stakeholders will be mobilized to jointly understand system drivers, identify places to intervene, and initiate coordinated actions within each area. By summer 2026, the Lab will present the results and lessons learned from the initial participatory and data-informed processes across the first two areas, including how the partnership facilitated these processes and early actions undertaken by local stakeholders.

Conclusion: This Danish case illustrates the establishment phase of working systemically with a local government, revealing both opportunities and tensions – for example, balancing the political need for quick wins with the research evidence supporting long-term transformation. This work will provide insight into how a municipality may lead and institutionalise a systems approach through data-driven learning, cross-sector collaboration, and systems leadership.

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SO.1.08-02

Assessing Changes in Diet and Physical Activity in Indigenous Communities: A Narrative Review of Measurement Tools and Cultural Adaptation

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

Room 7, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: This study aimed to identify existing tools for measuring changes in diet and physical activity within Indigenous health programs. Conventional instruments often fail in Indigenous contexts because they lack cultural relevance and can distort measurements related to traditional foods and activities. The main objective was to map and analyze assessment tools used in Indigenous contexts, emphasizing that their effectiveness depends on cultural adaptation, contextual validation, and community participation. The innovation of this review lies in synthesizing evidence on how these contextual factors influence the validity and reliability of measurement tools.

Methods: A systematic narrative review was conducted across PubMed, EBSCO, ScienceDirect, and Scopus. The search combined terms related to Indigenous health, dietary assessment, physical activity measurement, and cultural adaptation. Studies were included if they described the development, adaptation, or validation of tools used in Indigenous contexts. After a two-stage screening process (titles/abstracts and full texts) and a review of reference lists, 57 articles met the inclusion criteria from an initial 1,437 records. Data was extracted on tool type, validation process, and community participation to identify patterns and best practices in culturally grounded measurement approaches.

Results: The literature reveals a wide range of tools, including self-report questionnaires, community-developed instruments, and mixed-method approaches. Self-report tools remain the most common and practical, but require substantial adaptation to reflect traditional foods and activities accurately. While objective measures such as accelerometers enhance precision, they face logistical and contextual challenges. Overall, the evidence highlights that participatory, narrative-based (e.g., storytelling), and community-driven approaches represent best practices for achieving cultural validity and meaningful engagement.

Conclusion: The effectiveness of assessment tools in Indigenous health programs depends on cultural adaptation, contextual validation, and sustained community participation. Continuous engagement with Indigenous communities is essential to develop tools that authentically reflect Indigenous worldviews, lifestyles, and health priorities. Future research should prioritize the validation of digital tools and the systematic integration of traditional knowledge within health measurement frameworks to prevent the reinforcement of health inequities.

SO.1.08-03

Nothing for Us without Us: Engaging Child-headed Households in Co-creating Food Security and Nutrition Solutions through Participatory Research

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

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Purpose: Child-headed households (CHHs) are an emerging yet under-recognized crisis in urban informal settlements across Sub-Saharan Africa. Defined as households without an adult caregiver and led by the eldest child, CHHs often arise due to orphanhood, parental illness, incarceration, poverty, conflict, or displacement. These households are often excluded from nutrition and social protection programs. This study applied a participatory research approach

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to co-create locally relevant nutrition and livelihood solutions with CHHs in Korogocho, Nairobi, as part of a youth-led advocacy initiative under the Agrifood Leadership Education Programme.

Methods: A qualitative dominant mixed-methods design was employed, guided by a **phenomenological approach** to explore the lived experiences of 10 and 17-year-old children heading households living in the Korogocho informal settlement of Nairobi. A sample of 10 CHHs was engaged in a participatory action research process involving problem identification, solution co-creation, and validation with community and policy actors. The engagement methodologies used included digital storytelling, participatory dialogues, and a photovoice exercise capturing lived experiences of challenges in achieving food and nutrition security. Stakeholder roundtables facilitated dialogue between CHHs, local leaders, and youth-led community-organized groups to co-create and refine feasible interventions. Data were analyzed using a participatory thematic framework emphasizing voice, agency, and inclusion.

Results: CHHs articulated key challenges, including inconsistent food supply, low diet diversity, and exclusion from assistance programs. They also highlighted the lack of social protection that predisposes them to sexual exploitation, school dropouts, and early marriages. Through facilitated sessions, participants co-developed practical solutions such as household-level urban farming, group food vending enterprises, and education on nutrition and financial literacy. The process enhanced participants' confidence and sense of agency, fostering ownership of both problems and solutions. Stakeholders reported increased awareness of CHHs' resilience and expressed willingness to integrate their input into future food and nutrition programs.

Conclusion: Participatory research offers a powerful pathway for inclusion and empowerment of marginalized populations such as child-headed households. Engaging CHHs as co-creators rather than beneficiaries not only generates context-specific, sustainable solutions but also amplifies their policy voice within local food systems. Embedding participatory models within urban nutrition interventions can advance equitable, youth-driven food systems transformation.

SO.1.08-04

Arts and Audiovisual Media as Vectors of Mobilization among Indigenous Communities: A Pathway for Transformative Change in Mental Health Promotion in Post-pandemic Contexts

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion
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Purpose: This study examines the learnings and challenges arising from the intercultural co-construction of a mental health promotion intervention with Quechua communities in Peru and the Gunadule community in Colombia. The project was part of a knowledge transfer and exchange (KTE) process that integrated visual and media arts as vehicles for community mobilization in post-pandemic contexts. It highlights the methodological innovation of the TECAC model—grounded in the arts and the Two-Eyed Seeing approach—and its participatory, adaptive implementation.

Methods: A qualitative multi-case study was conducted using a participatory and evaluative design. The process unfolded through six interconnected phases, beginning with the community conceptualization of mental health (Phase 0), followed by exploration, artistic co-creation, and process evaluation (Phases 1–4), and culminating in intercommunity exchange and feedback workshops (Phase 5). In each setting, we facilitated modified talking circles, interviews, artistic experimentation sessions, and co-creation cycles with adolescents, adults, and elders. Data were collected through participant observation, field notes, and audiovisual documentation, then analyzed through the lenses of realist evaluation and systems thinking.

Results: Grounding the process in community conceptualizations anchored mental health within local understandings of balance and *Buen Vivir*, reinforcing its cultural and spiritual dimensions. In both contexts, artistic practices—such as weaving, drawing, singing, and audiovisual storytelling—served as spaces for healing, intergenerational dialogue, and identity reaffirmation. Key success factors included the phased methodological structure, linguistic

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accompaniment (Quechua and Dulegaya), and the creation of community advisory committees. The process also fostered the emergence of a local audiovisual collective. Main challenges included geographic accessibility, gender equity in participation, and coordination across intercultural teams.

Conclusion: Integrating the arts within a KTE framework fostered active participation, cultural ownership, and community empowerment in mental health promotion. This experience offers transferable insights for Indigenous mental health initiatives using intercultural, arts-based, and participatory approaches—aligned with the principles of Indigenizing Wellbeing Research and Participatory Research in Health Promotion.

SO.1.08-05

Infant and Young Children Nutrition in EU Childcare Settings

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

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Purpose: This study aims to conduct a systematic assessment of the nutritional criteria in policies relevant to public food procurement in childcare settings (in children up to 3 years) across the European Union (EU), and to assess the extent to which the existing policies address essential nutritional aspects of infant and young children nutrition.

Methods: We identified existing policies (legislations, guidelines and recommendations) having nutritional criteria for childcare settings across the EU. Next, using dietary recommendations from international food- and health-related organisations for children up to 3 years, we identified key nutrients and food groups to be addressed. We then translated these recommendations into nutritional criteria suitable for public food procurement. Finally, we assessed how the identified national policies align with these nutritional criteria that we established for public food procurement. Each nutrient and food group was rated as „Yes“, „Partly“, or „No“, based on whether the policy fully met, partially met, or did not meet specific criteria.

Results: All 27 EU countries have food policies for childcare settings, with a total of 37 policies identified, including 17 voluntary and 20 mandatory policies. Three countries limit salt in childcare meals by avoiding high-salt foods and eight by not adding or carefully measuring salt during cooking. While 22 countries have some restrictions on free sugars, for example restricting some sugary products, only one country has comprehensive criteria restricting all free sugars, with sugary products, added sugars, and other free sugars, including juices, being restricted. Nine countries have criteria restricting non-sugar sweeteners. Moreover, 18 countries require daily offerings of fruits and vegetables, 16 require daily offer of animal foods, and some countries prioritize specific food groups, including whole grains (six countries), pulses (nine countries), and nuts and seeds (three countries).

Conclusion: Although several existing childcare food policies in the EU align with the infant and young children's nutritional criteria we established, gaps were found and improvements are needed to guarantee healthier meals in childcare settings. An update of these policies incorporating up-to-date dietary recommendations should be considered, with nutritional criteria that are comprehensive, specific, and fit for implementation into public procurement tenders.

SO.1.08-07

Exploring Methodologies across Disciplines to Decolonize Food Sovereignty Research in Urban Native American Communities in Minnesota

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

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Purpose: The United States was founded on the marginalization of Indigenous peoples. Academia and healthcare organizations have perpetuated this harm by imposing Western ideals of white supremacy promoting individualism, perfectionism, and the categorization of people based on physical characteristics and socioeconomic status. This research was, in part, to understand use of traditional foods in urban Native American households in Minnesota, which led to the exploratory analysis of modeling Indigenous methods of relationality and reciprocity within research projects to avoid reinforcing systemic harm.

Methods: A team of four researchers in Nutrition/Dietetics and Communication Studies conducted a literature review in tandem with exploration of multi-media forms of oral history, personal stories by Native artists, and contemporary Indigenous literature. Dialogue among the research team to resemble the interconnectedness woven into Indigenous epistemology promoted weekly interprofessional discussions.

Results: Research shows committing to scholarly work involving Native American populations involves building a space of reciprocity. Best practices include but are not limited to: 1) conducting in-person work to foster relationship-building and facilitation of The Visiting Way –gathering for shared meals, respecting community values and individual contributions, perceiving without judgement, pausing to reflect, and expressing gratitude, 2) using semi-structured interview methods to allow for storytelling and conversational methods, and 3) utilizing an approach of Two-Eyed Seeing to encourage worldview through an Indigenous and Western lens. These practices can be evaluated through structured research practices and multimodal processes such as art, literature and storytelling. Qualitative data can be analyzed utilizing methods that compare and contrast collective stories to preserve the integrity of the shared relationships within the stories. Including a community review or ensuring representation across all aspects of the project also supports cultural relevance of project design and interpretations. Additionally, challenging the dominant structure of dissemination such as “standard” formatting and procedural process can also promote preservation of the situational context within the story.

Conclusion: By utilizing an interprofessional approach to understand Indigenous research methods via literature and traditional methods of storytelling and art, the dominant style of data collection and dissemination of findings is challenged to align more strongly to traditional Indigenous methods.

SO.1.08-09

Food Acculturation Patterns and Diabetes-related Health Risks among East African Immigrants. Preliminary Findings of a Pilot Study

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

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Purpose: Purpose: Using socioecological model, the study explores the multi-level protective and risk factors (individual, family, cultural and community) associated with food and dietary acculturation patterns, including food choices, availability, accessibility and affordability. The study focus on East African immigrants brings data on a minority group that exhibits high rates of overweight, obesity, and diabetes, yet remains underrepresented in academic research.

Methods: Data was collected through six focus groups (N=36) in the Spring, Summer, and Fall of 2025 among East African immigrant women, based on the premise that women are the primary food preparers for their households. All discussions were audio-recorded, transcribed verbatim, and cross-checked for authenticity. Data analysis involved a manual, systematic process. Two team members read and re-read each transcripts, generating initial codes. Codes were then refined, categorized, and organized in an Excel sheet to identify broader, validated themes, ensuring strong intercoder reliability and adherence to the participants' voices.

Results: Key Themes

Individual and family level Factors:

- Food choices and decisions – participants expressed a strong preference for ethnic foods, but also expressed fear of the unknown “*The food has different taste, different ingredients, difficult to buy food I don't understand*”. Religious and cultural dietary restriction is strong factor that influences the choice.
- Generational difference in preferences - while adults prefer to eat ethnic foods, the kids adjusted to and prefer American food, bringing cultural diet-clash into the households.

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- Lack of self-efficacy - unsustainable dietary change habit

Community-level factors:

- Availability – limited choices of ethnic stores and food make choices more difficult and **expensive**
- Access: **Transportation is** a barrier especially for new arrivals, compounded by unreliable public transport and unfamiliar weather patterns.

Conclusion: Factors that contribute to food acculturation are both personal and structural. The use of the **socioecological framework** allows for multi-level analysis moving behavioral nutrition knowledge beyond individual-centric models to recognize the role of structural and environmental factors. The generational difference in preferences, the „cultural diet-clash“ is significant for behavioral nutrition practice, which often target the individual or assume a unified household diet.

Addressing structural barriers that limit ethnic stores availability and transportation issues are significant policy implications

SO.1.08-10

Insights on Interventions and Policies to Promote Healthy Diets of Women and Children: A Participatory Photovoice Study in Urban Ethiopia

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

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Purpose: The coexistence of multiple forms of malnutrition in Ethiopia is a growing public health challenge that requires new interventions and policies. Poor-quality diets are a shared driver of multiple forms of malnutrition. Our study explored the lived experiences and realities of women of reproductive age (WRA) and their children under five (U5) in urban Ethiopia, identifying both the challenges they face and the solutions they propose for achieving healthy diets.

Methods: Qualitative participatory photography (Photovoice) was used among WRA from both deprived and wealthier neighbourhoods of Addis Ababa. Women were instructed to take photographs on the barriers they face to adopting healthy dietary behaviours for themselves and their children. Focus group discussions (n=5; 31 women) were held, where participants were asked to tell the stories of their photographs and discuss challenges and solutions to adopting healthy diets. A mix of approaches (data-driven and theory-informed) was used to identify emerging themes and subthemes, with comparisons across socio-economic groups.

Results: Across groups, women identified financial and physical barriers to accessing healthy foods, time constraints and concerns about food safety as major barriers. In more deprived groups, women also reported limited knowledge about healthy diets, inadequate family support, and poor home food environments. In wealthier groups, unhealthy food preferences coupled with easy access to and aggressive promotion of unhealthy foods were key challenges. Women from lower socio-economic backgrounds mainly expected government-led actions, whereas those from better-off households saw a role for society in driving change. Proposed government-level solutions included job creation, nutrition education, affordable healthy food, investment in household infrastructure, expanded childcare, and restrictions on unhealthy food availability and promotion. Societal-level solutions included promoting gender equality, strengthening community-based loan schemes, and supporting urban agriculture.

Conclusion: The findings show that women recognise their own needs and can identify who should support them, highlighting the importance of including women's voices in decision-making processes. The solutions proposed by women spanned multiple domains, sectors, and levels, reflecting women's understanding of the complex factors influencing dietary behaviours. Although the proposed solutions varied by socio-economic status, many could benefit all urban women and their families now or in the future.

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SO.1.08-11

Using Trials of Improved Processes (TIPS) to Identify Barriers and Facilitators to Healthy Eating among Households with Young Children in the Galapagos

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion

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Purpose: Following a healthy dietary pattern can reduce the dual burden of malnutrition, which is prevalent in the Galapagos islands. We used TIPS, a participatory approach involving potential participants in designing behavior-change strategies, to identify barriers and facilitators to meeting Ecuadorian dietary guidelines among families with young children living in San Cristobal.

Methods: We conducted 3 home visits (HVs) among 19 women with a child <2 years. During HV1, we assessed maternal diet using the Global Diet Quality Project's Diet Quality Questionnaire-Ecuador. During HV2, mothers were presented a brief nutrition lesson based on their diet assessment and chose a specific healthy eating practice to try (e.g., Eat 2 or more servings of non-starchy vegetables daily). HV3 occurred 3-5 days later, consisting of a semi-structured interview to elicit barriers and facilitators to implementing practices and ideas for co-designing a nutrition program on the island. Mothers received a bag of healthy groceries worth \$20 U.S. for each home visit.

Results: Mothers were motivated to try practices to lose weight—physical activity opportunities are perceived to be limited—and by high rates of obesity and diet-related chronic diseases in their family. Food availability and cost were consistently co-mentioned: variety may be available, but “healthy eating” is expensive. Nearly all struggled to reduce white rice, a staple; some paired smaller portions with more protein or vegetables, while others eliminated it to avoid conflict. Most felt they could sustain changes but planned flexible approaches (weekdays only, alternate days, or ‘cheat days’) to manage cost and preferences. Mothers welcomed a nutrition program, emphasizing their role in meal decisions but recommending inclusion of all family members since fathers “provide” and multi-generational families eat together. To encourage participation, they would share personal benefits (more energy, better digestion, weight loss) and environmental advantages (meatless meals). For delivery, they suggested combining WhatsApp/social media with in-person classes featuring nutrition education, hands-on learning, and cooking activities for all.

Conclusion: Using TIPS, we explored barriers, opportunities, and programming preferences for healthy diets among families with young children in the Galapagos. Findings may inform similar contexts in Latin America and small island nations.

SO.1.08-12

Co-developing Evidence-based Educational Web Clips to Support Individuals Diagnosed with Gestational Diabetes Mellitus Immediately after Diagnosis: A Participatory Research Approach

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion Room 7, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Gestational diabetes mellitus (GDM) is increasingly prevalent and can cause adverse perinatal outcomes. In Quebec (Canada), delays in multidisciplinary care frequently leave individuals anxious, highlighting the need for reliable information available as soon as possible. This three-phases project aims to support individuals diagnosed with GDM at diagnosis by: 1) identifying informational needs of both patients and healthcare practitioners (HCPs) involved in GDM care; 2) co-developing a series of evidence-based web clips; and 3) evaluating its implementation in primary care.

Methods: Guided by the Knowledge-to-Action framework, Phase 1 used a qualitative approach using multiple data sources: (1) two focus groups with patient partners previously diagnosed with GDM (n=5); (2) two focus groups with healthcare professionals involved in GDM care (n=12); and (3) 258 anonymized posts published between January 10 and February 15, 2024, on an open-access, unmoderated Facebook support group for individuals with GDM. Focus groups were video-recorded, transcribed verbatim, and analyzed together with the posts using inductive thematic analysis in NVivo. Findings were validated through two additional focus groups with patient partners and HCPs, and informed the design of a series of web clips. Phase 2, ongoing, focuses on co-developing scripts and visuals for the web clips, through iterative review by patient partners, HCPs, and researchers. Phase 3, planned for February 2026, will evaluate usage and implementation in two primary care settings using a mixed-methods approach.

Results: Phase 1 identified recurring themes spanning lifestyle, clinical, and psychological aspects of GDM management. These informed the co-development of 12 evidence-based web clips covering core dimensions of GDM management, including understanding the condition, its management and consequences, nutritional guidance, and other lifestyle strategies to support glycemic control. Participants emphasized that nutrition should be discussed in several clips, being the cornerstone of first-line treatment while consistently raising questions among patients. They also recommended short (2-5 minutes), clear, and reassuring videos featuring diverse HCPs and patient testimonials to enhance credibility and engagement.

Conclusion: This participatory approach identified informational needs based on lived expertise of patients and HCPs to co-develop a series of evidence-based web clips on GDM, which will soon be released and implemented in primary care settings.

SO.1.08-13

Exploring Participant Experiences of HAT TRICK™ Cricket: A Culturally-adapted, Cricket Focused Health Promotion Intervention for Men with South Asian Backgrounds in Australia

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SO.1.08 Participatory Research in Health Promotion: Empowering Communities: Innovative Strategies for Food Security, Nutrition, and Health Promotion Room 7, May 28, 2026, 2:00 PM - 3:00 PM

Purpose: Individuals from culturally and linguistically diverse (CALD) backgrounds frequently experience complex health barriers arising from migration related factors such as accessing health services and cultural differences within their new communities. Men with South Asian backgrounds in Australia represent a group particularly affected by these intersecting factors in addition to gender-related influences. In this context, health promotion strategies must not only be culturally relevant but also engage critically with the gendered dimensions of health behaviour. In response HAT TRICK™ Cricket, a culturally-adapted health promotion intervention aimed at physical activity, healthy eating, and mental fitness, was designed for men with South Asian backgrounds in Western Sydney, Australia.

Methods: This study explores the experiences of men with South Asian backgrounds participating in HAT TRICK™ Cricket and their perceived outcomes to better understand how culturally tailored sport-based interventions can influence health behaviours, improve psychosocial wellbeing, and foster a greater sense of social connectedness. Semi-structured interviews (N=13) were conducted approximately two weeks following program completion.

Results: Three themes were inductively derived using reflexive thematic analysis, including 1) *Pursuing personal growth and mastery on and off the pitch* which highlighted opportunities for experiential learning, culturally meaningful

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engagement, and skill development that collectively enhanced participants' confidence, sense of competence, and motivation to improve; 2) *Finding commonality and social connection* in which participants perceived the program to foster meaningful interactions, facilitate the formation of new friendships, and strengthen existing relationships in a supportive environment that encouraged open and honest conversations extending beyond sport, and; 3) *Translating knowledge into everyday action* indicated that participants actively applied some of the skills and knowledge gained from the program to improve their daily physical activity, nutrition, and mental health practices.

Conclusion: These findings highlight the importance of 'layered learning' in health promotion programs, where knowledge is built progressively through expert input, peer engagement, and reflective practice. Further, these findings support the feasibility and value of culturally tailored sport-based health promotion programs and can inform future initiatives for CALD communities.

SO.2.09-01

Understanding Mealtime Priorities of Australian Parents with Children Aged 3 to 5 Years Old

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors
Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Low fruit and vegetable intake and low dietary quality in preschool children in Australia are key public health challenges. Parent mealtime priorities have been associated with both of these child outcomes. Prior research using rating scales has shown that parents are endorsing multiple mealtime priorities (e.g., nutrition, convenience), and therefore it is unclear how parents are trading off competing priorities at family mealtimes. This study aimed to determine the relative importance of parents' mealtime priorities by using a discrete choice experiment.

Methods: Parents ($n=96$) of three-to five-year olds living in Australia completed an online discrete choice experiment on Sawtooth. Participants were presented with 12 choice sets, each with three hypothetical mealtime alternatives, and were asked to select the mealtime scenario they would most and least likely choose with their child. Mealtime scenarios systematically varied in attributes and levels so that parents had to trade off competing priorities: *Price* (cheap, average, expensive), *Ease of preparation* (easy, medium, hard), *Child involvement in mealtime preparation* (yes, no), *Nutrition* (low, moderate, high) and *Your child's likely response* (accepting, neutral, resistant). Logit model analyses were used to determine relative importance and utility weights for each attribute.

Results: The attribute *Your child's likely response* was the most important mealtime priority (relative importance = 38.2%), followed by *Nutrition* (28.7%). *Price* (16.7%) and *Ease of preparation* (13.5%), with *Child involvement in mealtime preparation* (2.9%) the least important mealtime attribute. Parents preferred meals that children were accepting of (utility = 0.90, $p<0.001$) over meals that children would likely reject (utility = -1.2, $p<0.001$), and preferred meals that were high in nutrition (utility = 0.69, $p<0.001$) compared to low in nutrition (utility = -0.89, $p<0.001$).

Conclusion: Parents prioritised their child's likely response to a meal above other mealtime attributes. Prioritisation of their child's anticipated acceptance may be linked to leniency in offering favourite or familiar foods. Information about how to best support and educate parents with strategies for child food acceptance within nutritious mealtimes is needed. Future research could also explore how child eating behaviour e.g. diet quality and food avoidance traits are associated with parent's mealtime priorities.

SO.2.09-03

Cross-sectional and Longitudinal Associations between Parental Mental Wellbeing and Adolescents' Physical Activity, Sedentary Digital Media Use, and Body Mass Index

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: The role of parental mental wellbeing in adolescent behaviours and body mass index (BMI) remains understudied. We aimed to 1) identify parental mental wellbeing profiles and 2) examine whether parental mental wellbeing, both as profiles and continuous measures, is associated with adolescents' leisure-time physical activity, sedentary digital media use, and BMI at ages 11 and 14.

Methods: The study included 5,839 parent-adolescent pairs (89% mothers, 51% girls) in a 3-year follow-up. At baseline (mean adolescent age 11 years), parents completed the Short Form Beck Depression Inventory, Sense of Coherence (SOC) Scale, and RAND-36 Mental Component Summary. Adolescents reported leisure-time physical activity and sedentary digital media use via questionnaire, and height and weight were measured to calculate BMI z-scores at baseline and follow-up (mean age 14 years). We identified parents' mental wellbeing profiles at baseline using latent profile analysis. We then examined associations between these profiles and adolescents' behaviours and BMI at ages 11 and 14 using the manual Bolck-Croon-Hagenaars approach. Profile differences were tested using Wald's omnibus and Bonferroni-adjusted pairwise z-tests. Post hoc structural equation models further assessed associations between parental wellbeing (as a latent higher order construct and individual latent variables) and adolescent outcomes. Sensitivity analyses adjusted for parental and child demographics.

Results: Latent profile analysis identified three parental mental wellbeing profiles: balanced (82%), somewhat balanced (13%), and unbalanced (5%). Better parental mental wellbeing, analysed as a continuous latent variable rather than as profiles, was associated with higher adolescent physical activity and lower sedentary digital media use on both weekdays and weekends at age 11. These associations persisted at age 14, more strongly for physical activity. Among individual wellbeing indicators, greater parental depressive symptoms were associated with lower adolescent physical activity, while higher parental SOC was associated with less adolescent sedentary digital media use. We observed no associations with adolescent BMI.

Conclusion: Better parental mental wellbeing was associated with higher adolescent leisure-time physical activity and lower sedentary digital media use. These findings highlight the potential of supporting parental mental wellbeing to promote healthier adolescent movement behaviours, contributing to behavioural health research and population-level prevention efforts.

SO.2.09-04

Prepregnancy BMI and Trajectories of BMI-for-Age in Children's Participants of the Brazilian Birth Cohort

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Prepregnancy Body Mass Index (BMI) is associated with several gestational, perinatal, and child health outcomes, including overweight and obesity in the short, medium, and long term. Evidence suggests that children of mothers who had excess weight before pregnancy presented higher adiposity throughout their lives. This study aims to evaluate the association between prepregnancy maternal BMI and the BMI-for-age trajectories in children.

Methods: Longitudinal study used data from the 2015 Pelotas (Brazil) Birth Cohort Study. Prepregnancy BMI (kg/m²) was measured on the perinatal interview. Weight and height were measured by research assistants using standardized methods. The anthropometrists were trained and standardized by a gold standard for these measurements. BMI-for-age in z-scores was calculated according to the World Health Organization Growth Standards, using Anthro 2005 software. Z-scores of BMI-for-age were calculated for children at three months, 1, 2, and 4 years. Trajectories were identified using a semi-parametric group-based modeling approach. Multinomial logistic regression was used to investigate the association between prepregnancy BMI (defined as weight excess: BMI ≥ 25 kg/m²) and BMI-for-age trajectories.

Results: Of the 4,275 children in the original cohort, a total of 3,218 (75.3%) were included in the current study for having valid BMI-for-age data at three months, 1, 2 and 4 years and prepregnancy BMI data. Four trajectories of the BMI-for-age, in z-score, were identified and represent children in the "increasing," "adequate," "stabilized," and "risk for weight excess" groups. A total of 196 children (7.1%) belonged to the group that was at risk of weight excess. Adjusted analyses showed that children whose mothers presented prepregnancy weight excess had 2.36 (95%CI 1.71;

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3.24) times more risk of belonging to group “risk for weight excess” when compared to those children whose mothers presented underweight/normal weight before pregnancy.

Conclusion: The findings of this study confirm what was evidenced in the literature through a robust longitudinal analysis. The risk of weight excess in children up to 4 years of age was greater in mothers who presented prepregnancy weight excess.

SO.2.09-05

Beyond the Plate: How Caregiver Mealtime Goals Shape Food Parenting and the Mealtime Experience

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors

Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: The relationship between caregiver mealtime goals and food parenting practices has been assumed, but rarely examined. This study investigates how caregivers’ mealtime goals relate to their food parenting practices and perceptions of mealtime atmosphere, using ecological momentary assessment data.

Methods: Caregivers (n=252) of children (3–5 years) reported on food parenting practices they used, mealtime goals they prioritized, and their perception of mealtime atmosphere (grouped as negative or positive) at eating occasions (n=6,281 total) shared with their child across multiple days (M=9.23 days, SD=1.53). Four domains of food parenting practices were examined: *Structure, Coercive Control, Indulgence, and Autonomy Support*. Mealtime goals were grouped into: *Nutrition-Oriented, Connection-Oriented, Emotion-Oriented, and Task-Oriented*. Mixed effect models with random intercepts for each parent-child dyad were used to account for clustering within dyads across meal occasions.

Results: Nutrition- and connection-oriented goals were less likely to be associated with a negative mealtime atmosphere (i.e., caregivers more often rated the atmosphere as positive; nutrition: OR = 0.687; connection: OR = 0.444; both $p < .001$). These goals were also associated with greater use of structure (nutrition: $\beta = 0.486$; connection: $\beta = 0.909$; both $p < .001$) and autonomy support (nutrition: $\beta = 0.412$; connection: $\beta = 0.356$; both $p < .001$), and less use of indulgence (nutrition: $\beta = -0.116$, $p = .002$; connection: $\beta = -0.066$, $p = .042$). Emotion-oriented goals were related to lower odds of a negatively rated atmosphere (OR = 0.762, $p = .003$) and higher structure ($\beta = 0.427$, $p < .001$), but also greater indulgence ($\beta = 0.131$, $p < .001$). Task-oriented goals were associated with higher odds of a negatively rated atmosphere (OR = 2.666, $p < .001$) and higher use of coercive control. ($\beta = 0.039$, $p = .039$).

Conclusion: Caregivers endorse a range of mealtime goals and employ a variety of parent feeding practices. Findings indicate that caregivers’ mealtime goals shape both their parenting approach and their perception of mealtime atmosphere. These results underscore the importance of helping parents reflect on and intentionally select mealtime goals, as doing so may promote more positive mealtime experiences and support healthier family eating dynamics.

SO.2.09-06

Mindless Media: How Automaticity of Parents’ Phone Use Relates to Children’s Digital Behavior and Habits

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors

Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Most research on digital media use focuses on the amount of *time* parents and children spend on devices. Less is known about *how* parents use their phones (whether deliberately or out of habit) and how these patterns shape

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children's own digital use and habit strength. This study addresses that gap by investigating how both the amount and automaticity (i.e., mindless or habitual nature) of parents' phone use are associated with children's media use.

Methods: Participants were 204 preschoolers (ages 3–5) and their parents. Over 14 days, parents completed ecological momentary assessments including 4-item assessments of habit strength for their own and their child's media use and provided objective personal phone and their child's tablet data (via *Chronicle* or iOS Screen Time). Data was analyzed using bootstrapped mixed-effects mediation models, with person-mean centering to distinguish between-person and within-person (daily) effects.

Results: Parents used their phones for an average of 408.2 minutes per day (SD=168.9), and children used tablets for 118.1 minutes (SD=129.9). Parents with stronger habitual phone use tended to have more use overall ($B=20.8$, 95%CI [3.23 to 38.39]) and had children with stronger digital media habits ($B=0.20$, 95%CI [0.09 to 0.31]). The strength of parents' phone habits was indirectly associated with children's digital media use through parents' own phone use (indirect effect = 4.07, 95% CI [0.32, 9.56]) and through children's habit strength (indirect effect = 10.08, 95% CI [3.78, 18.34]). This pattern did not hold at the daily level: on days when parents' habits were stronger, their child's habits were stronger too ($B=0.16$, 95%CI [0.11 to 0.21]), but parents' habit strength was not related to parents' phone use or children's tablet use that day.

Conclusion: Children appear to model not only *how much* their parents used digital media, but also *how* automatically they use it. This relationship appears to reflect co-varying stable or slow-to-change patterns rather than acute fluctuations. By considering stable habits as well as day-to-day variation in behavioral regulation, this study clarifies how media behaviors take root within families and suggests avenues for supporting more deliberate and healthy technology use.

SO.2.09-07

Generational, Psychological, and Environmental Influences on Hispanic Family Nutrition: Insights from the La CASA Study

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors
Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Childhood obesity is a major public health concern in Arkansas, where 52.9% of Hispanic students are classified as overweight or obese, higher than African American (48.4%) and Caucasian (38.4%) peers. Addressing these disparities requires culturally responsive, family-based interventions. To inform the La CASA program, a culturally tailored, faith-based obesity intervention, we conducted interviews with Hispanic mothers for curriculum development. Beyond their learning interests, new themes emerged during analysis. This study reports unanticipated findings and describe how they were considered and incorporated into La CASA curriculum to enhance cultural relevance and family engagement.

Methods: A qualitative exploratory design guided this pilot study. Thirty Hispanic mothers (≥ 18 years) who had at least one child aged 5–16 years were recruited through purposive and chain-referral sampling from faith-based organizations serving Hispanic congregants across Arkansas. Participants were primarily Mexican (87%), aged 31–50 years ($M=41$), married (80%), employed (63%), completed high school (70%) and household incomes below \$40,000. Semi-structured interviews were conducted in Spanish, transcribed verbatim, translated into English, and analyzed inductively using Braun and Clarke's thematic approach in MAXQDA. Themes were refined through iterative team discussions and analyst triangulation.

Results: Three key themes were identified: (1) Between Two Cultures: Mothers challenges balancing traditional cultural values with their children's adaptation to U.S. norms, which affected family meals, and efforts to model healthy behaviors. (2) Reflections of Self: Mothers observed that concerns about body image emerged as children entered school where appearance and peer influence gained importance. These experiences influenced children's psychological well-being, caregiving, and family eating patterns. (3) Competing Influences at School: Mothers cited school environments offered limited variety and reliance on convenient, highly processed, and flavorful foods, along with widespread availability of sugary drinks and social influence from peers that reinforced unhealthy eating habits.

Conclusion: These findings highlight the importance of addressing psychological, generational, and environmental factors that shape family-nutrition practices. These themes should be considered when developing culturally tailored healthy-eating programs to enhance their relevance, cultural alignment, and sustainability. Incorporating these concepts into interventions such as La CASA strengthen program success, participation and long-term impact among Hispanic families in Arkansas.

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SO.2.09-08

The Right Dose of Data: Balancing Reliability and Participant Burden in a Validated Daily Measure of Food Parenting Practices

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors
Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Intensive longitudinal methods are increasingly used to capture daily fluctuations in food parenting practices (FPP), yet reliable tools for daily assessment remain limited. Most studies rely on a fixed recall period for all constructs, but the reliability of this approach is unclear. Determining the minimum number of assessment days required can improve the feasibility and quality of daily FPP research.

Objectives: To 1) assess the test-retest reliability of daily FPP measures among mothers and fathers over a 14-day period, 2) estimate the minimum number of days needed to achieve adequate reliability, and 3) validate these estimates using a second 14-day period.

Methods: Parents (n=315, age 40±5 years; 60% mothers) of 2.5-6-year-olds completed 28 daily assessments across two 14-day periods, three months apart, yielding 8,820 observations. Seven FPP constructs were assessed daily using 13 binary items, and validity evidence was obtained via Confirmatory Factor Analysis. Intraclass correlation coefficients (ICCs) were calculated from mixed-effect models using data from the first 14-day period. The Spearman-Brown formula estimated the number of days required for ICC≥0.70, which was validated using random subsets of consecutive and non-consecutive days from the second assessment period.

Results: ICCs ranged from 0.80-0.97 in the first period. Required days for acceptable reliability varied by construct: Coercive control (1 day); Autonomy support, Child involvement, and Meal routines (5-6 days); and Rules and limits, Nondirective support, and Healthy opportunities (8-9 days). Compared to fathers, mothers required fewer days to reliably assess Rules and Limits, Healthy Opportunities, Autonomy and Nondirective Support. Validation analyses confirmed ICCs≥0.70 for most constructs, though Healthy opportunities, Nondirective support, and Child involvement had borderline ICCs (0.63-0.68) in some subgroups and sampling approaches.

Conclusion: This study provides a valid and reliable instrument to assess FPP in Daily Diary protocols. Although 14 days ensures high reliability, many FPP constructs can be reliably assessed with fewer days. Tailoring diary duration by construct and caregiver sex can reduce participant burden while maintaining measurement quality.

SO.2.09-10

Parental Screen Time Rules and Norms in Early Childhood and their Association with Children's Screen Time Six Years Later: A Prospective Study from Finland

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors
Auditorium, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Excessive childhood screen time is associated with negative health outcomes and development, increased sedentary time and decreased physical activity. Early childhood is a key period when screen habits form and we examined whether parental rules and norms in early childhood were associated with children's leisure-time screen time at school age.

Methods: In this prospective 6-year follow-up study (DAGIS Salo) we used data from 173 parent-child dyads. Baseline data were collected in 2017 (children aged 3-6 years) and follow-up in 2023-2024 (9-12 years). At baseline, parents reported screen use rules with six 5-point Likert items (limits, timing, duration, child awareness, mealtime use and

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screen device visibility), averaged to a composite score (higher=more restrictive). Parental importance of limiting screen time was assessed with a single 5-point Likert item. Descriptive norms were measured as parents' open-ended reports of a suitable maximum daily screen time for 3–6-year-olds on weekdays and weekends, converted to minutes. At follow-up, children self-reported weekday and weekend leisure-time screen time using the SCREENS-Q instrument. Weighted weekly minutes/day were derived and log-transformed to reduce skewness. Associations between early parental rules and norms and later screen time were examined using linear regression adjusted for child sex, baseline age and parental education.

Results: More permissive parental descriptive norms at preschool age were associated with higher leisure-time screen time at school age, for both weighted weekly ($B=0.003$, 95% CI 0.001–0.006; $p=0.016$) and weekday screen time ($B=0.003$, 95% CI 0.000–0.007; $p=0.035$). Each additional 30 minutes of weekday screen time parents considered suitable at preschool age was associated with approximately 10% higher weekday screen time at school age. There was no association for weekend screen time. Parental importance of limiting screen time and screen rules at preschool age were not associated with screen time at school age.

Conclusion: Parental norms about acceptable screen time, rather than explicit rules or perceived importance, associated with children's subsequent screen time, although effect sizes were small. Public health policy and interventions should prioritise shifting parents' norms regarding acceptable weekday screen exposure in the preschool years, alongside providing guidance on screen time rules.

SO.2.09-11

Eat up! Discursive Practices Involving “Finishing the Plate” Talk during Family Mealtimes in the Netherlands, Italy and the United Kingdom

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SO.2.09 Children and families: Family-Centered Approaches to Child Nutrition and Physical Activity Behaviors
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Purpose: Family mealtimes comprise a common site for socialising children into eating practices, including at times eating up or finishing all the food on their plate. Finishing one's plate has individual nutrition and health outcomes, as well as economic and environmental implications. ‘Finishing the plate’ practices in family mealtimes have previously been studied as individual behaviours or as decontextualised linguistic items. This study therefore focuses on an underexplored phenomenon: interactional details of how parents and children orient to and construct the rule of ‘eating up’ or ‘finishing the plate’ in family mealtimes.

Methods: The data corpus comprised video recordings of 187 family meals across the Netherlands (ten families, 79 meals), Italy (six families, 28 meals), and the United Kingdom (three families, 80 meals). Recordings were analysed using specific forms of discourse analysis, i.e., discursive psychology and conversation analysis – qualitative, inductive methodologies for the analysis of real-life talk-in-interaction. Systematic and detailed analyses of 182 instances of ‘eating up’ and ‘finishing the plate’ across the data corpus resulted in the identification of four dominant discursive practices deployed by parents and children.

Results: Discursive practices identified include:

- (1) directives to eat up from parents to children;
- (2) orientations to ‘finishing the plate’ as a rule that is prioritised over and consequential to something else;
- (3) self-focused statements by children that they have finished; and
- (4) other-focused statements by parents that their children have finished.

Conclusion: The analysis demonstrates how discursive practices surrounding ‘eating up’ and ‘finishing the plate’ are common across three cultural settings, accomplish particular and sometimes contradictory social actions, and shape the socialisation of children into normative eating practices as a collaborative achievement in a multidirectional interactional process. Deployed discursive practices have implications not only for food consumption but also for how children are socialised into eating habits. As such, the study contributes to research on children's eating practices and language socialisation. Moreover, the study has practical implications for enhancing adequate nutrition intake as well as the reduction of plate waste in everyday settings, which are highly relevant within the contemporary focus on global climate and sustainability.

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SO.2.10-01

The Potential Impact of Artificial Intelligence Data Centers on Household-level Food and Water Insecurity in Lower Income Communities: A Conceptual Framework

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

Room 1, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: The rapid global adoption of generative artificial intelligence (AI) is transforming daily life, but this technological shift carries significant environmental costs. Generative AI requires massive data centers to handle computational demands. These data centers use vast amounts of resources including land, electricity (to power computer servers), and water (to prevent server overheating), and contribute to environmental degradation through e-waste production and greenhouse gas emissions. The downstream impacts on food and water insecurity for households living in close proximity to data centers is currently understudied. The purpose of this study is to develop a conceptual framework linking AI data center development with household food and water insecurity in lower income communities.

Methods: A comprehensive literature review on potential pathways linking AI data centers with household-level food and water insecurity, including literature linking large industrial projects to nearby communities' nutrition and health outcomes, was conducted between March-October 2025. Information obtained from key-informant interviews with experts across relevant fields, planned for Jan-Mar 2026, will be incorporated into the conceptual framework.

Results: AI data center development is hypothesized to contribute to household-level food and water insecurity via four interrelated pathways: 1) **Land use.** The use of land for data center infrastructure may reduce land available for agriculture and housing, increasing food and housing prices. 2) **Energy use.** Increased energy demand may strain power grids, reducing domestic electricity reliability and increasing prices. 3) **Water use.** Competition for water between data centers, agriculture, and households may reduce water availability and crop yields, increasing food and water prices. 4) **Waste production.** E-waste and other byproducts may contaminate soil, waterways, and reservoirs, further reducing access to safe food and water and leading to an increase in food and water prices.

Conclusion: As AI data centers' construction accelerates globally, there is an urgent need to anticipate and mitigate their burden on the nutrition and health of vulnerable populations, particularly in lower income communities.

SO.2.10-02

Mapping the Digital Marketing Techniques Embeeded within Online Food Retail Platforms: A Scoping Review

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose: Online food retail platforms (online food delivery, online grocery and meal kits) use a range of marketing techniques to promote unhealthy foods (food that are energy-dense and nutrient-poor) to influence consumers' food choices and food purchases. However, existing literature on this topic is dispersed (across public health and marketing disciplines) and has not been synthesised from a public health perspective. The aim of this review was to synthesise the evidence on the digital marketing techniques prevalent on online food retail platforms, what food products they promote and their potential influence on consumer's online food purchase behaviours.

Methods: A mix of health and business databases (Medline Complete, Web of Science, Business Source Complete, Communication and Mass Media Complete, and ABI/Inform) were searched for peer-reviewed papers published in

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the last ten years. Included studies were mapped to a pre-defined list of digital marketing techniques, marketing mix strategies and across Cialdini's principles of persuasion. All findings were described narratively.

Results: A total of 3408 studies were screened, of which 16 were included in the review. Eleven studies examined online food delivery services, and five studies examined online grocery retail services. A range of well-established digital marketing techniques were identified, including algorithmic personalisation, push notifications, membership-based models, interactive tools such as sorting and filtering features, hyperlinks or prompts to create combo deals, site customisation offering personalised shopping experience, clickable banner advertisements, and search engine optimisation. While these are standard techniques in digital commerce, we found that they often deployed to promote nutrient-poor foods. Specifically, seven studies highlighted the use of these marketing techniques to promote foods of poor nutritional quality, with marketing strategies reinforcing perceptions of value, tastiness and pleasure. Only two studies examined and reported a positive influence of using price promotion techniques on consumers' unhealthy food purchase intention.

Conclusion: Online food retail platforms use a range of digital marketing techniques to deliver content in highly persuasive ways, often promoting unhealthy food options. Future research should explore how these platforms can be leveraged to enable healthier population food choices and align with public health objectives.

SO.2.10-03

Developing a Policy-relevant Definition for Ultraprocessed Foods

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose: The rapid proliferation of policies targeting ultraprocessed foods (UPFs) urgently requires a standardized, science-based definition that can be easily implemented. Previously, many researchers have used the Nova classification system to identify UPFs. However, the time and resource-intensive protocol for identifying products as UPFs (i.e., Nova category 4) highlights the need for a more streamlined approach. In addition, some policymakers may wish to narrow the set of products considered UPF for food access and equity reasons, or to exempt foods traditionally considered as healthy. We developed a set of simplified UPF definitions based on ingredient markers as well as potential policy exemptions to compare to the full Nova 4 definition.

Methods: Packaged foods and beverages in the US Mintel Global New Products database (n=92,727 products between 2018-2024) were identified as UPFs using Nova-linked ingredients markers. We examined how the proportion of products identified as UPF and thus subject to policy action changes if the definition is modified to include only those: 1) containing specific cosmetic additives; 2) included in select food groups; or 3) exceeding nutrient thresholds for high fat, sugar, and sodium (HFSS) according to the Pan American Health Organization [PAHO] or US Food and Drug Administration [FDA]. Among traditionally healthy food categories (bread, yogurt, ready-to-eat cereal), we also examined the percent of UPFs meeting the FDA's "healthy" definition as a potential criterion for UPF policy exemption.

Results: Of all foods and beverages, 75% were classified Nova 4, compared to a definition based solely on cosmetic Nova additives (74%) and one using solely sweeteners, flavors, and color (62%). While 69% of products met both Nova 4 and PAHO-HFSS criteria, only 45% met both Nova and FDA-HFSS criteria. Among breads, cereals, and yogurts, most (83%-92%) were Nova 4 UPFs, and of these, a small proportion would be exempt under the FDA "healthy" definition (4%-14%).

Conclusion: Using Nova 4, 75% of the US food products are UPF. A more streamlined definition for UPF using fewer ingredient markers captures most Nova 4 products. Using HFSS content or FDA "healthy" criteria could allow policymakers to narrow the set of foods subject to a given UPF policy.

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SO.2.10-04

Identifying Key Stakeholders and Priority Interventions and Policies to Tackle the Double Burden of Malnutrition in Ethiopia: A Mixed-methods Participatory Study

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments
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Purpose: Ethiopia is experiencing a double burden of malnutrition (DBM), with undernutrition and overweight/obesity co-existing. Current nutrition interventions and policies need to address the DBM using ‘double-duty actions’ (DDAs) identified by the World Health Organization. This study aimed to appraise key stakeholder views on priority DDAs for Ethiopia; and to identify key stakeholders to implement them at the national level.

Methods: We engaged 85 stakeholders from government, academia, United Nations/donors, nongovernmental organisations (NGOs)/civil society, and the private sector and used mixed- methods:

- 1) **a survey** of stakeholders (n=45) to rank 10 DDAs based on perceived impact, feasibility, social acceptability and cost;
- 2) **in-depth interviews** (n=20) using *multi-criteria mapping* (MCM) to select top 5 DDAs; and
- 3) **Net-Mapping** (2 focus groups (n=20)) to identify networks of key stakeholders and their linkages, support and influence in shaping and implementing DDAs. Quantitative MCM analysis generated overall rankings, which were complemented by thematic analyses of stakeholders’ justifications. Net-Mapping metrics were generated and combined with qualitative insights on stakeholders’ roles and interactions, including stakeholders’ reflections on the network and suggestions for implementing DDAs.

Results: Rankings of the emerging top 5 DDAs were consistent across stakeholder groups. Policies/interventions on breastfeeding (BF), maternal nutrition, and nutrition-sensitive agriculture (NSA) were prioritised, whereas anthropometric monitoring and school feeding programmes ranked lowest. BF programmes were valued for their perceived life-saving potential, cost-effectiveness and cultural acceptance. School feeding programmes ranked lowest due to perceived high implementation costs, logistical challenges and limited government prioritisation. Stakeholder network analysis revealed a multifaceted funding and information-sharing ecosystem, with the government playing a central role, extensive donor reach, and active NGO engagement. Differing perspectives across sectors were mainly driven by mandate and ownership.

Conclusion: BF, maternal nutrition, and NSA programmes were identified as priority DDAs to address the DBM in Ethiopia. Several highly influential stakeholders recognise the importance of tackling the DBM with DDAs, providing opportunities to leverage commitment and implementation expertise. Overlapping mandates and competing interests across sectors remain a challenge, highlighting the need for coordinated strategies to maximise the implementation and impact of priority DDAs.

SO.2.10-05

“It Feels Like They’re Pushing Us to Eat Unhealthy Stuff”: Adolescents’ Interactions with Online Food Delivery Apps in Three Southeast Asian Countries

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose: The retail food environment is rapidly evolving globally, with online food delivery (OFD) services becoming increasingly popular. However, not much is known on how adolescents engage with OFD apps and how the apps influence their food purchasing behaviours. This study aimed to explore adolescents' perceptions of and interactions with OFD apps in three Southeast Asian countries.

Methods: We facilitated focus group discussions to explore adolescents' perceptions about OFD apps and their influence on purchasing behaviours in Indonesia, Malaysia, and the Philippines. The total sample included 91 participants aged 16-19 years who used OFD apps at least once a week. Focus groups were assessed through thematic analysis based on six major themes: 1) Motivations for use, 2) Product availability and order preferences, 3) Purchasing behaviours and decision-making, 4) OFD app features, marketing practices and personalisation, 5) Influence on eating habits and healthiness and 6) Suggestions to improve the healthiness of OFD apps.

Results: Price-based marketing strategies and convenience were the main factors driving the use of OFD apps and had a direct influence on purchasing behaviours, often resulting in unhealthy food purchases. It was evident that adolescents use OFD apps during school hours, which is especially concerning. Participants described being drawn to promotions through push notifications (i.e., targeted messages sent directly to users' devices even when the app is not actively open) and social media, and making food decisions based on discounts and prominent placement (e.g., what appeared first on the app). Purchasing behaviours were also driven by personalisation features, which often encouraged repeat purchases. Participants across countries expressed frustration with the lack of healthy options on OFD apps. Even when healthy meals were available, they were often more expensive and not included in promotional deals. Overall, participants demonstrated a strong interest in adding app features, including nutritional information, to support healthier diets.

Conclusion: Given the increasing popularity of OFD apps among adolescents and young adults globally, these findings underscore the need to monitor and regulate online retail food environments and can be used to inform priority actions to improve the healthiness of OFD apps.

SO.2.10-07

Comparison of Healthy and Unhealthy Food and Beverage Prices at Street Food Outlets around Public Schools in Mexico City

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose: To compare the prices of healthy and unhealthy products sold at street food outlets near elementary schools.

Methods: Street food outlets located around public schools in Mexico City were identified. Each vendor reported their best-selling food and beverage items and usual prices, and trained personnel measured each product. Reported products were classified as *healthy* (plain or mineral water, natural fruit and vegetable juices, sugar-free beverages, preparations without meat or processed meats, fruits, vegetables, cereals with or without dairy, unsweetened yogurt) or *unhealthy* (ultra-processed beverages with added sugar, homemade drinks with added sugar, alcoholic beverages, preparations with red or processed meats, deep-fried foods, sweets and desserts, bread and pastries, fried salty snacks, and other ultra-processed products, yogurt with added sugar). All prices were standardized to 100 grams or milliliters. Because price data were not normally distributed, square transformations were applied prior to performing independent t-tests to compare mean prices between groups.

Results: A total of 1,028 food and beverage items were identified across 378 outlets. The most frequently sold groups were preparations without meat or processed meats (20.7%), bread and pastries (10.9%), preparations with red or processed meats (10.1%), sweets and desserts (8.9%), and ultra-processed beverages with added sugar (7.3%). The mean price per portion of healthy foods was significantly lower than that of unhealthy items (Mexican pesos \$17.6 vs \$19.9 per 100g/ml; $p < 0.05$). Fruit and vegetables were among the least expensive per 100g, whereas candies were the most expensive. No significant price differences were found between beverage categories.

Conclusion: Contrary to the common perception that healthy foods are more expensive, this study found that, when compared using a standardized unit, healthier options sold at street food outlets around schools were generally

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cheaper than unhealthy alternatives. These findings highlight an opportunity to promote healthier food choices in school environments and to design public health strategies that engage existing street food outlets to support better nutrition among children.

SO.2.10-08

Associations between Neighborhood Segregation and Crime Incidents at Urban Supermarkets in Baltimore, Maryland and Washington, D.C

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments
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Purpose: For over a decade, U.S. cities have offered financing incentives to attract supermarkets to historically segregated neighborhoods facing food apartheid. In Baltimore, MD and Washington, D.C., these efforts have had mixed results. Recently, operators have warned of closures, citing crime near stores as a major factor, which threatens progress in disinvested areas. This study quantifies supermarket crime in Baltimore and D.C. (2020–2024) and examines its relationship to neighborhood segregation and surrounding crime.

Methods: Police-reported crime data (2020–2024) were obtained from open data portals for both Baltimore and D.C. Supermarket locations were geocoded, and circular buffers of 50 meters (immediate surroundings) and 400 meters (broader context) were applied to capture crime proximity to supermarkets. Neighborhood segregation was measured using the Index of Concentration at the Extremes (ICE) at the census tract level, defining advantage as majority white and high-income (80th percentile) and disadvantage as majority Black and/or Latino and low-income (20th percentile). Spatiotemporal negative binomial regressions for each city assessed associations between crime incidence at supermarkets, crime within 400 meters, and segregation, controlling for year.

Results: From 2020–2024, crime within 50 meters of supermarkets totaled 1,927 incidents across 48 supermarkets in Baltimore and 7,048 incidents across 74 supermarkets in D.C. Preliminary models suggest that in Baltimore, each unit increase in ICE (greater advantage) is associated with a 63% reduction in supermarket crime ($p < 0.01$). In D.C., the reduction is 18.5%, but not statistically significant ($p > 0.05$). Surrounding crime within 400m is significantly associated with crime at supermarkets in both cities, though the effect is minimal (2% increase in Baltimore, 3% increase in D.C.; $p < 0.0001$).

Conclusion: This analysis suggests addressing food apartheid requires more than investment in healthy food retail alone. Crime at supermarkets may reflect deeper gaps in structural and social support in disadvantaged areas. Addressing these gaps calls for complementary investments such as improvements to the physical environment (e.g., lighting, streetscapes, transportation), expansion of social infrastructures (e.g., food assistance programs, workforce development), and community safety strategies that prioritize cohesion over punishment. Future analyses will explore how these investments can enhance food access initiatives and promote neighborhood wellbeing.

SO.2.10-09

Food Exposure in Moving Populations Based on in-Vehicle GPS Data: A Case Study of Changsha, China

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments
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Purpose: While poor diet is a leading cause of disease and mortality worldwide, existing studies—primarily from

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Western contexts—often yield inconsistent conclusions regarding the impact of low-quality food environments, such as those dense with fast-food outlets, on dietary health. Most research focuses exclusively on static residential food environments, neglecting the role of daily mobility. This study addresses this gap by examining how individuals' exposure to restaurants during daily travel, along with the built environment of activity locations, influences restaurant choice in Changsha, China.

Methods: Using GPS trajectory data from 1,748 frequently used private cars in Changsha, Hunan Province, we analyzed trip-based visits to restaurants and assessed individuals' dynamic restaurant exposure. Multiple regression models were employed to evaluate the influence of both residential neighborhood attributes (within a 400-meter buffer) and mobility-based environmental factors on restaurant visits. We also applied logistic regression to examine how the food environment at previous stops affects subsequent dining choices.

Results: Built environment and socioeconomic characteristics within the 400-meter residential buffer significantly explained both residential and mobility-based restaurant exposure ($R^2=0.6$ and 0.4 , respectively). The median distance from home to visited restaurants was 2.8 km, indicating that car users often patronized restaurants relatively close to home. Additionally, a 10% increase in the proportion of late-night snack shops at previous stops was associated with a 21% rise in the probability of visiting a late-night snack shop at the subsequent stop.

Conclusion: This study highlights the potential of home-based neighborhood planning to shape dietary exposures during daily travel. It also suggests that individual restaurant exposure may be path-dependent, where the food environment of prior stops significantly influences subsequent dietary choices. These findings offer important insights for behavioral nutrition and physical activity research, emphasizing the need to incorporate dynamic environmental exposures into public health strategies aimed at improving dietary behavior.

SO.2.10-10

Shrinkflation in the Food Supply: Does It Affect Nutritious Products Differently? Evidence from Québec Packaged Foods

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose: Shrinkflation, the practice of reducing a product's quantity without a proportional price decrease and without any disclosure to consumers, is a strategy used by manufacturers and retailers to maintain profit margins amid rising food costs. However, it remains understudied in the scientific literature, particularly in relation to nutritional quality. This study assessed the prevalence of shrinkflation across five packaged food categories contributing the most to saturated fat, sugars, and sodium purchases in Québec (Canada), and examined whether it differentially affects products according to their nutritional quality.

Methods: Product weights, prices, and nutritional information were collected from the packaging of all available items in five food categories sold in Québec (Canada) at two time points. Products that could be matched between the two time points were then compared (ready-to-eat breakfast cereals 2016–2021, $n=200$; sliced breads 2017–2021, $n=135$; cookies 2019–2024, $n=335$; salty snacks 2020–2025, $n=331$; and processed cheeses 2021–2025, $n=85$). Shrinkflation was observed when product weight decreased without a proportional change in price, resulting in an increase in unit price (price per 100 g). Nutritional quality was assessed using the thresholds of Health Canada's front-of-package (FOP) nutrition symbol (mandatory by January 2026), which identifies products high in saturated fats, sugars and/or sodium.

Results: Overall, 12.2% (132/1081) of products exhibited shrinkflation. Prevalence differed significantly across food categories ($p=0.0002$): 4.4% in sliced breads, 7.0% in ready-to-eat breakfast cereals, 11.8% in processed cheeses, 14.2% in cookies, and 16.6% in salty snacks. Among processed cheeses, shrinkflation affected more products of higher nutritional quality (without the FOP: 22.5%) than products of lower nutritional quality (with the FOP: 2.2%; $p=0.005$). No significant differences were observed in other food categories.

Conclusion: Although its prevalence varies across food categories, shrinkflation seems to be used among products frequently purchased by Québec consumers. Except for processed cheeses, it appears to affect products regardless of their nutritional quality. This practice is deceptive to consumers and further reduces their purchasing power during a period of high inflation. Such findings highlight the need to implement regulations to better regulate this strategy, to favor consumers' financial and nutritional well-being.

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SO.2.10-11

Economic and Health Impacts of Dietary Improvements in New Zealand: Combining Computable General Equilibrium Modelling and Multi-state Life-table Modelling

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose: Unhealthy diets have been identified as a public health concern and a burden to the economy. This research aims to present the effects of changing population dietary intake in New Zealand (NZ) to meet the national dietary guidelines on health, social and economic dimensions.

Methods: Changes to the population dietary intakes were calculated as the difference between baseline intake (from the most recent national nutrition survey) and the NZ dietary guidelines: Increases of 102% and 172% in fruit and vegetable consumption and decreases of 100% and 90% in sugar sweetened beverage (SSB) and processed meat consumption respectively. Changes were modelled using TERM-NZ, a computable general equilibrium model of the NZ economy with a detailed agricultural sector. TERM-NZ was used to estimate changes in agricultural production, food prices, household food expenditure, food production and the NZ gross domestic product (GDP). Health impacts from changes in dietary intake were modelled using a multi-state life-table model. Modelling outcomes were the change in health-adjusted life years (HALYs) and health system costs/cost savings modelled over the 2018 population's lifetime (3% discounting).

Results: By assumption, these changes cause an initial economic loss because it involves moving consumers away from their most-preferred dietary choices, but these losses were small: less than one percent changes in GDP and household consumption for each change in risk factor and all changes modelled together. Additionally, the estimated impact on productivity was more than sufficient to pay for an improved diet. These collective changes in the population diet generated 409,000 modelled HALYs. Modelling risk factors separately generated HALY gains between 80,200 for a 90% reduction in processed meat consumption to 129,000 for removing all consumption of SSBs. Healthcare cost savings for the collective changes were over \$23 Billion (NZ dollars) over the life course of the cohort.

Conclusion: These results suggest that improving NZ diets at the national level is economically feasible; it will not disrupt the economy. These changes are associated with large improvements in the health of the NZ population and would generate large health system costs savings. This research also demonstrated the value of interdisciplinary research and combined modelling exercises.

SO.2.10-12

“SNAP Shouldn’t Be Political”: A Qualitative Investigation of Black Mothers’ Experiences with SNAP in Washington, DC

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments

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Purpose:

This study explores how the Supplemental Nutrition Assistance Program (SNAP) influences food access, food dignity, and overall well-being among Black mothers in Washington, DC. Despite its intent to reduce food insecurity, SNAP is often shaped by administrative complexity, inconsistent implementation, and societal stigma. This research seeks to illuminate how these structural and social factors affect participants' lived experiences and perceptions of dignity in seeking, enrolling in, and using food assistance. Using an intersectional lens, this project centers Black mothers' narratives to understand how race, gender, and policy interact in shaping food access and user experience within the SNAP system.

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Methods: We conducted semi-structured, in-depth interviews with n=20 Black mothers living in Washington, DC, who receive SNAP. Participants were interviewed in Fall 2025 for approximately 60 minutes each over Zoom. Interviews focused on participants' interactions with SNAP, perceived barriers, and emotional and social implications of participation. Audio recordings were professionally transcribed and analyzed using inductive and deductive coding to identify key patterns and emergent themes, guided by a phronetic iterative approach.

Results:

Preliminary thematic findings suggest that SNAP has not modernized at the same pace as broader technological and societal change. Outdated systems and bureaucratic inefficiencies continue to create barriers for users rather than facilitating equitable, dignified access. Participants described inaccurate benefit calculations, rigid eligibility requirements, and limited support from caseworkers who often lacked empathy or administrative knowledge. Many reported frustration with system errors that delayed or disrupted benefits, leading to heightened stress and feelings of exclusion. Specifically, participants cited a loss of benefits during recertification periods due to technical challenges and ineffective communication from administrators and case workers.

Conclusion:

This study contributes to the field of behavioral nutrition by revealing how SNAP's structural stagnation perpetuates inequity and undermines user dignity. The findings underscore the need for system-wide modernization, improved staff training, and greater inclusion of participant voices in policy design. True progress in food access depends on centering dignity, accessibility, and lived experience within social benefit systems.

SO.2.10-13

Self-reported Use of GLP-1 Agonist Medications and Impacts on Eating Behaviours and Physical Activity across 5 Countries: Data from the 2024 International Food Policy Study

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SO.2.10 Policies and environments: Structural Approaches to Healthy Food Environments
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Purpose: Use of GLP-1 agonist medications for the management of diabetes and obesity has increased in the past 5 years. However, limited population-level data exist on the potential global impacts of GLP-1 medications on eating behaviours and physical activity (PA). This study examined self-reported GLP-1 use and changes to eating behaviours and PA in 5 countries.

Methods: Data were analysed from the 2024 International Food Policy Study (IFPS), a multinational population-based survey. Adults aged 18-100 years (n=19,795) in Australia, Canada, Mexico, the UK and the US were recruited using probability and non-probability sampling. Respondents reported their use of GLP-1 agonist medications. Current and past-12-month GLP-1 users reported on changes in eating behaviours and PA 'since' taking the medication (for current users) or 'when' they took the medication (for past-12-month but not current users). Descriptive statistics examined GLP-1 use by country, as well as changes in behaviours.

Results: Overall, 6.5% of respondents across all countries reported ever using a GLP-1 medication. GLP-1 'ever' use was highest among US respondents (9.9%), followed by Australia (8.0%), Canada (6.6%), the UK (4.6%) and Mexico (3.4%). Among current and past-12-month GLP-1 users, 47% reported eating healthy food more often (31% less often), 50% reported eating unhealthy food less often (24% more often), 34% reported getting more enjoyment from food (35% less enjoyment), 41% reported spending less time thinking about food (36% more time), and 47% reported getting more PA (22% less), since/when taking the GLP-1 medication. Findings will also be presented on perceptions of cost, side effects, and quality of life. Results from the upcoming 2025 IFPS surveys (collected December 2025) will be included to examine trends over time.

Conclusion: This study provides some of the first data on GLP-1 use across multiple countries. As many as 1 in 10 respondents reported ever using a GLP-1 agonist medication, and most current and past-12-month users reported

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changes to eating and PA since taking the medication. These results help to uncover the potential impacts of GLP-1 medications on eating behaviours and PA and highlight the importance of considering these medications and their accessibility when designing nutrition and PA research and interventions.

SO.2.11-08

Projected Impacts of Climate Change on 24-hour Movement Behaviours: Modelling Future Temperature Effects on Sleep, Sedentary Time and Physical Activity

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns
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Purpose: The study aimed to estimate how projected future temperature increases are likely to affect 24-hour movement behaviours in adults.

Methods: This secondary analysis drew on data from the Annual Rhythms in Adults (ARIA) study, a 13-month longitudinal cohort of 368 adults living in Adelaide, Australia. Participants wore a Fitbit Charge 3 continuously for 13-months, producing 85,182 valid person-days of minute-level behaviour data, categorised into sleep, sedentary time, light physical activity (LPA), and moderate-to-vigorous physical activity (MVPA). Daily maximum and minimum temperature data were obtained from the Australian Bureau of Meteorology and linked to individual days.

A Monte Carlo simulation framework modelled temperature-behaviour relationships across 0.5 °C bins. MVPA used a two-step approach: (1) estimating the probability of any MVPA to account for high-zero occurrences, and (2) estimating cumulative probabilities of minutes of MVPA on days where MVPA occurred. Sleep, sedentary behaviour, and LPA were modelled in a single step as no zeros were present. Simulations were run 1,000 times under five IPCC warming scenarios (+1.5 °C to +4.4 °C). Outputs were summarised as year-long projections and exposure-response curves (temperature percentiles vs. behaviour minutes), smoothed using 28-day moving averages.

Results: Simulations projected small but consistent behavioural shifts with warming. Annual averages increased for MVPA (+3 h 53 min to +5 h 48 min) and LPA (+12 h 42 min to +22 h 28 min), while sleep declined (-12 h 15 min to -27 h 45 min). Physical activity gains were concentrated in cooler months, whereas sleep losses persisted year-round. Changes in sedentary behaviour were minimal.

Conclusion: Rising temperatures may modestly increase year-long physical activity but reduce sleep duration, producing meaningful cumulative health implications. This modelling framework offers a new approach to integrating behavioural pathways into climate-health projections, informing future adaptation and mitigation efforts.

SO.2.11-01

Multi-component Self-regulation Predicts Physical Activity Intention-behaviour Profiles in Canadian Adults

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns
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Purpose: Despite widespread intentions to engage in regular physical activity (PA), most individuals fail to follow through, resulting in a persistent intention-behavior (I-B) gap. The Multi-Process Action Control (M-PAC) framework highlights reflective, regulatory, and reflexive processes; however, the regulatory layer is often reduced to planning. This study prioritized a multicomponent test of regulation—proactive planning, reactive coping, self-monitoring, and social monitoring—alongside standard M-PAC predictors, and explored age/sex patterns.

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Methods: A sample of 570 Canadian adults (aged 19–65) completed a baseline survey assessing intention and M-PAC constructs including the four regulatory subcomponents (i.e., proactive planning, reactive coping, self-monitoring, and social monitoring); moderate-to-vigorous PA (MVPA) was assessed 3 weeks later. Discriminant function analyses tested predictors in hierarchical blocks (reflective, regulatory and reflexive), adjusting for sex, education, and income. Exploratory subgroup analyses by age and sex were conducted.

Results: Three I-B profiles emerged:

- a) non-intenders (16.5%, $n = 94$),
- b) unsuccessful intenders (57.0%, $n = 325$), and
- c) successful intenders (25.4%, $n = 145$), yielding an overall I-B gap of 69%.

Each M-PAC construct was a significant predictor of I-B profile membership ($p < .01$). The primary discriminant function explained 92.8% of variance (Wilks' $\lambda = .56$; canonical $r = .64$); cross-validated classification was 56.2%. Adding regulatory ($\Delta R^2 = .05$) and reflexive ($\Delta R^2 = .01$) blocks improved discrimination ($ps < .01$). Among regulatory processes, proactive and reactive regulation were equally strong ($r = .65$), with additional contributions from self-monitoring ($r = .40$) and social monitoring ($r = .22$). Exploratory subgroup analyses suggested reflective processes predicted across all age-sex strata, while incremental effects of regulatory and reflexive processes were small.

Conclusion: Findings generally support the predictive utility of M-PAC's three processes and multi-component regulation in explaining the I-B gap. Proactive and reactive tactics should be prioritized in intervention design. M-PAC effects appeared generally invariant to age and sex in this sample, but confirmation with larger, and stratified samples is warranted.

SO.2.11-02

Maintaining Physical Activity through the Retirement Transition: The Role of Motivation and Ageing Expectations

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns
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Purpose: Retirement from work constitutes a major life transition that can substantially affect physical activity (PA) patterns, either positively or negatively. Understanding the psychological and behavioural determinants of PA during this period is essential for promoting active ageing. This study examined pre-retirement predictors of the daily amount of accelerometer assessed moderate-to-vigorous physical activity (MVPA) six months after retirement.

Methods: A longitudinal observational study was conducted among 93 older adults in Flanders, Belgium (mean age at retirement = 62.8 years; 60.2% women). Time spent in MVPA was assessed using wrist-worn ActiGraph accelerometers for seven consecutive days, both six months before and six months after retirement. Pre-retirement psychological and behavioural characteristics were assessed using validated questionnaires, including the Expectations Regarding Aging Survey (ERA-12) and the Behavioural Regulation in Exercise Questionnaire (BREQ-3). Predictor variables included gender, education level, daily MVPA six months before retirement (hours/day), autonomous motivation for physical activity (Relative Autonomy Index), and expectations regarding aging across three domains: physical health (ERA-PH), mental health (ERA-MH), and cognitive function (ERA-CF). Hierarchical multiple regression analyses were performed to identify predictors of daily MVPA six months post-retirement (hours/day).

Results: The final model explained 56.1% of the variance in post-retirement MVPA ($R^2 = .561$, $p < .001$). Significant predictors of the daily amount of MVPA six months after retirement were: daily MVPA six month pre-retirement (Beta = .576, $p < .001$), positive expectations regarding physical ageing (Beta = .209, $p = .019$) and self-determined motivation for PA (Beta = .229, $p = .009$). Gender, educational level, and expectations regarding ageing in the mental health or cognitive function domain were not significant.

Conclusion: These findings emphasize the importance of maintaining higher levels of MVPA prior to retirement and highlight the role of psychological factors in sustaining PA during the transition to retirement. In particular, encouraging autonomous motivation for PA (i.e., motivation driven by intrinsic enjoyment, personal value, or a sense of purpose) and promoting positive self-perceptions of physical ageing (i.e., believing that one's physical abilities will remain strong) before retirement may help individuals stay active afterward. Such interventions may facilitate sustained engagement in PA, thereby contributing to healthier ageing trajectories.

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SO.2.11-03

Uncovering the Hidden Time of Exercise: Conceptualizing Non-exercise Tasks Required for Activity (NEXTRA)

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns

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Purpose: The most prevalent barrier to physical activity participation in adults is the perceived lack of time. Yet, time-related barriers extend beyond the activity itself to include ancillary demands such as travel, equipment preparation, grooming, and recovery. These ancillary demands constitute *Non-Exercise Tasks Required for Activity* (NEXTRA); the hidden time cost of exercise. This study aimed to conceptualize the NEXTRA construct, define its components, and develop a self-report instrument to quantify NEXTRA time.

Methods: The study followed a four-step development process:

- (1) A preliminary list of NEXTRA activities was drafted by an expert panel informed by the literature and experience;
- (2) Semi-structured interviews with 17 adult exercisers (10 women, mean age = 32.7 years, 10 countries represented) were conducted to establish content validity and identify additional NEXTRA activities. Directed qualitative content analyses combined deductive and inductive coding to confirm and expand the NEXTRA framework;
- (3) The refined list informed construction of the *NEXTRA Time Questionnaire*, which captures time spent on pre- and post-exercise NEXTRAS; and,
- (4) Cognitive interviews were used to explore how members of the target sample understand, recall, and respond to the questions using think-aloud and verbal probing techniques.

Results: Interview data confirmed engagement in nearly all predefined pre- and post-exercise NEXTRA activities. Pre-exercise tasks most frequently reported included changing into exercise apparel (23 mentions), preparing and packing gear (22), and travelling to the exercise location (22). Four items, finding parking, arranging caregiving, checking accessibility, and making arrangements with a coach, were rarely or not reported. Two emergent items, *scheduling* (e.g., planning around childcare or weather) and *hydrating/eating before exercise*, broadened the construct. Post-exercise findings highlighted showering and grooming (25 mentions), recovery routines (15), and hydrating/eating after exercise (25) as common. Cognitive interviews indicated strong comprehension and perceived relevance of items, with minor refinements made to improve clarity and flow of survey questions.

Conclusion: Conceptualizing and operationalizing NEXTRA advances understanding of time-related barriers to exercise by identifying the full temporal cost of exercise. The resulting NEXTRA instrument provides a foundation for quantifying these hidden demands, which will inform interventions and policies aimed at reducing modifiable time burdens and promoting sustained exercise participation.

SO.2.11-04

Bridging Hospital and Community Care - Cost-Effectiveness of a Lifestyle Referral Program for Cardiovascular and Musculoskeletal Patients: The LOFIT Randomized Controlled Trial

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns

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Purpose: This study was done to investigate the cost-effectiveness of the LOFIT study. In the LOFIT study we evaluated the effects of a lifestyle front office (LFO) in hospital care. The LFO is a novel care pathway designed to optimize patient-centered lifestyle support in secondary and tertiary care and connect patients with community-based lifestyle programs. This study aimed to evaluate the cost-effectiveness of the LFO among patients with (cardio)vascular and musculoskeletal disorders. This approach is innovative in embedding a dedicated LFO to bridge the gap between medical treatment and sustainable lifestyle change.

Methods: To evaluate the cost-effectiveness of the LOFIT trial (n = 325), intervention group was compared to usual care, focusing on the primary outcome (adapted Fuster-BEWAT) and QALYs. Data were collected at baseline and 3-, 6-, 9-, and 12-month follow-up. Resource utilization data were obtained through self-report questionnaires (iPCQ and iMCQ), covering healthcare utilization, medication use, informal care, unpaid productivity losses, absenteeism, and presenteeism. Intervention delivery costs were calculated based on hospital and research group expenses for recruitment, implementation, preparation, and materials. Other healthcare use was valued using Dutch standard cost prices; informal care and unpaid productivity losses used Dutch shadow prices. Absenteeism and presenteeism were monetized using the Friction Cost Approach. Analyses were conducted after 12-month data collection (no interim analyses). Multilevel regression analyses following the intention-to-treat principle assessed primary and secondary outcomes, accounting for hospital-level clustering, with significance set at $p < 0.05$ and multiple imputation applied.

Results: Cost-effectiveness analyses were performed from a societal perspective. Overall, healthcare costs increased in the intervention group, while simultaneously societal costs decreased. Compared with usual care the intervention dominates as it was both more effective (0.53; 95% CI: 0.02 – 1.04) and less expensive (€-2836; 95% CI: -6764 - 1091). The difference in QALYs between intervention and control group was 0.016 (95% CI: -0.007 tot 0.039). The incremental cost per QALY was €-179.308. with a 95% probability that the intervention was cost-effective at a willingness-to-pay threshold of €0.

Conclusion: This study provides evidence on a scalable, patient-centered, and cost-effective hospital-based lifestyle care pathway that links patients to community resources and improves health outcomes.

SO.2.11-05

Transition to Active Communities: A Qualitative Study of Citizens' Experiences with a Social Prescribing Intervention for Physical Activity Engagement

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns

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Purpose: Using co-creation between citizens, civil society and municipal stakeholders (including politicians), and researchers, we developed and implemented a social prescribing intervention in a Danish socioeconomically disadvantaged municipality. The purpose of the intervention was to support citizens with type 2 diabetes (T2D), cardiovascular disease, and/or obesity in maintaining physical activities in civil society after a municipal rehabilitation program. The intervention included 1. a link worker; 2. a visiting program; 3. a digital platform; and 4. co-created physical activities. The aim of this study was to provide an in-depth investigation of the citizens' experiences with the link worker and visiting program.

Methods: This study was an explorative qualitative investigation using semi-structured individual interviews.

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Participants for the study were sampled among participants in a pilot study embedded in project Active Communities. We used criterion-based purposive sampling to select participants with experience from either T2D or weight management programs, and continued physical activity engagement in civil society (yes/no). The interviews were audio-recorded, transcribed verbatim, and analyzed using reflexive thematic analysis including researcher triangulation.

Results: Twelve citizens with experience from the social prescribing intervention were included; five had experience with a T2D management program, and seven with a weight management program. They had an age range of 44-78 years, eight were women and four were men, and most reported two or more chronic conditions. The analysis resulted in four main themes informed by three to four subthemes each: 1. invisible burdens in new contexts, covering how citizens' past experiences and understandings influenced how they emerged themselves in a rehabilitation program; 2. a health environment to support transition, covering the importance of the link worker and a welcoming civil society; 3. personal preferences permeated participation, covering how specific physical activity features and contexts influenced engagement; and 4. social community in competition with social norms, covering how social aspects served as (de)motivators for physical activity engagement.

Conclusion: This study provides important in-depth information on the influence of the social prescribing intervention on citizens' physical activity engagement in civil society following a municipal rehabilitation program. This is important information for local anchoring and general adaptation to other health care settings.

SO.2.11-06

Well-connected Walking and Cycling Networks Are Associated with Higher Physical Activity-levels among German City Residents: Cross-sectional Results of the '10.000 Steps NRW' Study

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns
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Purpose: International evidence points to the relevance of the built environment for regular physical activity (PA) at the population level. The aims of the study were to shed light on this relationship and to investigate the role of different domains of both built environment and PA in German city residents.

Methods: The analyses were based on baseline data (adults aged 25-75 years residing in two German cities) collected in a non-randomized controlled intervention study. Subjectively perceived built environment (ALPHA Environmental Questionnaire – long version) and subjective PA as metabolic equivalents (METs) in MET minutes/week (MET-min/wk) (Global Physical Activity Questionnaire – GPAQ) were recorded in telephone-based interviews. METs were categorized into three domains (work, transportation, leisure) and MET values for each domain were specified as follows: moderate (MET= 4.0), intense (MET = 8.0), cycling and walking (MET = 4.0). PA was objectively measured as number of steps per day using pedometers worn for seven consecutive days. Cross-sectional associations between different domains of built environment and PA were investigated using multivariable regression models to determine β -coefficients with 95% confidence intervals (95% CI) for objectively measured and self-reported PA.

Results: 627 residents (60% female) took part in the baseline interviews and wore pedometers for seven days. On average, participants walked 7,866 ($\pm$ 3,487) steps per day. Subjectively, they reported an average of 4,628 ($\pm$ 4,338) MET-min/wk [work: 351 ($\pm$ 1,116) moderate MET-min, transportation: 842 ($\pm$ 988) MET-min, leisure: 750 ($\pm$ 1,226) moderate MET-min]. For pedometer-based steps, greater distance to local facilities (β = -59, 95% CI: -117, -2) tended to be associated with lower daily step counts. For self-reported PA, a supportive home environment (β = 473, 95% CI: 156, 791) showed the largest positive association, while well-maintained infrastructure (β = 174, 95% CI: 1, 347) and a connected walking and cycling network (β = 147, 95% CI: 1, 293) were linked to more MET-min. Surprisingly,

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perceptions of higher neighborhood safety ($\beta = -131$, 95% CI: $-232, -29$) were associated with fewer MET-min.

Conclusion: Our results suggest relationships between perceived accessibility of public infrastructure and ownership of exercise equipment with regular PA in urban areas.

SO.2.11-09

Developing a Blended Care Behaviour Change Intervention Supporting a Sustainable Active Lifestyle after Stroke: Using Co-creation

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns
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Purpose: Stroke survivors in outpatient rehabilitation face many challenges to engage in an active lifestyle including meeting physical activity (PA) and sedentary behaviour (SB) recommendations, which are important for reducing health risks. Adopting and maintaining an active lifestyle requires a structured, theory-driven approach to effectively support behaviour change. This study, therefore, aimed to develop a structured, evidenced based targeted intervention for an active lifestyle through a co-creation approach.

Methods: This intervention development study used the Behaviour Change Wheel (BCW) framework as guide for literature search and the co-creation workshops: five with both health care professionals (HCPs) and stroke survivors, an additional workshop with only HCPs and two online meetings with partners of stroke survivors. During the workshops the targeted behaviour, key barriers and facilitators, appropriate solutions (i.e., intervention functions and behavior change techniques (BCTs) according BCW), and delivery-modes were identified.

The content of the workshops was informed by findings from a scoping review conducted by the research team on barriers, facilitators, and promising interventions for SB, as well as existing systematic reviews for PA. Insights gained during workshops were used in subsequent workshops, guiding the ongoing intervention development.

Results: Co-creation workshops involved twelve healthcare professionals (HCPs), five stroke survivors, and three partners of stroke survivors. The outline of the intervention reflects the need for a structured programme existing of five parts: 1) a personalised physical activity and behaviour profile, discussing personal barriers, 2) education; 3) personalised and targeted support with self-monitoring and (e)Coaching in collaboration with multidisciplinary team; 4) sustainable physical activity plan; 5) after care. This intervention is based on the following intervention functions: education, enablement, training, and environmental restructuring and encompasses acceptable and practical BCTs as: information about health consequences, goal setting, action planning, monitoring and social support, which were identified as important by participants of the workshop.

Conclusion: A structured intervention development process, using BCW-framework and co-creation led to an integrated and personalised blended care active lifestyle intervention in outpatient stroke rehabilitation. The methodology used could be useful for researchers and practitioners involved in the development of similar interventions.

SO.2.11-10

Physical Activity Outcomes for Black and White Women in the REACH Randomized Clinical Trial

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Purpose: Physical activity (PA) is a key component of behavioral weight loss (BWL) for emerging adults (EAs). Theory-based motivational enhancements such as self-determination theory (SDT) and behavioral economics (BE) have shown promise in promoting PA, but limited work has assessed effects by race. This is a secondary analysis from REACH, a 3-arm comparative efficacy trial for weight loss among EAs.

Methods: 257 Black and White women (18-25 years, body mass index: 25-45kg/m²) were randomized to 1 of 3 arms: developmentally-adapted behavioral weight loss (aBWL), aBWL+BE, or aBWL+SDT. All participants received a 6-month program (1 group session, 1 individual session, followed by a digital platform). aBWL+BE included financial incentives for self-monitoring and weight loss and aBWL+SDT included autonomy support and optional experiential nutrition and PA classes. In all arms, PA goals were personalized using baseline accelerometry, with tailored progressions to ³250 min of moderate-to-vigorous PA (MVPA)/week. Assessments occurred at 0 and 6 months. A repeated measures ANOVA assessed change in MVPA across race and treatment arm.

Results: 114 women (22.17±2.16 years, body mass index: 33.5kg/m², 61.4% White) had valid wear time (≥8 hours on ≥3 weekdays + 1 weekend day). No statistically significant change in MVPA was observed from 0 to 6 months overall ($F_{2,152}=3.207$, $p=.075$, $h^2=.021$; 288.53±156.31 to 267.10±178.39) or by arm ($F_{2,152}=1.221$, $p=.298$, $h^2=.016$; aBWL: 297.44±118.37 to 286.93±199.03; aBWL+BE: 288.23±151.34 to 237.51±151.34; aBWL+SDT: 282.62±192.46 to 274.78±199.43). There was no interaction between arm and race ($F_{2,152}=1.168$, $p=.314$, $h^2=.015$; aBWL Black women: 260.88±92.67 to 251.64±175.97, White women: 332.23±138.62 to 320.52±219.45; aBWL+BE Black women: 345.80±170.47 to 248.59±123.49, White women: 237.35±128.45 to 227.71±132.43; aBWL+SDT Black women: 269.69±218.18 to 258.47±188.38, White women: 293.65±170.80 to 288.68±186.44).

Conclusion: Improvements in MVPA were not observed, but baseline MVPA for both racial groups was >250 minutes which is high and could explain why findings differ from those observed previously for adiposity. Future BWL trials should incorporate strategies to further enhance MVPA to support weight loss maintenance and cardiometabolic health for EA women.

SO.2.11-11

Early Warning Signals of Sudden Losses in Daily Step Count: An Intensive Longitudinal Study of over 20,000 Adults

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns

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Purpose: Maintaining physical activity over time is challenging, and even successful behavior change attempts are often followed by setbacks and relapses. Recent evidence suggests that sudden losses in walking behavior can be anticipated by characteristic patterns in daily step count. One such pattern is an increase in dynamic complexity (DC), a metric that captures how large and irregular fluctuations in a time series are. Prior work showed that a one standard deviation increase in DC was associated with a 43 percent higher likelihood of experiencing a sudden loss in walking behavior within the next few days. This study aimed to replicate and extend these findings in a large real world dataset, examining whether DC predicts sudden losses across different timescales, magnitudes of loss, and population subgroups.

Methods: Daily step data were obtained from 21,425 adults participating in a digital physical activity intervention, yielding 5,474,501 person days of observation. Step counts were passively recorded via smartphones or wearable devices. Sudden losses were defined within each participant using multiple operational definitions, as decreases of 20, 30, or 40 percent relative to their median daily step count, sustained for at least 7, 14, or 28 days. DC was calculated using a 7-day rolling window. Generalized linear mixed effects models tested whether DC in the preceding days predicted sudden losses, controlling for elapsed time and exposure to the intervention.

Results: Participants averaged 7,817 steps per day and experienced sudden losses about once every one hundred days, with a median duration of 33 days. Higher DC consistently predicted impending losses. Across all operational definitions, higher DC in the preceding days increased the odds of a sudden loss (ORs from 1.93 to 1.32), with the strongest association observed for larger, short term losses (OR = 1.93). The effect was most pronounced among less active individuals (OR = 2.03).

Conclusion: Increases in dynamic complexity precede sudden losses in walking behavior. DC functions as a robust

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early warning signal and could be leveraged in digital health systems to trigger just in time adaptive interventions and prevent declines in physical activity.

SO.2.11-12

Characterising Physical Activity and Lifestyle Counselling Using State Space Grids in Adults with Osteoarthritis or Total Joint Prosthesis

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Purpose: Physical activity (PA) is essential for individuals with osteoarthritis (OA) or a total joint prosthesis, yet PA levels remain low. Counselling interventions show promise in increasing PA, but little is known about how PA-related behaviour change techniques (BCTs) are delivered and received. This study aimed to characterise counselling sessions with clients with OA or total joint prosthesis by examining durations of BCT delivery and receipt.

Methods: We analysed intake counselling sessions from a subgroup of the Dutch multicentre Lifestyle Front Office for Integrating Lifestyle Medicine in the Treatment of patients (LOFIT) trial. This subgroup included clients with OA or a joint prosthesis who were referred by a hospital medical specialist and had a counselling session with a lifestyle coach. In these sessions, lifestyle coaches, trained in motivational interviewing, discussed lifestyle with clients and determined referral to a community-based lifestyle initiative. Transcripts were independently coded by two researchers using a coding manual including codes for PA-related BCTs delivered by coach and received by client, with discussion until consensus was reached. Interactions were analysed using State-Space-Grids (SSG) analyses.

Results: Transcripts from 16 sessions involving five lifestyle coaches (80%female) and 16 clients (mean(SD) age=60(11.8) years, 50%female) were analysed. Sessions lasted on average 57 minutes (SD=10.5). Approximately one-third of session time focused on PA-related BCTs, one-fifth on other lifestyle BCTs, and the remainder on other content. Within PA-related BCTs, lifestyle coaches spent most of their time discussing PA referral options (mean=7.1 minutes, SD=4.9), while clients spoke the longest about barriers and facilitators to engaging in PA (mean=3.9 minutes, SD=2.5). Durations varied considerably both within and between sessions.

Conclusion: Counselling for adults with OA or a total joint prosthesis is highly interactive. Clients actively discuss barriers and facilitators to engage in PA, while coaches provide guidance and information on referral options. Variability in BCT durations within and between sessions suggests that these conversations are tailored to individual client needs. SSG analyses offered novel insights into how PA-related BCTs are delivered and received, informing the development and optimisation of counselling interventions to better support PA participation in this population.

SO.2.11-13

I DARE YOU: A Game-based Educational Intervention to Enhance Mediterranean Diet Literacy and Motivation in Adolescents

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SO.2.11 Motivation and behavior change: Occupational Health and Long-Term Movement Patterns
Room 2, May 29, 2026, 2:00 PM - 3:00 PM

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Purpose: Adolescence represents a critical stage for consolidating lifelong dietary patterns, yet adherence to the Mediterranean Diet among youth has progressively declined in recent years. Traditional didactic methods often fail to sustain interest or promote the transfer of knowledge into everyday practice. I DARE YOU, developed within the PRIMA-Tool4MEDLife project, is a trivia-style educational board game designed to foster Mediterranean Diet literacy, intrinsic motivation, and behavioral transfer among adolescents through interactive, curriculum-integrated sessions. This study evaluates its effectiveness in improving knowledge, engagement, and perceived applicability of healthy dietary behaviors.

Methods: A quasi-experimental pre-post design includes two groups: an experimental group participating in I DARE YOU sessions and a control group completing the same assessments without gameplay. The intervention consists of 4–6 hours of distributed gameplay across four weeks, combining trivia, recall, and guided debriefing activities based on principles of spaced and retrieval practice. All participants complete the validated Lit-MEDiet questionnaire at baseline (T0) and post-intervention (T1) to assess changes in Mediterranean Diet literacy. At T1, they also complete a short Intrinsic Motivation Inventory (IMI)-based questionnaire adapted to measure Interest/Enjoyment and Value/Usefulness, together with additional items assessing perceived transfer to daily life (e.g., ability to apply what was learned to food choices). The IMI is a standardized self-report instrument designed to assess intrinsic motivation and engagement in educational and behavioral contexts, providing insight into how enjoyment and perceived value support sustained learning and behavior change. A mixed-design ANOVA will analyze time × group effects, while an optional follow-up (T2) four weeks later will assess knowledge retention.

Results: Preliminary analyses show that the experimental group demonstrates significant improvements in Mediterranean Diet literacy, especially in food and production dimensions, together with increased intrinsic motivation and stronger perceived transfer to daily habits.

Conclusion: I DARE YOU demonstrates that short, distributed game-based interventions can effectively enhance nutrition literacy, intrinsic motivation, and behavioral transfer among adolescents. This participatory and engaging approach offers a scalable, low-cost strategy for integrating health promotion into school curricula and for reinforcing Mediterranean Diet adherence in Euro-Mediterranean contexts.

SO.2.12-01

Mapping Nutritional Policy Gaps in Canadian Early Learning and Child Care Centres: A Scoping Review

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Early Learning and Child Care (ELCC) settings represent critical environments for fostering healthy eating behaviours and improving dietary intake among young children. Evidence-based policies, guidelines, and recommendations play an important role in guiding practices and ultimately, the quality of the ELCC settings. There is limited consolidated knowledge about the content, quality, and comprehensiveness of food and nutritional guidelines aimed for ELCC providers across Canadian provinces and territories. Therefore, the objective of this scoping review was to identify gaps and opportunities in the ELCC food environment by evaluating the content and quality of provincial and territorial nutritional guidelines in Canada.

Methods: A grey literature search was conducted using four strategies: database search, custom Google search, targeted web-based searches, and expert consultation. Documents were included in the analysis if they were published by federal, provincial/territorial governments, or non-governmental organizations; were intended for ELCC providers; and written in English or French. Two reviewers independently extracted data. The content of documents was evaluated using the Analysis Grid for Environments Linked to Obesity framework, while quality was determined by alignment with the 2019 Canada's Dietary Guidelines and the World Health Organization Guidelines for Complementary Feeding of Infants Aged 6–23 Months.

Results: A total of 18 documents from 10 jurisdictions (out of 13) were included in the analysis. While most provinces and territories addressed criteria related to the physical environment (e.g., water availability, alignment with national dietary guidelines), the political and economic domains were largely overlooked, with only three out of 10 jurisdictions including recommendations to develop and adopt centre-level healthy eating policies. The sociocultural environment varied widely across jurisdictions: three addressed more than 10 of the 18 criteria, while two addressed <5 criteria.

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Seven out of 10 jurisdictions were well aligned with Canada's Dietary Guidelines. Eight out of 10 jurisdictions included ≤five specific feeding recommendations for <2-year-old children.

Conclusion: Our findings highlight opportunities to strengthen policies that could better support holistic healthy food environments in ELCC settings across Canada. Harmonizing ELCC nutrition guidelines across provincial/territorial jurisdictions could further promote more equitable and comprehensive food environments for young children across Canada.

SO.2.12-02

Physical Activity Frequency and Mathematics Performance among Adolescents: A Cross-national Analysis of PISA 2022. Data from Spain, Denmark, and Germany

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: This study investigates whether adolescents' physical activity (PA) frequency predicts mathematics achievement across different European educational systems. While prior research highlights a positive association between PA and academic outcomes, little is known about whether this relationship is consistent across countries with diverse school and social contexts. The study innovatively integrates PISA 2022 data with behavioral and socioeconomic indicators to examine the independent and combined effects of PA, socioeconomic status (SES), gender, and immigrant background on academic performance.

Methods: A cross-sectional, descriptive design was applied using data from the 2022 PISA assessment (N = 43,116; mean age = 15.79 years) from Spain, Denmark, and Germany. Mathematics performance was measured using the ten plausible values (PV1–PV10) in PISA. Weekly PA frequency and socioeconomic and cultural status (ESCS) were extracted from the student questionnaire administered in the PISA Study. Complex-sample general linear models and chi-square tests assessed the independent and combined effects of PA frequency, ESCS, gender, and immigrant background on mathematics performance. Analyses were weighted for population representativeness and conducted following OECD guidelines.

Results: Moderate PA (1–3 sessions per week) was associated with significantly higher mathematics scores compared to no or excessive activity (≥5 sessions/week; all $p < .001$). Students engaging in three weekly sessions performed best across all ESCS quartiles. PA contributed an additional 1.3–1.6% to the explained variance in performance beyond ESCS ($R^2 = 16.5$ – 17.4%). Gender and immigrant background further increased explanatory power ($R^2 = 19.3$ – 20.2%). German students outperformed peers from Denmark and Spain, but country did not moderate the PA–achievement relationship.

Conclusion: Findings indicate that moderate physical activity contributes independently to adolescents' academic performance in mathematics, supporting a hormetic (inverted U-shaped) relationship between PA frequency and cognitive outcomes. These results underscore the importance of promoting regular physical activity among adolescents due to its potential impact on academic performance in mathematics. Educational policies should ensure regular and systematic PA opportunities in school settings where all students have access, thereby helping to reduce inequalities in PA opportunities and potentially mitigate the association between socioeconomic background and educational outcomes.

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SO.2.12-03

Deepening Researchers' Understandings of Children's Storytelling of Outdoor Play Using Audio-visual Methods

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool

Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Visual and storytelling methods of research can amplify children's first-voice experiences to move from research *about* children toward research *with* children. Audio-visual methods are increasing in popularity across child-related disciplines and in research on children's outdoor play experiences. Audio-visual research methods may support a deeper understanding of children's perspectives of physical activity in the outdoor play context. This presentation will explore how using audio-visual methods in research with children supports researchers' abilities to understand children's storytelling through their physical movement, narrations, and creativity within their outdoor active play.

Methods: Go-along interviews (n=20) were conducted with children (n=10) during their typical outdoor play setting. Interviews were recorded using chest-mounted GoPro cameras worn by children and researchers to ensure that physical mobility was not inhibited. Reflexive thematic analysis was conducted by re-watching the videos alongside the transcripts for deeper immersion into the children's active play to understand children's perspectives through the process of videography.

Results: The findings share three themes that emphasize children's role in sharing their outdoor experiences using audio-visual methods and how this informs our understanding of children's storytelling through active play. The themes describe how children's interactions with materials and the outdoor environment weave storytelling into play, how capturing imaginative play on camera provides insight into children's lived experiences, and how cameras can enable children's visual documentation with nature. Our findings demonstrate the advantage of using audio-visual tools to capture fast-paced and physical perspectives of children's active play that cannot be captured through narrative interviewing. The GoPros cameras provided a first-voice account of children's outdoor play experiences that could not be understood through observation alone.

Conclusion: The findings demonstrate how audio-visual methods can strengthen the researchers' interpretations of children's connections to, and knowledge of, social and material environments through play. The videos provided a way of allowing re-immersion of the researchers into the active play experiences captured through audio-visual methods. Children's perspectives of outdoor active play and movement was shared visually, from their own voices, thereby generating meaningful recommendations for policy and practice.

SO.2.12-04

Combined Impact of Parent and Educator Feeding Practices on Development of Eating Behaviour in Australian Toddlers

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool

Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Parent feeding practices that are responsive to children's hunger and fullness cues support the development of optimal eating behaviours, intake and growth. While the practices used by educators in the early childhood education and care (ECEC) setting also impact child behaviour and intake, no studies attempt to evaluate the combined influence of parent and educator feeding practices on child outcomes. This longitudinal study sought to assess children's exposure to seven different feeding practices across both home and ECEC, and examine the relationships with change in *food fussiness*, *satiety responsiveness* and *food responsiveness* over 12-months.

Methods: Two-year-old children (N=121) attending ECEC ≥3 days per week were enrolled, along with their parent and

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key educator. Parents and educators each completed a version of the Feeding Practices and Structure Questionnaire (FPSQ-28). Subscales scores were derived for parent and educator for seven practices (possible range 1-5, with higher scores representing greater use of that practice). Each subscale score was dichotomised into high (>3) or low (≤ 3) and used to categorise children into four exposure groups, e.g., i. low use of *persuasive feeding* by both parent and educator, ii. parent low and educator high, iii parent high and educator low, iv. high use of *persuasive feeding* by both parent and educator. Parents completed the Child Eating Behaviour Questionnaire (CEBQ) at enrolment, then 6- and 12- months post-enrolment. This was used to derive subscale scores at the three time points. Repeated measures ANOVA assessed change in eating behaviour subscale scores over time as well as time*group interaction, with group being the four possible feeding practice exposures on enrolment.

Results: For the whole sample, *food fussiness* increased over time (2.8-3.2, $F=14.1$, $p<.001$) while *satiety responsiveness* and *food responsiveness* remained stable (3.1-3.2; 2.7-2.6). On examination of time*group interaction, *food fussiness* increased regardless of whether children experienced low or high use of *persuasive feeding* across settings. *Satiety responsiveness* increased when children were exposed to high parent/low educator use of food as a reward for behaviour (3.0-3.4, $F=2.83$, $p=.03$).

Conclusion: Characterising a child's exposure to feeding practices across settings is challenging, which may have resulted in these unexpected findings.

SO.2.12-05

Nutrition, Physical Activity and Screen Time Environments in Arab Family Childcare Homes in Israel

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Early childhood is a critical window for obesity prevention, and childcare settings, including family childcare homes (FCCHs), are pivotal in shaping children's early health behaviors. In the U.S., studies have found that children cared for in FCCHs rather than centers may be at higher risk for obesity. In Israel, 77% of children under age three are cared for in FCCHs, especially children from Arab sectors. Little is known about nutrition, physical activity (PA), and screen-time (ST) environments among Arab FCCH providers in Israel and their alignment with evidence-based practice standards.

Methods: 36 Arab FCCH providers (100% female and Muslim, mean age 47.2 years) completed a survey adapted from the Nutrition and Physical Activity Self-Assessment for Child Care and Environment and Policy Assessment and Observation–Self-Report tools. The survey assessed foods and beverages served, feeding practices, nutrition education, PA opportunities, and ST behaviors. Data were analyzed descriptively using frequencies and percentages.

Results: Over 67% of providers avoided serving high-fat meats, fried potatoes or fried meats; however, 67% served fruit juice $\geq$ one/week (36.1% did daily) and 80.6% served sweets $\geq$ once/week. Over half (58.3%) used food as a reward, though nearly all avoided using food as punishment. Negative bottle-feeding practices for infants were common: 75.0% reported propping infants' bottles $\geq$ twice daily; 75.0% reported adding cereal to infants' bottles $\geq$ once per day and 61.1% reported using bottles to soothe infants before other methods. During meals, 61.1% reported televisions were off, and only 5.6% reported device use. Most (61.1%) led planned nutrition education activities $\geq$ once/week and 97.3% agreed that they talk to children about the importance of healthy eating. Most (72.2%) led lessons focused on building motor skills $\geq$ once/week, and 88.8% reported often teaching children about being physically active.

Conclusion: Practices of Arab FCCH providers in Israel largely aligned with recommendations, including minimal fried food use, and engagement in nutrition education and PA. Nonetheless, frequent provision of juice, sweets, using food as a reward and bottle feeding practices remain areas for improvement. Culturally tailored interventions may strengthen consistent implementation of best practices in feeding, PA, and ST environments among FCCH providers.

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SO.2.12-06

When Care Feels Like Home: Perceived Psychosocial Outcomes of a Community-based Perinatal Social Nutrition Intervention

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Perinatal social nutrition is an intervention approach tailored to address specific barriers faced by socioeconomically vulnerable pregnant individuals, such as low income, precarious immigration status, and lack of health insurance, by offering individual consultations, group workshops and food assistance. It aims to reduce health inequities, by providing fair access to nutritional perinatal care. This study aims to explore the psychosocial outcomes of a perinatal social nutrition intervention. This research is conducted in collaboration with Alima, Perinatal Social Nutrition Centre, which is a Montreal-based (Canada) community organization that provides this type of intervention.

Methods: Semi-structured individual interviews are conducted in two phases: (1) with Alima care providers (which are mostly registered dietitians); and (2) with clients who received services at Alima in the last year. Sociodemographic data is collected from client files. The interview guides address Alima's approach, topics covered during consultations and perceived psychosocial outcomes. Interviews are then transcribed, revised and analyzed using an inductive thematic approach to identify and organize recurring themes using NVivo software.

Results: The first phase with care providers is completed (n=5). Data analysis identified multiple non nutrition related themes that are frequently addressed by care providers, such as childbirth preparation (e.g. signs of labor), pregnancy rights (e.g. work-related rights, access to healthcare), and basic rights (e.g. immigration status, housing rights). They mention that they address these themes because they sometimes are one of the only healthcare professionals overseeing the pregnancy, which highlights the importance of access to this type of healthcare and of building a trusting therapeutic alliance with clients. Practitioners also described Alima as a welcoming and empowering space, which values clients' autonomy in determining their own priorities, so that the intervention is tailored to their individual needs. The second phase with clients (planned n=15) will be completed by Spring 2026, to enhance the results collected in the first phase.

Conclusion: This study acknowledges how nutritional interventions using perinatal social nutrition can extend beyond the field of nutrition, contributing to the empowerment of clients. On a larger scale, these findings could inspire other healthcare organizations to adopt similar approaches with socioeconomically vulnerable populations.

SO.2.12-07

Small Bodies – Big Questions (SB-BQ): Early-life Behaviors, Environments, and Infant Body Composition Trajectories within an Exposome Framework

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: The increasing prevalence of adiposity poses a major public health challenge. Evidence suggests that rapid weight gain in the first six months of life markedly increases the risk of obesity, metabolic, and cardiovascular diseases later on. However, the underlying mechanisms remain poorly understood, as most research relies on BMI rather than direct measures of body composition and fat distribution. The SB-BQ study aims to identify behavioral, biological, and environmental determinants of infant adiposity trajectories within the first year of life. The study applies a holistic **exposome framework**, integrating precise body composition measures with objective assessments of movement behavior, sleep, nutrition, and environmental exposures. The innovative integration of multiple domains across

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five detailed measurement points allows for the creation of comprehensive, longitudinal **body composition and growth trajectories** to reveal early-life pathways of adiposity risk.

Methods: SB-BQ is a prospective cohort study including **120 parent-infant dyads** recruited during pregnancy. Infants are followed from birth to 12 months, with five standardized assessments. Air-displacement plethysmography and high-resolution ultrasound determine **total fat and lean mass**, as well as **regional fat distribution**. The **NAPPA wearable system** objectively measures posture, movement patterns (e.g., tummy time, sedentary behavior), and sleep in natural home environments. Questionnaires and sensors capture infant nutrition, parental feeding and activity practices, psychosocial well-being, and environmental exposures such as air quality, noise and light pollution. Furthermore, infants microbiome and metabolome, as well as breastmilk will be analyzed. **Multilevel and growth-curve modeling** will be used to estimate longitudinal body composition trajectories and explore associations with behavioral and environmental determinants.

Results: Data collection is ongoing. Preliminary analyses will summarize **baseline characteristics, variability of exposures**, and **early associations** between infant **movement, sleep, feeding practices**, and **adiposity indicators**, generating reference trajectories of fat and lean mass across the first year of life to identify early behavioral predictors of adiposity risk.

Conclusion: SB-BQ introduces an innovative, interdisciplinary, and systems-oriented approach to understanding early adiposity development. By linking objective phenotyping with behavioral and environmental data, this study will identify early **“windows of opportunity”** for effective, holistic obesity prevention and inform strategies to promote healthy growth and well-being from infancy onward.

SO.2.12-08

Understanding Weight Stigma in Preschool Settings: Perspectives from Preschool Educators

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: To examine how preschool educators perceive and respond to young children's talk about body, weight, and health, with a focus on how their reactions and interpretations may contribute to the early formation of weight bias and stigma.

Methods: Semi-structured interviews were conducted with preschool educators in Sweden (n=23; all female; mean experience=18.7 years; 78% with a university degree). Interviews were transcribed verbatim and analyzed using thematic analysis.

Results: Three main themes, encompassing several subthemes each, were identified in the thematic analysis. The first theme, Neutral understanding of bodies, included the subthemes *Friendship beyond body size* and *Innocent curiosity*. Under this theme, educators perceived conversations about weight, bodies and health as neutral, framed as curious questions without intent to harm and with limited impact on children's social relationships. The second main theme, The emergence of weight bias, included the subthemes *Weight stigma with intention* and *Feeling different*. Educators described instances of intentional weight stigma, along with early signs that such attitudes may already be internalized by children. The third main theme, Meanings and responsibilities around children's bodies, includes the subthemes *Challenging early weight labelling*, *Extending weight stigma to parents*, and *Sensitive topics amid limited support*. Educators expressed concern about labelling children as having overweight or obesity, while others recognized childhood obesity as a legitimate concern, often attributing it to parental practices. They felt a strong responsibility to model respectful language and inclusive practices, yet lack structured guidance.

Conclusion: While educators perceive children's curiosity about bodies as generally neutral, they report observations suggestive of early weight bias and stigma. Educators feel responsible to protecting children from harmful experiences, but often lack clear guidance. These findings underscore the need for training and institutional support to help educators address weight and health sensitively, foster positive body image, and reduce potential weight bias in this setting.

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SO.2.12-09

Navigating Infant Feeding Together: The Role of Parent-educator Relationships in Early Childhood Education and Care Settings

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool

Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: In Australia, almost half of children aged 0 to 5 attend Early Childhood Education and Care (ECEC) services. Many commence at around 6 months of age, coinciding with the time when solid foods are typically introduced. ECEC therefore represents a key setting in which young children are introduced to food and develop early eating habits. This study explored factors influencing ECEC educators' infant feeding practices, with a focus on how they are affected by their relationships with parents and families.

Methods: Participants were ECEC staff who worked in or made decisions relating to the infant room in their service, and parents of children aged 3 to 24 months attending ECEC services. Separate online focus groups were conducted with educators and parents. The discussion guide included questions on barriers and enablers to implementing the Australian Infant Feeding Guidelines and responsive feeding practices, ECEC service/ educator – parent communication, and ways both groups could support each other in promoting best practice infant feeding. Thematic analysis was conducted, via an iterative inductive coding process.

Results: Seven online focus groups were conducted: four with ECEC educators (n= 17) and three with parents (n= 19). Most educators preferred to follow each parent's preference on practices such as using the baby-led weaning method, texture progression and introducing new foods. Educators reported adopting this approach because they receive conflicting information and guidance on infant feeding and are unsure of which sources to trust. Moreover, they expressed feeling uncertain about how to approach conversations when their views on infant feeding did not align with families; and suggested that having clear service policies or evidence regarded as credible by both groups would help them navigate these situations. In contrast, most parents expressed high levels of trust in educators' knowledge and skills to provide appropriate and safe nutrition for their children while in care.

Conclusion: The relationship between ECEC educators and parents is an important yet underexplored influence on infant feeding practices. Strengthening ECEC service-level structures, through clear policies, professional development, and consistent communication channels with parents, may enhance educators' confidence in their expertise and support consistent implementation of best practice infant feeding.

SO.2.12-10

The Artichoke Model: Informing the Development of a Best Practice Guide for ECEC Food Environments

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool

Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: ECEC settings play a crucial role in shaping young children's lifelong food behaviours, as many children spend extended hours in care and receive up to half of their daily food intake there. ECEC food environments are complex, encompassing not only *what* food is offered, but also *how* it is served, and the influence of broader *environmental* factors. This research describes the development of a comprehensive, conceptual framework comprising the key components considered essential to foster positive and supportive food environments within ECEC settings.

Methods: Eleven experts with extensive experience in ECEC food environments participated in a 2-day co-design workshop in Brisbane, Australia in 2024. Participants represented diverse perspectives, including research (n=5), practice (n=4), and policy (n=2). Through collaborative discussion and visual mapping, participants identified and

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refined core components considered essential for positive ECEC food environments. The resultant framework, named the Artichoke Model, was subsequently shared with the National Nutrition Network – ECEC, a community of practice comprising 36 members from research, practice, government, and non-government sectors. Iterative feedback informed multiple revisions, leading to the final model.

Results: The Artichoke Model positions the child at the centre, surrounded by three interconnected layers: the “what”, “how”, and “environmental levers.”

- *What:* Menu and meal quality, food safety and allergy management, food education and curriculum, and environmental sustainability.
- *How:* Mealtime environment and practices, staff knowledge and training, and family engagement.
- *Environmental levers:* Policy, social-emotional wellbeing and cultural practices, food security, organisational readiness and capacity, and continuous quality improvement.

Conclusion: Grounded in systems thinking and equity principles, the Artichoke Model offers a structured, interdisciplinary framework for fostering a whole-of-service approach to enable positive, inclusive, and sustainable ECEC food environments. The Artichoke Model is now being applied to the development of a “*Best Practice Guide for ECEC Food Environments*”, co-designed with researchers, practitioners, educators, allergy specialists, and experts in trauma-informed approaches for inclusive and emotionally safe mealtimes. This presentation will introduce the Artichoke Model, and present elements of the Best Practice Guide, scheduled to launch in Australia in August 2026.

SO.2.12-12

A Qualitative Study Exploring How Early Child Education and Care Settings in England Respond to Child Food Insecurity

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool
Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: 2.3 billion people globally experienced moderate or severe food insecurity in 2024. The cost of living crisis has pushed many more people into food insecurity, as incomes have not risen enough to match the cost of essentials. In particular, households with children under 4 years of age in the UK were more likely than households with school-age children or no children to experience food insecurity. This study aimed to explore how early child education and care (ECEC) settings are responding to food insecurity in light of the cost-of-living crisis and what food insecurity policies and interventions would be feasible and acceptable to implement.

Methods: A qualitative study design was adopted, utilising 1-1 semi-structured interviews with 17 staff in early child education and care settings in areas of deprivation across England. Interview transcripts were analysed using an inductive reflective thematic analysis approach.

Results: Four main themes emerged:

- (1) early child education and care settings burdened by food insecurity,
- (2) cost of living impacting food quality and quantity in early child education and care settings,
- (3) early child education and care settings’ response to food insecurity, and
- (4) transforming food insecurity through early child education and care settings.

We found that early child education and care settings are paying considerable attention to this issue and are tirelessly working to prevent and alleviate the impacts of food insecurity on the young children attending and their families. Participants suggested a range of support strategies that may be beneficial, including: food distribution to attending families through early child education and care settings, free meal provision for attending children and skills education and classes for attending families.

Conclusion: This study demonstrated that ECEC settings in England are not funded or set up to respond to food insecurity; however, they are well placed to identify it and have the interest and connections to potentially implement effective food insecurity strategies for young children and families attending. However, more funding and support are needed at the government level. More research is needed to understand how these strategies, suggested by early years settings, have been and could be perceived by the families attending.

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SO.2.12-13

Contexts and Motivations for Screen Viewing among Socially Vulnerable Families with Young Children: A Qualitative Study within the ECAIL Trial

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SO.2.12 Early care and education: Environments of Care: Nurturing Health from Home to Preschool

Room 3, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Screen time in young children is associated with lower physical activity, higher consumption of unhealthy foods, and adverse health outcomes. Despite national guidelines recommending no screen viewing before age 2 (U.S.) or age 3 (France), early exposure remains common, particularly among socially disadvantaged families. Understanding the contexts, motivations, and barriers surrounding screen viewing is essential to inform realistic and equitable public health interventions. This qualitative study, embedded within the ECAIL randomized controlled trial among socially vulnerable families, explored parental attitudes, contexts, and practices related to screen viewing during toddlerhood.

Methods: The ECAIL trial recruited 607 pregnant women from two maternity wards in northern France, followed by dietitians until their child's second birthday. Participants in the intervention arm receive personalized support, including breastfeeding promotion, practical advice on balanced nutrition and active lifestyles, and financial incentives to access kitchen utensils and healthy foods at reduced prices. Semi-structured home interviews were conducted with 54 mothers (32 intervention, 22 control) when their child was aged 16–26 months. Guided by the COM-B framework (Capability, Opportunity, Motivation), interviews lasting 19–169 minutes were transcribed verbatim and analyzed thematically using NVivo software.

Results: Most mothers were aware that screen viewing should be limited for young children. Nevertheless, screen practices varied widely—from strict prohibition to negotiated or self-regulated use—reflecting differing constraints and coping strategies. Four main contexts of screen viewing emerged:

- (1) routine use during meals or busy times,
- (2) recreational viewing by children,
- (3) parental screen use in the child's presence, and
- (4) co-viewing activities (e.g., video calls, family programs).

Screens were mainly used for convenience or child appeasement rather than developmental purposes. Environmental and family factors (e.g., older siblings, housing conditions, access to outdoor space) also influenced practices.

Conclusion: Mothers described their child's screen viewing as routine and often unavoidable, despite recognizing its drawbacks. Most sought to define a “reasonable” or “healthy” use, balancing ideals with daily realities. These findings highlight the need for public health recommendations that move beyond prohibition toward practical, risk-reduction guidance—helping parents identify acceptable uses, appropriate content, and the value of co-viewing in mitigating potential harms.

SO.2.13-01

Can an Anti-inflammatory Diet Offset the Increased Cancer Risk Associated with Night Shift Work?

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Night shift work has been linked to increased risks of breast, prostate, and colorectal cancers. We aimed to examine the combined effects of night shift work and dietary inflammatory potential on the risk of four common cancer types.

Methods: We analyzed data from the MCC-Spain study, a population-based multi-case-control study of four tumor types, including 4325 cancer cases (colorectal, breast, prostate, and stomach) and 3560 controls recruited between 2008–2015 across 12 Spanish regions. Dietary data from food frequency questionnaires collected at recruitment were used to calculate the energy-adjusted Dietary Inflammatory Index (E-DII) score, which defines the inflammatory potential of the diet. The median E-DII among controls (−0.564) defined anti- and pro-inflammatory diet. Lifetime occupational histories provided information on night shift work, including work hours, cumulative duration (years), and frequency (average number of night shifts/month) for jobs held >1 year. Night shift work was defined as at least 3 hours between midnight and 6:00 a.m. Unconditional logistic regression estimated odds ratios (OR) and 95% confidence intervals (CI) for the joint associations of E-DII (anti- vs. pro-inflammatory diet) and night shift work (never vs. ever, <15 vs. ≥15 years, and <3 vs. ≥3 nights/month) for each cancer type, adjusting for potential confounders.

Results: Night shift workers showed higher dietary inflammatory potential, energy intake, and consumption of red meat, alcohol, and sugar than day workers. There was no significant interaction between E-DII and night shift. There was no significant association between night work and cancer among participants with anti-inflammatory diet. A pro-inflammatory diet was associated with elevated odds of colorectal and stomach cancer in both day workers and night workers, whereas it was only associated with breast and prostate cancer risk in night shift workers. When considering intensity of night shift work, there was no protective effect of anti-inflammatory diet for breast and stomach cancer with high shift work intensities (≥3 nights/month).

Conclusion: Night shift work combined with a pro-inflammatory diet increased colorectal, breast, prostate, and stomach cancer risk. Anti-inflammatory diets may mitigate cancer risk among night shift workers, particularly with low exposure.

SO.2.13-02

Exercise for the Mitigation of Cancer Therapy-related Cardiac Dysfunction in Breast Cancer Patients Treated with Anthracyclines: A Systematic Review and Meta-analysis

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Cancer therapy-related cardiac dysfunction (CTRCD) is a major long-term complication in breast cancer patients treated with anthracycline-based chemotherapy. Exercise has been proposed as a non-pharmacological strategy to reduce cardiotoxicity, yet evidence remains inconsistent and disease-specific insights are limited. This systematic review and meta-analysis aimed to evaluate the effects of long-term exercise interventions on key markers of CTRCD in breast cancer patients undergoing anthracycline treatment. The innovation of this study lies in its strict focus on anthracycline-treated breast cancer populations, minimizing clinical heterogeneity and providing more precise evidence to guide exercise prescription in cardio-oncology.

Methods: A systematic search of PubMed, Scopus, Cochrane CENTRAL, and Web of Science was conducted for randomized controlled trials (RCTs). Eligible studies included anthracycline-treated breast cancer patients participating in ≥12-week exercise programs (aerobic, resistance, or combined), compared to usual care. Outcomes included left ventricular ejection fraction (LVEF), global longitudinal strain (GLS), cardiac troponin I (cTnI), cardiac troponin T (cTnT), and N-terminal prohormone of brain natriuretic peptide (NT-proBNP). Effect sizes were pooled using mean difference (MD) or standardized mean difference (SMD) with 95% confidence intervals (CI). Six RCTs involving 360 participants met inclusion criteria.

Results: Meta-analytic findings showed no statistically significant differences between exercise and control groups for LVEF (SMD = 0.69; 95% CI: −0.56 to 1.94; p = 0.21), GLS (MD = 0.32%; 95% CI: −0.27 to 0.91; p = 0.28), cTnI (SMD = −1.75; 95% CI: −15.52 to 12.02; p = 0.35), cTnT (SMD = −0.07; 95% CI: −0.44 to 0.30; p = 0.70), or NT-proBNP (SMD = −3.73;

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95% CI: -20.07 to 12.62; $p = 0.43$). Heterogeneity was high for several outcomes.

Conclusion: Long-term exercise did not significantly improve standard cardiac markers of CTRCD during anthracycline treatment. While exercise remains essential for overall health and functional capacity, its cardioprotective role against anthracycline-induced damage is not yet conclusive. Findings highlight the need for optimized exercise prescriptions, advanced cardiac assessment (e.g., 3D echocardiography, LVEFpeak), and incorporation of novel biomarkers in future trials. This work contributes to refining exercise-based cardio-oncology interventions and supports the development of evidence-based exercise guidelines for this high-risk population.

SO.2.13-03

Testing a Snackivity™ Based Physical Activity Intervention in Young People Diagnosed with Cancer: Feasibility Randomised Controlled Trial and Nested Qualitative Study

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Regular physical activity may reduce the side effects of cancer and associated treatment for young people diagnosed with the disease. However, high levels of physical inactivity are common in this population, therefore health behaviour interventions are required to increase their physical activity and improve health outcomes. This randomised controlled trial with a nested qualitative study assessed the feasibility and acceptability of a Snackivity™ based intervention to promote physical activity in young people diagnosed with cancer.

Methods: Thirty-one participants aged between 13-24 years with a cancer diagnosis were randomised (2:1) to a Snackivity™-C intervention or comparator group (physical activity leaflet) for 8-weeks. Intervention participants were encouraged to complete 2-5-minute bouts of moderate-to-vigorous intensity known as 'activity snacks' and were provided with a bespoke mobile phone app (SnackAPP) linked to a Fitbit device. Intervention participants also received support from family members and/or friends as well from physical activity champions. Feasibility and acceptability were assessed using stop-go traffic light criteria (green/amber/red) for recruitment rate, adherence to 2-5-minute 'activity snacks' per/day, total minutes of physical activity (all intensities), and perceived helpfulness of the Snackivity™-C intervention to increase physical activity. Semi-structured interviews with eight participants and two family members were conducted to explore opinions and experiences of the intervention from their perspective.

Results: Recruitment met the amber criteria with 31 participants randomised, but in 10 months, against the target of 39 participants in 6 months (79%). Adherence to 2-5 mins 'activity snacks' was red with 8/21 (38%) participants completing an average of ≥ 4 bouts per/day. Total physical activity adherence met the green criteria with 16/21 (76%) participants completing ≥ 90 minutes of physical activity per/week. 14/21 (67%) participants reported the intervention helped them to increase their physical activity meeting the amber criteria. Semi-structured interviews indicated the intervention was appealing, feasible and increased participants' confidence for physical activity.

Conclusion: The Snackivity™-C intervention was feasible, but acceptability was mixed. Additional work is required to recruit participants more efficiently and to further increase completion of activity snacks. The Snackivity™-C intervention could be useful in improving the health of young people diagnosed with cancer.

SO.2.13-05

Barriers to Physical Activity in Child and Adolescent Cancer Survivors and Controls: A PACCS Study

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: A physically active lifestyle may reduce the increased risks of cancer- and treatment-induced late effects in childhood cancer survivors (CCS). However, few CCS meet the physical activity (PA) guidelines of ≥ 60 min/day of moderate-to-vigorous physical activity (MVPA). This study investigated self-reported barriers to PA in a European sample of young CCS and compared them to age- and sex-matched controls.

Methods: CCS and controls were recruited from Norway (Oslo and Bergen) and Switzerland (Basel) as part of the Physical Activity in Childhood Cancer Survivors (PACCS) study. We included CCS ≥ 1 -year post-treatment, aged 9–18 years. Barriers to PA were assessed using 15 statements reflecting known PA barriers, rated on a 5-point Likert scale (1=totally disagree, 5=totally agree). Mixed ordinal regression models provided odds ratios (OR) and 95% confidence intervals (CI) to compare barriers between survivors and controls, and between male and female survivors.

Results: The study included 151 survivors (mean age 13.4 ± 2.6 years; 54% male) and 112 controls (13.3 ± 2.6 years; 50% male). Survivors' mean time since diagnosis was 8.2 ± 3.6 years; 50% leukemia, and 97% had received chemotherapy. Compared to controls, survivors reported higher odds on these barriers: "I'm not as good at it as before" (OR: 1.72, 95%CI 1.02-2.91), "My body feels too heavy" (OR: 1.73, 95%CI 1.00-2.96), "I'm in bad physical shape" (OR: 1.68, 95%CI 1.03-2.73), and "I'm too tired" (OR: 1.96, 95%CI 1.23-3.12) (all $p < 0.05$). Female survivors reported higher odds than males on these barriers: "I'm not as good at it as before" (OR: 2.09, 95%CI 1.10-3.99, $p < 0.03$), "I'm in bad physical shape" (OR: 2.19, 95%CI 1.18-4.08) and "I can't keep up like I used to" (OR: 2.10, 95%CI 1.08-4.08) (all $p < 0.05$). Barriers such as pain, bodily shyness, and protective parents did not differ between survivors and controls.

Conclusion: CCS reported higher cancer-related barriers to PA compared to controls, indicating cancer's late effects influence PA at an early age. Female survivors faced greater challenges, emphasizing the need for tailored PA interventions, particularly for girls. Barriers such as pain, bodily shyness, and protective parents were comparable between survivors and controls.

SO.2.13-07

Association between Device Measured Physical Activity and Hospitalisations in Patients Diagnosed with Cancer Assessed Using UK Biobank Data

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: As the incidence of cancer rises and medical treatments improve, people are living longer with and beyond cancer. However, increasing cases are adding pressures on the healthcare system and its resources. It is estimated that on average cancer patients spend approximately 25 days in hospital as an inpatient in the first year following their diagnosis. However, emerging evidence from small scale studies suggest that the overall length of stay in hospital during cancer treatment could be reduced by regular physical activity. To our knowledge, the proposed study is the first to use UK Biobank data to examine the associations between device measured physical activity and the total number and subsequent length of inpatient hospitalisations among adults with a cancer diagnosis.

Methods: This retrospective cohort study includes data from the UK Biobank that is linked to Hospital Episode Statistics and cancer registries. For this study eligible participants includes those who have had a cancer diagnosis and provided valid (3 days of wear time) accelerometer measured physical activity data within 12 months of their cancer diagnosis. The association between device measured physical activity and hospitalisations in patients diagnosed with cancer will be analysed using logistic regression. All statistical models will be adjusted for age at cancer diagnosis, sex, smoking status, ethnicity and deprivation index. Effect estimates will be reported with 95% confidence intervals.

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Results: Of the 501,936 participants in the UK Biobank study, 117,405 have received a diagnosis of cancer, of whom 998 have provided valid accelerometer based physical activity data within 12 months of their diagnosis and will be included in analyses. On average eligible participants had a mean age of 59 years, 53% were male and 52% were non-smokers. Complete results will be presented at the conference.

Conclusion: An association between physical activity, inpatient hospitalisations and an indication of cost savings will contribute to the wider rationale for the inclusion of the routine promotion of physical activity within the cancer care treatment pathway for the benefit of patients, staff and healthcare resources.

SO.2.13-06

Familial Perceptions of Children's Sleep and Fatigue during Treatment for Pediatric Acute Lymphoblastic Leukemia and Opportunities for Intervention

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: This study aimed to explore the impact of acute lymphoblastic leukemia (ALL) and its treatment on the sleep and fatigue of pediatric patients who are currently in maintenance therapy. We explored the circadian environment and circadian-related health behaviors of pediatric patients with ALL and their parents to identify opportunities for intervention to improve sleep and cancer-related fatigue. The guiding research question guiding was, "What factors (e.g., treatment related and environmental) influence the sleep patterns, cancer-related fatigue, and circadian disruption of pediatric patients with ALL?" Results will inform the development of an intervention to improve cancer-related fatigue through improving circadian rhythmicity by targeting daily light exposure and sleep patterns.

Methods: We conducted a semi-structured interview with 11 pediatric ALL patients aged 5.2-14.9 years and their caregivers recruited from a pediatric oncology hospital. Interviews were transcribed verbatim and structured rapid analysis was used to identify key categories.

Results: Findings revealed multiple factors that influence the sleep patterns, cancer-related fatigue, and circadian disruption of pediatric patients with ALL. Using the findings as a guide, intervention strategies include encouraging a consistent sleep schedule even on weekends, minimizing evening light exposure in the bedroom, encouraging daytime light exposure through daily outside activity, strengthening existing bedtime routines and reducing screen use before bed. There was a tendency for children to initiate co-sleeping during treatment and some parents noted a need for help transitioning to independent sleeping once children were through the more difficult phases of treatment. Most patients and parents reported receiving little to no guidance from their clinical care team on managing cancer-related fatigue during this important stage of their cancer treatment, identifying an important gap in their treatment and recovery.

Conclusion: Findings highlight the complexities and nuances of cancer-related fatigue and sleep-related impairments and disruptions encountered by families of pediatric patients recovering from ALL. Findings indicate there is a need for a context-sensitive intervention to support pediatric ALL patients' continued recovery by addressing issues related to fatigue, sleep hygiene, and circadian rhythm.

SO.2.13-08

Activity Profiles and their Correlates in Patients with Localized Renal and Colorectal Cancer

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Patients with cancer are recommended to be physically active and limit sedentary behaviour (SB) before, during, and after cancer treatment. This study aimed to investigate activity profiles in patients with localized renal cell carcinoma (RCC) and colorectal cancer (CRC) and correlates of these activity profiles that could help inform which patients are more likely to be inactive after treatment.

Methods: Baseline data from two multicentre prospective cohort studies were used. The ReLife (n=326) and EnCoRe (n=358) studies objectively measured physical activity (PA) and SB shortly after treatment completion using accelerometers. Latent profile analyses were performed to determine distinct activity profiles and participants were assigned to their most likely profile (%n). To identify correlates of activity profiles, multinomial regression analyses were performed to obtain odds ratio's (OR) and corresponding 95% confidence intervals (CI). Analyses were performed for RCC and CRC separately.

Results: Patients with RCC were on average 63 years old and 71% were men. Patients with CRC were on average 67 years old and 68% were men. In both cancer populations, three distinct activity profiles were identified: a most sedentary (RCC:30%, CRC:16%), an average (RCC:51%, CRC:53%), and a highly active profile (RCC:19%, CRC:31%). In the most sedentary profile for RCC and CRC, mean sedentary time was 11.9 h/day and 13.1 h/day, while mean PA time was 73 min/day and 44 min/day, respectively. Women were less likely to belong to the most sedentary profile for RCC (OR=0.39, 95%CI=0.19-0.78) and more likely to belong to the highly active profile for CRC (OR=2.62, 95%CI=1.40-4.90). Patients with higher educational levels were less likely to be assigned to the highly active profile (high vs low educational level: RCC OR=0.31, 95%CI=0.13-0.76; CRC OR=0.46, 95%CI=0.22-0.96). Patients with higher BMI were less likely to be assigned to the highly active profile (RCC OR=0.91, 95%CI=0.83-0.99; CRC OR=0.92, 95%CI=0.86-0.99).

Conclusion: Patients with RCC and CRC are a mixed group including individuals that are highly sedentary and individuals that are highly active. However, even in the most sedentary profiles patients were physically active. Men, patients with higher education, and patients with higher BMI were more often assigned to less favourable activity profiles.

SO.2.13-09

Associations between the American Institute for Cancer Research/World Cancer Research Fund Lifestyle Behavior Score and Self-reported Health Status among Low-income Households

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: The American Institute for Cancer Research (AICR) and World Cancer Research Fund (WCRF) convert their diet and lifestyle guidelines into a score quantifying adherence to 8 of 10 Cancer Prevention Recommendations. Higher adherence to these recommendations is associated with reduced cancer risk, highlighting the potential impact of behavior-focused interventions. Despite this well-established causal link, it is not clear how these associations manifest across varied populations with low-income. This secondary analysis of the What's on Your Plate (WOYP) study evaluates the association between the AICR/WCRF score and self-reported health status among households with low-income.

Methods: In January 2024, Rhode Island launched the statewide "Eat Well Be Well (EWBW)" program, a fruit and

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vegetable (FV) incentive initiative for households participating in the Supplemental Nutrition Assistance Program (SNAP). EWBW offers a \$0.50 rebate for every \$1.00 spent on FV at participating retailers, with a monthly cap of \$25. WOYP evaluated the program's impact on dietary quality by employing longitudinal pre-post study design with a comparison group (Connecticut). Eligible participants were English/Spanish-speaking SNAP-enrolled adults aged 18+ with access to email/text messaging. This analysis used baseline data from 1,079 non-pregnant adults with complete AICR/WCRF scores. Dietary intake was assessed with a validated semiquantitative food frequency questionnaire and health status was self-reported via survey. AICR/WCRF scores (0- 7 points) were calculated using the published algorithm, with higher scores indicating healthier behaviors. Mean scores and correlations with self-reported health status were calculated in R studio.

Results: Participants had a mean age of 36 years, were 92% female, and 43% Hispanic, with a mean overall AICR/WCRF score of 3.14 ± 1.19 . There was a positive correlation between the AICR/WCRF score and self-reported health status ($r=0.20$, $p<0.0001$). Lowest scores were observed among those with poor health status (2.63 ± 1.22) and highest among those with excellent health (4.01 ± 1.34); differences between poor, fair, good, very good, and excellent health status were significant ($p<0.0001$).

Conclusion: The AICR/WCRF score distinguished between those with 'poor/fair' versus 'very good/excellent' health. These findings support the score's utility among populations with low-income and provide a foundation for evaluating whether changes in adherence translate to improved health outcomes.

SO.2.13-10

Daily Motivation and Fatigue Predict Accelerometer-Measured Physical Activity in Older Cancer Patients: An Ecological Momentary Assessment Study

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Older adults with cancer are underrepresented in clinical trials. This population is predominantly inactive, especially during treatment. Ecological momentary assessment (EMA) is a frequently used approach to collect repeated measures in real time in a naturalistic environment, such as motivation toward health behaviors. This study aims to observe motivational predictors related to physical activity among older patients with cancer undergoing daily EMA and accelerometers.

Methods: At baseline, older patients with cancer (≥ 70 years old) completed physical function assessments, malnutrition identification, and a comprehensive geriatric assessment. Afterwards, participants took part in an EMA data collection and wore a hip-worn triaxial accelerometer (ActiGraph GT3X-BT) for two weeks. The EMA questionnaires have been sent three times per day via smartphones or computers: in the morning, at midday and in the evening. Intention, affective and instrumental attitudes, social norms, perceived behavioral control and fatigue were collected in the morning and at midday. Physical activity was measured continuously by the accelerometer, time segments have been defined corresponding to the morning and afternoon. The analyses were performed using Multilevel Vector Autoregressive (mIVAR).

Results: 41 patients were recruited and data from 34 participants (mean age = 80 years) were eligible. Half of these participants underwent chemotherapy during the 2-week data collection period. The average level of compliance with the EMA was 81%, while the average level of compliance concerning the accelerometers was 77%. Patients performed an average of 173 minutes of light-intensity physical activity and 18 minutes of moderate-intensity physical activity (intensity threshold = 70mg) per day during data collection. The mIVAR results highlighted the potential of intention to positively predict physical activity at moderate intensity ($\beta = 0.19$, $p = 0.01$). This same behavior predicts itself negatively at the subsequent time point ($\beta = -0.13$, $p = 0.04$). Concerning low-intensity physical activity, fatigue was a negative predictor, and the only one ($\beta = -0.10$, $p = 0.04$).

Conclusion: Our repeated measures protocol highlighted the potential of intention and fatigue to predict physical activity levels throughout the day among older patients with cancer, depending on the intensity of practice.

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SO.2.13-11

Daily Motivation Influences Dietary Intake in Older Cancer Patients: An Ecological Momentary Assessment Study

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Older adults with cancer struggle to maintain recommended levels of nutrition, especially during treatments. Ecological momentary assessment (EMA) is an approach commonly used to collect repeated measures in real time in a naturalistic environment, such as motivation. This study aimed to identify motivational predictors related to dietary intake and to explore potential subgroups of patients with similar patterns of relations between motivation and nutrition intake among older patients with cancer.

Methods: Older patients with a cancer (≥ 70 years old) completed malnutrition identification, physical capacity assessments and a comprehensive geriatric assessment with G-code. After that, participants engaged in a 2-week EMA data collection. EMA questionnaires were delivered via smartphones or computers. Motivational constructs based on the Theory of Planned Behavior and fatigue were collected in the morning and at midday. Dietary intake was collected at midday and in the evening. The data were analyzed with Multilevel Vector Autoregressive Models and k-means clustering.

Results: 41 patients were recruited and data from 34 participants (mean age = 80 years) were eligible. Half of these participants underwent chemotherapy during the 2-week data collection period. With a mean compliance rate of 80% in this sample, EMA method offers a framework for exploring the temporal evolution and contextual variability of psychological mechanisms. mIVAR results revealed that higher intention and perceived behavioral control predict higher dietary intake within individuals, indicating that daily fluctuations in these motivational variables influence their following dietary intake. We obtained three clusters of participants ($n = 4, 22, 8$ respectively), based on each individual's β coefficients predicting dietary intake from the temporal effects of the mIVAR. Intention and perceived behavioral control positively predicted dietary intake across all clusters, while the role played by attitudes differed between clusters.

Conclusion: Our repeated measures protocol highlighted the potential of motivational variables from the Theory of Planned Behavior to predict dietary intake at the subsequent time point among older patients with cancer. Future research should explore whether adherence to dietary interventions could be facilitated by promoting higher and more stable levels of perceived behavioral control and intentions and how to optimize attitudes, particularly during chemotherapy.

SO.2.13-12

Fruit and Vegetable Consumption, Plasma Carotenoid Concentrations and Risks of Recurrence and Progression in Patients with Non-muscle-Invasive Bladder Cancer

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

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Purpose: Fruit and vegetable consumption may decrease bladder cancer risk, but research on its relation to outcomes of non-muscle-invasive bladder cancer (NMIBC) is scarce. Therefore, we investigated the association of fruit and vegetable consumption, as well as plasma carotenoid concentrations, with risk of recurrence and progression in patients with NMIBC.

Methods: Data from patients with newly diagnosed NMIBC between 2014-2021 from the prospective multi-centre cohort UroLife was used. Self-reported information about diet using a Food Frequency Questionnaire, as well as information on other lifestyle factors, was collected at 3 and 15 months after diagnosis (n=1,306). Carotenoid concentrations were measured in non-fasting heparin plasma collected at 3 months after diagnosis (n=850) and log₂-transformed for analyses. Multivariable proportional hazards regression analyses were performed to obtain hazard ratio's (HRs) and 95% confidence intervals (CIs) for the association of fruit and vegetable consumption (per 100 g/day), plasma carotenoid concentrations and risks of recurrence and progression.

Results: Median follow-up time was 4.7 years, 466 patients had at least one recurrence, and 155 showed stage and/or grade progression. Total fruit and vegetable consumption at 3 months after diagnosis was inversely associated with recurrence risk (HR=0.91, 95%CI 0.85, 0.99). Associations for vegetable (HR=0.87, 95%CI 0.76, 1.00) and fruit consumption (HR=0.92, 95%CI 0.84, 1.02) were in the same direction. In stratified analyses, associations were only observed for Ta tumour stage, low or intermediate 2019 EAU risk group, and former or current smokers. For data collected at 15 months after diagnosis, only fruit consumption was inversely associated with recurrence risk (HR=0.88, 95%CI 0.76, 1.02). The correlation between fruit and vegetable consumption and plasma carotenoid concentrations was low (r=0.28). Total and individual plasma carotenoid concentrations were not associated with recurrence risk. No associations with progression were observed.

Conclusion: Higher fruit and vegetable consumption was associated with decreased recurrence risk in patients with less aggressive tumours and (ex-)smokers. Plasma carotenoids were not associated with recurrence risk. For progression, no associations were found. Future studies are needed to confirm our findings and further elucidate the role of fruit and vegetable consumption and related biomarkers with recurrence and progression risk of NMIBC.

SO.2.13-13

Vitamin D Levels and Risk of Non-muscle Invasive Bladder Cancer Recurrence and Progression: Observational and Mendelian Randomization Analyses

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SO.2.13 Cancer prevention and management: Exercise, Physical Activity, and Lifestyle Factors Across the Cancer Continuum

Room 4, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Patients with non-muscle invasive bladder cancer (NMIBC) have a high risk of tumor recurrence. Higher vitamin D [25-hydroxyvitamin D, 25(OH)D] levels have been associated with lower recurrence risks for various cancer types. Large studies in patients with NMIBC are lacking, and a potential causal link remains unclear. Therefore, this study investigated the association between both measured and genetically predicted 25(OH)D levels and the risks of recurrence and progression in patients with NMIBC.

Methods: We included 1,301 patients with newly diagnosed NMIBC between 2014-2021 from the prospective multi-center cohort UroLife. Total plasma 25(OH)D levels were measured at 3 (3mo) and 15 months (15mo) post-diagnosis, along with self-reported information on lifestyle factors. Clinical data were obtained from medical records. The association of 25(OH)D levels at 3mo, and as time-varying exposure at 3mo and 15mo, with the risks of first recurrence, multiple recurrences, and stage and/or grade progression was assessed using multivariable Cox proportional hazards models. Furthermore, two-sample Mendelian Randomization (MR) analyses were performed to assess the causal effect of 25(OH)D levels on recurrence and progression risk in 6 NMIBC cohorts (n=5,008), using summary data on 25(OH)D levels from publicly available genome-wide association studies for genetic instrument selection (n=401,460).

Results: Over a median follow-up period of 4.8 years, 464 patients had at least one recurrence and 153 had progression. Higher 25(OH)D levels were not associated with the risks of first recurrence, multiple recurrences, and progression (HR

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0.99, 95%CI 0.95, 1.03; HR 1.00, 95%CI 0.96, 1.04; HR 0.99 95%CI 0.92, 1.07 per 10nmol/L, respectively). By contrast, among vitamin D/multivitamin supplement users, higher 25(OH)D levels were associated with lower recurrence risk (HR 0.85, 95%CI 0.77, 0.94). Associations with recurrence or progression risk were not significant in stratified analyses according to other clinical and lifestyle factors. MR analyses showed no nominal significant associations between genetically predicted 25(OH)D levels and risks of recurrence and progression.

Conclusion: The findings from our observational study and causal MR analyses did not show a beneficial role of higher 25(OH)D levels for the risk of NMIBC recurrence and progression, but further research, particularly to explore the involvement of vitamin D supplement use, is warranted.

SO.2.14-01

Translating Evidence into Impact: A Systematic Review of Implementation Science Approaches in Nutrition and Physical Activity Interventions in Global Community-based Settings

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools
Room 5, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Mounting evidence shows that the translation and dissemination of efficacious nutrition and physical activity (PA) interventions into sustainable community practice remains limited. Implementation science (IS) uses contextual frameworks and models to provide a means to understand how implementation strategies impact implementation outcomes and population health. However, the use of IS in nutrition and PA interventions in community-based settings (e.g., schools, faith-based organizations, community centers) is not well understood. The purpose of this study was to systematically review evidence on the use of IS within nutrition and PA community-based interventions.

Methods: We conducted a systematic search following PRISMA guidelines across PubMed, Web of Science, Scopus, and PsycINFO in May 2025. Eligible studies implemented nutrition and/or PA interventions in community settings across the globe that explicitly applied an IS framework/model. For all eligible studies, data were extracted on study characteristics, setting, IS frameworks/models (e.g., RE-AIM, CFIR), implementation strategies (e.g., use of data experts, ongoing training opportunities), adaptations (e.g., changes in language used, duration of program sessions, additional materials or resources), and implementation outcomes (i.e., acceptability, adoption, appropriateness, feasibility, fidelity, cost, penetration, and sustainability).

Results: 49 eligible studies were identified. They were conducted in diverse countries, including Australia, Belgium, Denmark, Canada, Sweden, the United Kingdom, and the United States, and 39 (79%) of the articles were published since 2019. Studies varied in the types of community-based settings with the majority occurring in faith-based organizations (n=10, 20%), schools (n=10, 20%), senior centers (n=6; 12%), neighborhoods (n=5, 10%), and early childcare centers (n=4; 8%). Of the 49 interventions, 19 (39%) focused on PA, 17 (35%) on both nutrition and PA, and 13 (27%) on nutrition. Additional data extraction will be completed by December 2025. Final results will describe the IS frameworks/models used, common implementation strategies, and reported implementation outcomes.

Conclusion: Preliminary insights demonstrate increasing utilization of IS approaches in community-based nutrition and PA interventions, yet application of frameworks/models and reporting of implementation strategies and outcomes remain inconsistent. The completed synthesis will offer recommendations to advance methodological rigor and facilitate more effective translation of nutrition and PA interventions into community practice.

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SO.2.14-02

The PIECES Multi-site Comparative Case Study: Mixed Methods Implementation Evaluation of Adapting, Implementing and Tailoring Primary Cancer Prevention Programs in Diverse Contexts

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

Room 5, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Effective implementation of evidence-based programs in real-world settings depends not only on availability but also on the ability to adapt programs and tailor implementation strategies to local contexts. Although many frameworks describe these processes, practical guidance for applying them in practice remains limited. The PIECES toolkit was developed to address this gap by providing structured, theory- and evidence-informed guidance for selecting, adapting, implementing and evaluating primary cancer prevention (PCP) programs, including physical activity programs. We theorised that the toolkit contributes to strengthening implementation capacity and competencies of implementers through structured planning, collaborative learning, and evidence-informed decision-making.

Methods: In November 2025, the toolkit is being used by 25 implementation teams in Europe in settings such as public health institutes, local communities, schools, occupational health units, hospitals, and car companies. Teams use the toolkit to implement programs targeting key cancer risk factors including nutrition and physical activity behaviour. A mixed-methods evaluation examines usability, feasibility, satisfaction, and perceived impact, alongside contextual influences. The primary outcome is change in implementation competencies among toolkit users. Guided by the UK MRC Process Evaluation Framework and Proctor's implementation outcomes, data are collected through surveys, interviews, toolkit logs, and field notes at baseline and six-month intervals (2025–2027).

Results: Baseline data (N=69) showed that most toolkit users are healthcare professionals (65.2%) or healthcare researchers (35.2%), with limited prior implementation experience (58.0%) or formal training in implementation (63.8%). At baseline, users most frequently felt skilled in incorporating stakeholder perspectives (52%), using evidence to tailor strategies (49%), and assessing program-context fit (49%), while fewer reported confidence in measuring outcomes (27%), stakeholder engagement (26%), and developing implementation strategies (26%). Interviews revealed diverse recruitment strategies, strong motivation to structure implementation processes, and challenges related to time, experience, and contextual constraints such as funding and organizational alignment.

Conclusion: This study contributes to our understanding of how implementation support tools function across diverse contexts. At baseline, users indicated strongest skills in stakeholder inclusion and evidence use, and lower confidence in developing strategies and measuring outcomes. Initial insights highlight both enthusiasm and practical barriers to toolkit use. Long-term evaluation results will inform optimal toolkit use in practice.

SO.2.14-03

Bridging Child Health Research and Policy: Tools for State-level Knowledge Translation from the TX RPC Project

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

Room 5, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Translating research findings into policy is often hindered by significant delays and communication barriers. Strengthening collaboration between researchers and policymakers through effective communication tools can help bridge this gap, yet knowledge translation models remain limited. This abstract describes the tools and process evaluation metrics developed by the Texas Research-to-Policy Collaboration (TX RPC) Project to accelerate research-to-policy translation.

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Methods: Needs assessments were conducted with policymakers (n=43) to identify health policy priorities and anticipated needs before three Texas legislative sessions (2021, 2023, and 2025). Drawing on these data, prior studies, policy theory, and legislative practices, TX RPC developed and implemented tools and resources to enhance researcher–policymaker engagement. Process evaluation metrics, including the number of resources produced, website views, and event attendance, were used to assess reach.

Results: Legislators identified priority health policy areas, including food security, maternal and child health, chronic disease and cancer prevention, mental health, tobacco use, and healthcare access. In response, TX RPC created and disseminated key resources such as:

- Health Policy Resource Reports aligned with legislative priorities (food security = 15; maternal health = 8; mental health = 9; tobacco = 2; healthcare = 1);
- Texas Child Health Status Reports, translating state-level child health data from the Texas School Physical Activity and Nutrition (Texas SPAN) survey into accessible visuals and actionable recommendations (n = 12);
- Lunch & Learn sessions at the State Capitol featuring subject experts (food policy = 3; maternal health = 1; healthcare = 1; mental health = 1); and
- One-hour webinars on health topics of interest to Texas legislators, archived for continued access.

Additionally, more than 55 e-newsletters were distributed to over 400 legislators and staff, and the Texas Legislature Bill Tracker was developed to monitor health-related legislation for community partners.

Conclusion: The TX RPC Project provides a scalable model for accelerating knowledge exchange between health researchers and state policymakers. Ongoing investment in relationship-based and data-driven communication strategies can further strengthen the integration of research evidence into state health policy.

SO.2.14-04

Development of a Scalable Method to Identify Privately-managed Parks and Playgrounds and Improve Park Access Equity

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools
Room 5, May 29, 2026, 2:00 PM - 3:00 PM

Purpose:

The lack of availability and accessibility data of privately-managed parks is a major limitation for cities striving to achieve equitable park and recreation access. The Trust for Public Land's (TPL) ParkScore, which is widely adopted by US cities, only includes publicly-managed parks. To address these data gaps, this research presents a novel methodology for identifying, assessing, and integrating privately-managed parks into urban park accessibility metrics, using Raleigh, North Carolina, as a test case. Scalable processes will be shared.

Methods:

The initial (Raleigh, NC) research methodology encompassed four key components: (1) development of a systematic approach to identify privately-managed parks through both local government resources and national datasets; (2) creation and validation of public accessibility criteria for privately-managed parks; (3) establishment of a comprehensive geospatial database; and (4) analysis of the TPL ten-minute walk accessibility scenarios.

The scalable phase methodology utilizes a national (U.S.) land use parcel-level dataset (Regrid) and an international park and playground dataset (OpenStreetMap) to replicate and scale workflows.

Results: Using a Python-based workflow within ArcGIS, Regrid, and OpenStreetMap, that will be shared in detail, we initially identified 148 privately-managed land use parcels that contain at least park and recreation amenities and space. Researcher verification through satellite and Google Street View imagery confirmed 61 privately-managed parks - that were not swimming pool-only. This represents 41% sensitivity without researcher validation and 100% sensitivity with limited researcher validation. The TPL ten-minute walk accessibility analysis indicated that residential park access increased by 21% (42% to 51% across the city of 500,000) with the addition of the privately-managed parks to the existing TPL ParkScore.

Conclusion: In Raleigh, the identification of 61 privately-managed parks contributes meaningfully to the city's overall park infrastructure, access, and opportunities for physical activity. Our research team is now working with data from five additional US cities, and TPL, to scale up our method, expand our classification of privately-managed parks (e.g., multifamily housing complexes), and improve validation methods (ground truth-ing). Fidelity, feasibility, and adoption of the expanded method will be available in early 2026 and will be shared.

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SO.2.14-05

Child Healthcare Nurses' Perspectives of Determinants Regarding the Sustainability of MINISTOP 3.0 in Swedish Child Healthcare

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools
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Purpose: MINISTOP is a 6-month digital intervention designed to support parents of preschool children in establishing healthy lifestyle behaviors. While many studies have explored the determinants of implementing digital interventions in healthcare, few have examined how they can be sustained over time. This study aimed to explore the sustainability of the large-scale implementation of MINISTOP within Swedish child healthcare.

Methods: MINISTOP 3.0 is a type III implementation-effectiveness trial using a cluster randomized controlled trial design. Child healthcare centers were randomized to either basic or enhanced implementation support. Sustainability, defined as the continued delivery of MINISTOP during routine health visits for children aged 2.5–3 years was assessed through individual telephone interviews with nurses at least 12 months after implementation. A purposive sample of 16 nurses from both implementation groups, including high and low adopters, participated. Data was analyzed using inductive reflexive thematic analysis with a latent approach.

Results: Three main themes emerged: *end users, finding your own way, and team dynamics and ongoing support*. Parents were seen as key partners in the implementation process, with their engagement influencing nurses' decisions to offer the app. While some nurses expressed concerns about parental screen time or competing family priorities, the perceived benefits for families were strong motivators for sustained use. Nurses emphasized the importance of developing personal strategies and adapting MINISTOP to fit existing routines. Familiarity with the MINISTOP app and registration system helped build confidence, particularly among high adopters. Finally, supportive co-workers and shared learning opportunities such as seminars and follow-ups were critical for both early and sustained implementation. Team collaboration and ongoing professional development helped nurses overcome barriers and maintain motivation.

Conclusion: This study provides valuable insights into the factors influencing the sustained implementation of a digital health intervention in routine child healthcare. Identified facilitators and barriers such as end-user engagement, individualized implementation strategies, and team support may inform future efforts to implement similar interventions in comparable healthcare settings.

SO.2.14-06

Linking Organizational Readiness to Adherence in a School-based Health Promotion Program – The Healthy School Start

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools
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Purpose: Overweight and obesity remain major global health challenges. Evidence-based school programs such as *Healthy School Start (HSS)* are effective when implemented with high fidelity, yet real-world delivery often varies due to contextual and organizational factors. Staff readiness, defined as the collective commitment and confidence to implement change, is a key driver of adherence. Early implementation outcomes, including perceived acceptability, appropriateness, and feasibility, may strengthen or weaken this link. This study examines the relationship between staff readiness and adherence to the Motivational Interviewing (MI) component of the HSS program, and explores whether early implementation outcomes moderate this relationship.

Methods: We conducted a longitudinal observational study nested within a larger implementation trial across three municipalities in Stockholm over two academic years. School staff (nurses and principals) completed a validated

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Swedish version of the Organizational Readiness for Implementing Change (ORIC) tool and measures of acceptability, appropriateness, and feasibility at baseline. Adherence to MI – one critical component of the HSS program – was extracted from school nurse records and operationalized as the proportion of caregivers receiving MI sessions. A generalized linear model was used to examine the association between readiness among school staff and the proportion of MI interviews delivered, adjusting for clustering at the school level. Covariates included academic year, organizational stability of the school, and school size. Interaction terms tested moderation by acceptability, appropriateness, and feasibility.

Results: The sample included 37 school nurses and 33 school principals from 41 schools. Readiness showed a small (non-significant) positive association with MI adherence ($\beta = 0.004$, $p = 0.67$, 95% CI: -0.02, 0.03). No significant interaction effects were found for acceptability, appropriateness or feasibility.

Conclusion: The small and non-significant association between staff readiness and MI adherence suggests that factors beyond readiness and early implementation outcomes may drive MI adherence. Future research should consider cross-cultural validation, context and larger sample sizes. Limitations include potential measurement issues due to the use of translated versions of the instruments, and unmeasured contextual factors such as language barriers between caregivers and school nurses that could have an influence on adherence.

SO.2.14-07

How Much Physical Activity Is Accumulated in Physically Active Lessons? A Comparison with Physical Education Lessons

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools
Room 5, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Increasing physical activity (PA) in adolescents is a public health priority, and schools represent a key setting for implementing PA promotion strategies. Physically Active Lessons (PAL) have been endorsed by the World Health Organization as an emerging curricular approach to increase PA levels during the school day. However, evidence is still limited regarding whether PAL implemented in real-world secondary school settings achieve optimal PA levels. Taking Physical Education (PE) as the reference point—given its established role as the traditional curricular strategy for promoting PA—the aim of the present study was to evaluate the distribution of PA intensities during PAL and compare them with PE.

Methods: Sedentary time (ST) and PA intensities were device-measured using wrist-worn accelerometers over eight consecutive days at two timepoints during the MOVESCHOOL intervention. MOVESCHOOL was a 29-week quasi-experimental study that included one weekly PAL and additional active strategies. For the experimental group, two PAL session and four to six PE lessons per participant were extracted and averaged for analysis. A total of 217 secondary school students (aged 12–14 years; 42.4% female) with valid accelerometer data in both PAL and PE were included. Descriptive statistics were calculated, and a one-factor ANCOVA (PAL vs PE) was conducted, adjusting for age, sex, and body mass index.

Results: During PAL, time spent in MVPA reached 13.67%, which was substantially lower than the proportion accumulated during PE lessons at these intensities (23.24%; $p < .001$). ST during PAL (44.34%) was significantly higher compared to PE (37.44%; $p < .001$). No further statistically significant differences were observed, with LPA values being similar between PAL and PE lessons (44.25 and 42.66%, respectively; $p > .05$).

Conclusion: PAL contributed 13.67% of the curricular time that is typically sedentary towards MVPA, although this contribution was to a lesser extent than that provided by PE lessons. Teachers should weigh the potential physical benefits of PAL together with their educational value in non-PE subjects, and strategically decide how to use them. Finally, it is suggested that integrating PAL alongside PE could further increase PA exposure and reduce sedentary time across the school day.

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SO.2.14-08

Readiness in Action: How Leadership, Support, and Role Clarity Shape Implementation in School-based Physical Activity

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

Room 5, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Organizational readiness for change - defined as shared change commitment and change efficacy (Weiner, 2009) - is critical for implementing schoolbased physical activity (PA) initiatives yet is rarely operationalized across diverse educational contexts. This study adds empirical and conceptual depth by integrating data from three Danish initiatives (SHP, PHASAR and GHK) to examine how leadership, support structures, and role clarity shape readiness.

Methods: We conducted a qualitative cross-case analysis of interviews with school principals and local champions (n=61) across 43 schools participating in SHP, PHASAR, and GHK. Transcripts were reviewed with attention to Weiner's constructs and explored for emerging patterns related to leadership, support, and role-related patterns.

Results: Readiness was stronger where school leaders framed PA and other intervention components as a core educational priority. This framing supported shared resolve and willingness among implementation actors (commitment) and created conditions that bolstered change efficacy - task demands seemed manageable, resources available, and context supportive. Across cases, readiness was strengthened when implementation roles were clearly defined, peer or structural support was in place, and school leadership followed through with concrete planning and delegation. Conversely, passive leadership or unclear role structures led to stalled or superficial implementation.

Conclusion: This multi-case re-analysis demonstrates that leadership, support systems, and clear role allocation are critical to building organizational readiness for school-based PA initiatives. Strengthening commitment and efficacy early can enhance sustained program implementation. Future research should examine how readiness evolves over time and how system-level factors - such as crosssectoral collaboration - interact with school-level readiness to influence outcomes. Strengthening these connections may improve the scalability and sustainability of future PA initiatives.

SO.2.14-09

Effects of a Classroom-based Active Break Program on Executive Functions in School Children: Results from the Break4brain Cluster-randomized Controlled Trial

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

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Purpose: This study evaluated the effects of a classroom-based active breaks program on executive functions—specifically selective attention and cognitive flexibility—among primary school children. The program integrated short, structured bouts of physical activity into academic time to enhance cognitive performance.

Methods: A cluster randomized controlled trial was conducted across 18 primary schools in the Balearic Islands, involving 555 students (mean age = 11.4 ± 0.9 years; 53% boys, 47% girls). Schools were allocated to an intervention group (n = 280; daily video-based active breaks) or a control group (n = 275; standard classroom routine). The intervention consisted of one 10-minute active break per school day over eight weeks. Executive functions were assessed one week before and after the intervention using the Trail Making Test (cognitive flexibility) and the d2 Test of Attention (selective attention). Data were analyzed using linear mixed-effects models, with school as a random factor and time (pre/post) and group (intervention/control) as fixed factors.

Results: A significant main effect of time was observed across all measures (p < .001), indicating overall cognitive improvement from pre- to post-test. For cognitive flexibility, the group × time interaction was not significant (p > .30), suggesting similar improvements in both groups. In contrast, the d2 concentration score showed a significant

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group $\times$ time interaction ($F = 11.63$, $p < .001$), with the intervention group exhibiting greater gains in attention and concentration. The d2 total score also improved significantly over time ($p < .001$), though no between-group differences emerged ($p = .15$).

Conclusion: Integrating active breaks into classroom time enhanced children's attention and concentration but did not significantly affect cognitive flexibility. These findings support the inclusion of movement-based strategies in daily school routines to promote executive functioning and academic performance. Future research should examine optimal intervention doses and long-term effects.

SO.2.14-10

Implementing a Physical Activity Monitoring System as Part of a Whole School Approach: Lessons Learned from the Active School Flag Programme

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

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Purpose: Adolescents are a hard-to-reach group for physical activity (PA) promotion. Whole school approaches are recommended but challenging to operationalise in practice. The Active School Flag (ASF) programme is a multi-stage, multi-component, comprehensive whole-school approach designed, with flexibility, to meet the needs of 12–18-year-olds in schools in Ireland. This paper reviews the added value of an inbuilt 'monitoring system' and its role in achieving effective programme implementation.

Methods: The ASF programme has six core components – monitoring, communication, whole-school initiatives, active school walkway, active school week and school-community links. The monitoring component asks all ASF students to complete a whole school survey at the beginning of each academic year. A completion rate of 50% (year one) to 70% (by year three plus) is required for schools to achieve flag status. Survey items include psychometrically valid self-reported past week PA and sport, as well as mode of transport to and from school. Open-ended questions provided feedback on ASF implementation and suggestions to enhance schools' PA levels.

Results: In 2024, 42 ASF schools completed the ASF whole school survey ($N=19,868$, male = 44%, female = 54%, other gender = 2%). In comparison to national averages, more ASF students reported engaging in daily moderate to vigorous PA (18% ASF vs 12% national average), using public transport for the school commute (35% vs 25%), while similar levels were found for muscle strengthening exercise (43%), for walking (23%) or cycling (3%) to school. In the past year, the ASF walkway was used more by females (65%) than males (56%) and other gender (50%), also by senior (65%) more than junior students (58%), these differences were statistically significant ($p < .001$). Half reported using the walkway during Physical Education (52%), recess time (47%), or active breaks during class (46%).

Conclusion: The ASF inbuilt monitoring system provide nationally relevant data for multiple Government departments, Education, Transport, Sport. It informs implementation of programme components and importantly it activates the students' voice on how to tailor the ASF programme to specific school context.

SO.2.14-11

Augmenting an Adolescent Afterschool Program with College Mentors to Improve Mental Health: A Feasibility Study

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

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Purpose: Afterschool programs can help prevent adolescent depression, but attendance is inconsistent. We partnered with an established afterschool program to create an enhanced version in which college students encouraged participation and mentored adolescents by promoting strategies to improve mental health (i.e., physical activity and mindfulness). This study examined the enhanced program's feasibility.

Methods: This mixed-methods feasibility study used a cross-over design in two middle schools during 2024-25 (n=170 adolescents). Conditions (enhanced program or program as usual) crossed after one semester. We assessed feasibility (i.e., recruitment/retention, acceptability, and implementation fidelity) through attendance records, satisfaction ratings, observations (twice per semester in each afterschool class), and qualitative data from school staff (34 interviews), mentors (18 focus groups), and students (39 focus groups). We computed descriptive statistics and compared differences between conditions with mixed models adjusting for time and the sequence of receiving the two conditions. We used qualitative content analysis to analyze qualitative data.

Results: Initial recruitment was challenged by afterschool staff turnover, but student retention was high (92%). Adolescents attended 57% of program days overall. Attendance was 13.4 percentage points higher during the enhanced program versus program as usual (CI: 0.08-0.20). Among the enhanced program, mentors attended 93% of scheduled days, while all afterschool staff were present on only 46% of program days. Seventy-five percent of adolescents reported often or always enjoying time with mentors. Student satisfaction and engagement were similar across conditions. Implementation fidelity varied in the enhanced condition. Mentors led physical activity on 93% of observed days but less frequently engaged in role modeling, such as sharing personal experiences (59%) or explaining why they value physical activity (57%). Qualitative findings highlighted the importance of afterschool staff involvement to support mentors' physical activity promotion, manage student behavior, and provide structure. Mentors struggled navigating their role, especially when staff were absent.

Conclusion: Findings highlighted challenges of real-world implementation. Enhancing afterschool programming with college mentors appealed to adolescents and improved program attendance. However, revisions are needed to better coordinate mentor and teacher roles for improved implementation fidelity.

SO.2.14-12

Implementation of an Innovative Digital Toolkit for Physical Education Teachers to Promote Physical Literacy and Health in Schools: The FitBack4Literacy Project

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SO.2.14 Implementation and scalability: Implementing PA and Nutrition Interventions in Schools

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Purpose: To evaluate the effectiveness and feasibility of a newly developed digital Toolkit, integrated within the FitBack platform, aimed at improving Physical Education (PE) teachers' competence in developing physical literacy by monitoring students' physical fitness in the school setting.

Methods: This pilot study was conducted as part of the European FitBack4Literacy project, representing the experimental site in Spain. A multicenter, non-randomized trial was conducted in six Andalusian secondary schools during the 2024-2025 academic year. Eleven PE teachers (18.2% women; age: 38.7±8.5 years; teaching experience: 13.1±8.8 years) and 613 students (50.2% girls; age: 14.4±1.0 years; body mass index percentile: 54.6±29.1) participated. The intervention included: (i) a structured teacher-training workshop on the FitBack platform and Toolkit use; (ii) implementation of interactive learning scenarios within the PE curriculum; and (iii) ten local and two international cooperative learning sessions. The feasibility and usability of the Toolkit implementation within the PE curriculum were assessed with the User Experience Questionnaire and semi-structured interviews. Teachers' competence in using fitness monitoring to promote physical literacy was measured with the validated Physical Education Teachers' Competence Questionnaire (PETC-Q). Students' physical fitness was measured using the ALPHA test battery, standardized to European reference percentiles. Paired t-tests or Wilcoxon tests were applied for within-subject pre-post comparisons.

Results: Teachers reported high usability, satisfaction, and pedagogical relevance of the Toolkit. PETC-Q scores decreased significantly after the intervention (1.88±0.43 to 1.66±0.28; $P=0.027$), indicating greater professional

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self-awareness and reflective practice. Students showed significant improvements in both absolute and relative values of muscular strength (handgrip strength: 27.7 ± 6.6 to 29.9 ± 7.1 kg, $P < 0.001$; percentile 47.1 ± 24.6 to 50.5 ± 24.4 ; $P < 0.001$) and cardiorespiratory fitness (20m shuttle run test: 4.2 ± 2.3 to 4.8 ± 2.2 stages, $P < 0.001$; percentile 42.4 ± 28.3 to 49.6 ± 27.0 ; $P < 0.001$).

Conclusion: Implementation of the FitBack Toolkit showed an effect of increased awareness and professional self-criticism among teachers and improved students' muscular and cardiorespiratory fitness relative to European norms. The Toolkit offers a feasible, low-cost, and scalable strategy to promote physical literacy and health in schools.

SO.2.15-01

Defining Intuitive Movement: Toward a Wellbeing-oriented Perspective in Physical Activity

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: Traditional approaches to physical activity often emphasize prescription and performance, which can undermine autonomous motivation and wellbeing. In contrast, intuitive movement promotes a flexible and self-compassionate engagement in physical activity, prioritizing wellbeing over appearance-driven goals. Despite increasing interest in this approach, the absence of a clear conceptual foundation hinders its application in research and practice. This study, through a conceptual analysis, aims to unify the concept of intuitive movement and identify its defining attributes.

Methods: This conceptual analysis followed a seven-step modified approach of Walker and Avant (2014). The process began with a comprehensive review of publications between 2004 and 2024 in the fields of psychology and physical activity. Sources included Google Scholar, APA PsycInfo and SportDiscus. Keywords combined intuitive-related and movement-related terms: (*intuitive OR attunement OR mindfulness OR embodiment OR empowering*) AND (*physical activity OR exercise OR fitness OR movement OR training*). The lack of restrictive criteria allowed access to a greater number of sources. References, including related terms and titles citing these works, were reviewed to enrich the analysis. Studies were included if they contained at least two of the four categories from the *Intuitive Exercise Scale* (Reel et al., 2016). Attributes were extracted and categorized through thematic synthesis and pattern coding (Miles et al., 2014).

Results: The conceptual analysis revealed six defining attributes of *intuitive movement*: mindful awareness, embodiment, emotional attunement and well-being, value-based autonomy, adaptability, and positive body image. These attributes emerged across six disciplinary perspectives: athletic performance, therapeutic practice, meditative exercise, educational contexts, body awareness, and physical activity psychology. This finding highlights interdisciplinary breadth. The analysis produced a unified definition: *engaging in physical activity mindfully and nonjudgmentally, in alignment with the body's cues and values, while promoting positive body image, emotional acceptance, and rejecting diet mentality*.

Conclusion: By providing a unified definition, this study enhances conceptual clarity, enabling the development of educational tools and targeted interventions that promote mental health and harmony within physical activity. Establishing a robust framework for intuitive movement facilitates interdisciplinary dialogue, ensuring that both researchers and practitioners can leverage its principles to foster inclusive, autonomy-supportive, and wellbeing-oriented physical activity experiences.

SO.2.15-02

Affective States and Physical Activity Intensity in Psychologically Distressed Middle-aged Women: Findings from Exer-WAPA Project

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care Room 6, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: To examine the association between affective states and the intensity and duration of weekly physical activity in psychologically distressed middle-aged women.

Methods: This cross-sectional study, part of the Exer-WAPA project (Ref: C-SEJ-304-UGR23), included a total of 59 inactive women (aged 35 to 60 years; mean age: 47.7 ± 7.2) from the city of Granada and its surrounding areas. Affective states were assessed using the Spanish version of the Positive and Negative Affect Schedule (PANAS). Weekly physical activity intensity and duration (min), [vigorous (VPA), moderate (MPA), moderate-to-vigorous (MVPA), light (LPA), and total (TPA)] were estimated using the short form of the International Physical Activity Questionnaire (IPAQ-SF). Spearman's rho (ρ) correlations were used to analyse the associations between affect scores (positive [PA], and negative [NA]) and different physical activity intensities and durations. A significance level of $p < 0.05$ was set for all analyses.

Results: A total of 54.2% of the women were married, and 73.2% had completed high school and/or university education. Mean affect scores for PA and NA were 24.1 ± 7.2 and 24.9 ± 7.5 , respectively. Mean weekly physical activity was 14.1 ± 45.9 min for VPA, 22.6 ± 43.8 min for MPA, 36.9 ± 80.4 min for MVPA, 186.4 ± 188.4 min for LPA, and 202.9 ± 188 min for TPA. Furthermore, a positive and significant correlation was observed between PA and minutes of VPA ($\rho = 0.334$, $p = 0.010$), as well as a positive but non-significant trend with MVPA ($\rho = 0.258$, $p = 0.055$). In contrast, NA was negatively and significantly associated with MPA ($\rho = -0.427$, $p = 0.001$) and with total MVPA ($\rho = -0.395$, $p = 0.003$). No significant correlations were found between PA and NA with either LPA or TPA.

Conclusion: PA was related to higher VPA, while NA was inversely associated with MPA and MVPA in psychologically distressed women. Since higher PA and lower NA were positively associated with overall well-being, these results emphasize the value of engaging in physical activity at appropriate intensities to foster emotional health and enhance overall psychological well-being in this population.

SO.2.15-03

Severity of Depression and Anxiety Manifest in Physical Activity and Nocturnal Sleep Metrics Collected from a Consumer-grade Wearable Ring

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care Room 6, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Modern wearable devices generate a multitude of digital metrics which can be indicators of various health conditions and status. This study investigated whether and how digital metrics generated from a consumer-grade smart ring were different in individuals with varying severity of depression and anxiety symptoms in a large population-based cohort.

Methods: Data were obtained from the Northern Finland Birth Cohort 1986 when participants were 33–35 years of age. Participants were asked to wear the Oura Ring for two weeks, which provided digital measures of sleep architecture, nocturnal heart rate (HR), nocturnal heart rate variability (HRV), and minute-by-minute movement intensity. Participants with at least 4 valid measurement days with no less than wear time of 15 hours were included. Depression and anxiety symptoms were assessed using the Generalized Anxiety Disorder 7-item scale (GAD-7) and the Hopkins Symptom Checklist-25 (HSCL-25). Participants were grouped into no, mild, and moderate-to-severe anxiety symptom categories based on GAD-7, and with and without depression and anxiety symptoms based on HSCL-25. Time series data were visualized, and statistical differences between groups were assessed using one-way ANCOVA followed by Tukey's post hoc test.

Results: A total of 1,290 participants provided enough valid data and were included. The metrics generated by Oura ring were different across symptom severity groups. Participants with moderate-to-severe anxiety assessed by GAD-7

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and with depression and anxiety symptoms assessed by HSCL-25 exhibited lower proportions of rapid eye movement (REM) and deep sleep, and increased light sleep compared with the group without depression and anxiety. These two groups also showed elevated HR, reduced HRV during sleep, and lower levels of moderate-to-vigorous physical activity during the day. The differences between mild anxiety group with no and moderate-to-severe anxiety groups were overall less apparent.

Conclusion: Findings suggest that severity of depression and anxiety are manifested in physical and physiological metrics generated by a consumer-grade wearable ring. Although consumer wearables cannot yet replace gold-standard clinical methods, these findings suggest that they may be a promising tool for large-scale monitoring and early detection of mental health risks.

SO.2.15-04

Alleviating Barriers: Community Physical Activity for People with Severe Mental Illness. Co-SPACES

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: Co-SPACES aimed to understand how community physical activity (PA) providers and NHS trusts could connect to support those with severe mental illness (SMI) live physically active lives. Co-SPACES is an extension of 'SPACES', a PA intervention delivered within NHS mental health services to those with SMI. People with SMI experience a mortality gap of 10–20 years compared with those without SMI, which is largely attributable to physical health conditions and modifiable lifestyle behaviours, including physical (in)activity. Community PA providers offer sustainable opportunities for those with SMI, however experience barriers that prevent widespread support.

Methods: Co-production workshops were held to design and develop relevant resources that would tackle community PA providers barriers to engaging those with SMI in community-based PA opportunities, and NHS barriers of engaging with community PA providers. Double diamond design approach was the theoretical underpinning. Workshop activities included problem identification and definition, and solution development and refinement. Eighteen people, including those with lived experience of SMI, community PA providers and NHS professionals attended workshops (Sheffield Workshop1: N=7, London Workshop1: N=11, Final Workshop2 (combination of Sheffield and London attendees): N=8) to develop the resources. An online survey was used for final refinement of resources.

Results: Generated outputs included a booklet and a video resource. Resource content that empowers NHS trust and community PA providers to establish links and better support those with SMI to be active in the community are vital to support those with SMI live active lives. Demonstration and understanding of SMI, the needs of those with SMI, and key requirements of a community PA provider (Place, People, Provision) PA session to support those with SMI, were all highlighted as crucial elements of any outputs.

Conclusion: Multi-stakeholder co-production workshops enable unique blended insights to aid problem identification and solving. Resources that emphasised lived experiences of those with SMI being active in the community and the perspectives of those working in community provider organisations were vital components. Developing resources that demonstrated different perspectives, raised SMI awareness, offered helpful guidance on connecting with, and supporting, community providers provision of PA opportunities to those with SMI was significant.

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SO.2.15-06

Ownership and Establishment of Local Partnerships for System Change: Exploring Stakeholder Engagement in the Thriving Communities Lab

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: The purpose of this study is to explore how key stakeholders participating in the system orientated Group Model Building (GMB) workshops ascribe meaning to the *Thriving Communities Lab* initiative, which aims to promote youth wellbeing. The study aims to understand stakeholders' sense of ownership, including how they perceive youth involvement within this process, and to identify the factors that facilitate or hinder the establishment of local partnerships. Drawing on theoretical perspectives such as Lachapelle's framework on ownership, the study investigates how ownership is expressed in terms of process, outcome, and distribution, and how these dimensions influence the establishment and sustainability of local partnerships.

Methods: A multi-method design will be applied, combining three complementary data generation strategies: (a) observations of nine GMB workshops (three within each of the selected Intervention Areas; sleep, timely actions and leisure time activities), (b) exit surveys distributed to GMB workshop participants during the workshops, and (c) individual semi-structured interviews with 4–6 key stakeholders from each of the established local partnerships. Two researchers will observe each GMB workshop with distinct analytical foci. One observer is focusing on theoretical perspectives of ownership, while the second observer is using a checklist to assess the presence of co-creation principles during workshops. Questionnaires will capture participants' experiences and engagement in the process. The subsequent semi-structured interviews will further explore stakeholders' reflections on ownership, partnership formation, and collaboration, drawing on insights from the observations and questionnaires. The data will be analyzed thematically to identify cross-cutting themes.

Results: Preliminary analyses are expected to reveal varying degrees of perceived ownership and engagement among the stakeholders. Key factors anticipated to influence local partnership establishment include perceptions of power and authority in decision making, clarity of shared goals, and ongoing support for collaboration. We will present data from one Intervention Area, sleep, at the conference.

Conclusion: This sub-study will provide an in-depth understanding of how ownership and co-creation processes shape the formation and sustainability of local partnerships for system change. Insights will inform strategies for fostering meaningful stakeholder engagement and enhancing collaborative capacity in initiatives aimed at improving youth wellbeing.

SO.2.15-07

Dispositional Mindfulness Is Associated with a Lower Risk of Type 2 Diabetes Incidence in Females Over 9 Years of Follow-up: Results from the Nutrinet-Santé Cohort

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: Type 2 diabetes (T2D) represents a growing public health concern worldwide. Beyond classical lifestyle risk factors, psychosocial determinants, such as dispositional mindfulness, have been proposed as potential protective factors. However, no prospective data have been available to date in the general population regarding these associations. The objective of our study is to examine the prospective association between dispositional mindfulness and incident T2D over 9 years in a large French cohort and to investigate the potential mediating roles of BMI, diet

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quality, and physical activity.

Methods: A total of 63,336 participants (mean $\pm$ SD age: 48.2 ± 14.6 years; 78.8% women) from the NutriNet-Santé cohort without T2D at baseline were followed between 2013 and 2024. Dispositional mindfulness was assessed in 2013 using the validated French Five Facets Mindfulness Questionnaire (FFMQ). Incident T2D cases were identified through self-reported medical diagnoses, medication use, and linkage with health insurance databases. Sex-stratified cox proportional hazards models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI), adjusting for sociodemographic factors. Mediation analyses explored the indirect effects of diet quality, physical activity and BMI.

Results: During the median follow-up period of 9 years (505,714 person-years), 1,011 incident cases of T2D were identified. Higher levels of dispositional mindfulness were significantly associated with a lower risk of T2D in females (HR = 0.70; 95 % CI: 0.58 – 0.84; $p < 0.001$), while no significant association was found in males (HR = 0.97; 95 % CI: 0.75 – 1.25; $p = 0.800$). In females, diet quality, physical activity and BMI mediated 5.6 %, 11.1 % and 30.7 % of the association, respectively.

Conclusion: Higher dispositional mindfulness was prospectively associated with a lower risk of T2D in females, partly mediated by diet quality, physical activity and BMI. These findings support the potential value of mindfulness, as a modifiable psychological factor, in complementing traditional diabetes prevention strategies. Further research is warranted to confirm these associations and clarify underlying mechanisms.

SO.2.15-08

Effect of a Multi-level Physical Activity, Nutrition, and Social Needs Referral Intervention on Stress Levels in a Low-income Community on the U.S-Mexico Border

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care Room 6, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Tu Salud ¡Sí Cuenta! (TSSC) is a multilevel community intervention that promotes physical activity and healthy eating among Hispanic populations in South Texas. For nearly two decades, TSSC has shown success in increasing physical activity and fruit and vegetable intake through multilevel strategies implemented by Community Health Workers. We examined the longitudinal effects of an enhanced TSSC intervention (adding alcohol behavior content and screening and referrals for social determinants of health needs such as food insecurity and transportation) as part of a randomized control trial assessing changes in nutrition and physical activity, as well as perceived stress levels (focus of this study).

Methods: A total of 500 participants from 10 communities were randomized to receive either the original or enhanced TSSC intervention. Participants completed surveys at baseline, 6 months, and 9 months to assess perceived stress (high vs. low), demographic characteristics, and health behaviors. Longitudinal logistic regression models using generalized estimating equations evaluated the effects of intervention group, time, and their interaction on stress levels, controlling age, gender, insurance status, and preferred language.

Results: Participants had a mean age of 52.1 years (SD = 16.2), with 13.6% male and 60.2% insured. Over time, both groups showed decreased stress levels, with greater reductions observed in the enhanced group. From baseline to 6 months, the enhanced group's stress odds decreased (aOR = 0.77, 95% CI: 0.56–1.04, $p = 0.09$) compared to the original group (aOR = 0.88, 95% CI: 0.65–1.20, $p = 0.42$). This pattern continued through 9 months, with the enhanced group showing further decline (aOR = 0.76, 95% CI: 0.55–1.04, $p = 0.08$) and the original group showing minimal change (OR = 0.98, 95% CI: 0.69–1.40, $p = 0.92$). The overall group-by-time interaction was statistically significant ($p = 0.0177$).

Conclusion: The enhanced TSSC intervention showed significantly greater reductions in perceived stress over time compared to the original group. These findings suggest combining physical activity, nutrition, and social determinants of health interventions, reduced perceived stress among participants.

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SO.2.15-09

Testing Self-compassion as an Exercise Intervention Adjunct for Students with Depression: A Feasibility and Preliminary Effectiveness Study

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: With up to 70% of university students reporting depressive symptoms that make it difficult to function academically, campus mental health services are often unable to keep up with the demand. This dilemma warrants the exploration of accessible, campus-based mental health supports that leverage the proximal peer community. Thus, the purpose of the present investigation was to examine the feasibility, acceptability, and effectiveness of a peer-led group exercise program for university students with depression. Importantly, we sought to examine if adding self-compassion psychoeducation would confer similar benefit to empirically-supported approaches combining exercise and behavioral counselling. Previous research indicates supplemental psychological supports lead to greater improvements in mental health compared to exercise only, yet current behavioral coaching approaches neglect emotion-focused strategies (i.e., self-compassion) that target affective dysregulation, a key barrier to physical activity in individuals with depression.

Methods: Undergraduate students with a confirmed diagnosis of major depressive disorder ($M_{age} = 21.6 \pm 3.2$) were randomized to three groups: 1) exercise only ($n=14$), 2) exercise + behavioral counselling ($n=21$), and 3) exercise + self-compassion ($n=15$). Led by trained kinesiology students, the 10-week intervention involved 30 virtual group sessions consisting of aerobic and strength training activities. Measures included feasibility and acceptability metrics, and assessments of depression and physical activity at baseline, immediately post-intervention, and three months post-intervention.

Results: The intervention demonstrated feasibility and acceptability with adequate average session adherence rates (70%) and overwhelmingly positive qualitative responses, with over 80% of participants expressing eagerness to participate again. Between-group comparisons from baseline to three-month follow-up revealed the self-compassion group had moderate improvements in depression ($d = -0.58$) and physical activity participation ($d = 0.40$) compared to the exercise only group. And, the self-compassion group demonstrated superior sustained physical activity engagement at follow-up, compared to the behavioral counselling group ($d = 0.48$).

Conclusion: This pilot, randomized control trial study provides preliminary support for the feasibility, acceptability, and effectiveness of an exercise program that incorporates education on self-compassion. Self-compassion skills were evidenced to produce similar and even additional benefits to students' physical activity engagement. Considering resource-intensiveness, this study provides parameter estimates to inform a more robust trial, indicating promising new approaches to campus-based mental health supports.

SO.2.15-10

Food and Mood Study – Exploring the Determinants of Dietary Behaviours That Support Wellbeing in Young Adults with Symptoms of Depression and Anxiety

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: Poor mental health in young adults is a major societal issue. There is growing evidence for the link between diet quality and mental health. However, the holistic and complex determinants of dietary behaviours for wellbeing in young adults with poor mental health has largely been neglected, limiting the development of practical solutions.

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Methods: A 48-item mixed-methods survey informed by the COM-B (capability, opportunity, motivation and behaviour) model was developed. Young adults (18-30y) in New Zealand experiencing at least mild symptoms of anxiety and/or depression (screened with the DASS-21) took part in an online survey. Likert scale questions were descriptively analysed, and used to construct scaled COM domain scores ranging from 0-10. Open-ended questions were analysed through inductive thematic analysis.

Results: Participants (n=154, 23±4 years) were predominantly female (84%), NZ European (76%), and well educated (58% with a university degree). Participants demonstrated a high level of capability (domain score = 7.1±1.5). Most participants (79%) were aware of the link between diet quality and mental health, and qualitative data demonstrated a deep and holistic understanding. Three-quarters reported feeling capable of choosing foods or preparing meals that support wellbeing, yet only 35% agreed that they can do so during periods of worsened mental health. Opportunity domain scores were lower (6.5±1.1), with apparent barriers including price (85% agreed it is expensive to purchase healthy foods) and access (50% reported being easily able to access healthy foods). Many participants reported that eating with others impacts their food choices (73%) or eating experience (77%), yet qualitative responses diverged as to whether this is positive or adds additional stress. Almost all participants indicated that it is important to eat a diet that supports wellbeing, yet only half reported feeling motivated to make food choices that support wellbeing, indicating an attitude-motivation gap.

Conclusion: Young adults with symptoms of anxiety and/or depression demonstrate a high level of capability regarding dietary behaviours that support wellbeing, yet there is a disconnect with actual behaviours which is exacerbated by worsened mental health. Dietary interventions spanning across individual motivational barriers, and food and social environments are all required to improve young adults' mental health.

SO.2.15-11

Moving More in Early Intervention Services: Move

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
Room 6, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: People with severe mental illness (SMI) experience a mortality gap of 10-20 years compared with people without SMI. A major contributing factor is preventable physical health conditions such as diabetes and cardiovascular disease. Physical activity (PA) is a leading risk factor for physical health conditions, and thus a priority.

Psychosis typically develops in adolescents and young adults. Early Intervention Services (EIS) support those with at risk mental state (ARMS) and first episode of psychosis (FEP) for up to three years. EIS' support long-term health outcomes including symptom reduction and functional outcomes, and includes treatments such as antipsychotic medication, cognitive behavioural therapy, vocation, education, case worker social and rehabilitation support, and peer and community engagement. PA lifestyle interventions are not routinely offered in EIS, however early evidence suggest PA intervention benefits include improved sleep, wellbeing, psychological functioning and verbal short-term memory.

Methods: A series of patient, public involvement and engagement (PPIE) workshops with lived experience people in EIS will be run to unearth broad themes around an EIS integrated PA intervention, including important determining factors. PPIE sessions will also be run with NHS professionals to understand the possibility of an integrated PA intervention in EIS care.

Results: PPIE workshops will take place between November 2025 and March 2026. A full write up of PPIE workshop findings will be written up by April 2026. Possible themes include, motivation, barriers, enablers, and key intervention functions are likely to be presented.

Conclusion: Despite early research demonstrating the positive impact PA can have on those in EIS, there is limited investigation on the motives, barriers, enablers and intervention functions of PA intervention in EIS. Findings will benefit the academic community on general understanding from both lived experience and NHS professionals on early design, motivation, and potential integration of PA intervention in routine EIS'.

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SO.2.15-12

Symptom Burden in Multiple Sclerosis and its Relationship with Physical Activity Level

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: Multiple sclerosis (MS) is a chronic neurological disease characterized by symptoms of fatigue, pain, reduced physical function, anxiety, depression, and sleep disturbance, which can negatively impact daily function and quality of life. Physical activity is a promising modifiable behavior that can alleviate these symptoms. This study compared patient-reported outcomes between people with MS (PwMS) and non-MS matched controls, stratified by physical activity level. Identifying symptoms most associated with physical activity may help inform targeted physical activity interventions to improve symptom management in PwMS.

Methods: In this cross-sectional study, adults with MS were matched 1:1 with non-MS participants by sex and age. Patient-reported outcomes included the PROMIS Fatigue, Pain Interference, Physical Function, Anxiety, Depression, and Sleep Disturbance scales, along with the Fatigue Severity Scale (FSS) and the Visual Analog Scale (VAS) for pain assessment. Participants were categorized as active or insufficiently active according to the Godin Leisure-Time Exercise Questionnaire Health Contribution Score. Independent t-tests compared PwMS and controls within each activity group, and Group×Activity interactions were tested using linear models to examine whether physical activity moderated between-group differences.

Results: The study included 24 PwMS and 24 matched non-MS controls (mean age: 51.3±11.0 years; 80% females; disease duration: 13.6±9.8 years). Most PwMS were insufficiently active (75%) compared with 30% of non-MS controls. Among insufficiently active participants, PwMS reported significantly greater fatigue (PROMIS Fatigue, $p=0.003$; FSS, $p=0.004$), pain (PROMIS Pain, $p=0.045$; VAS Pain, $p=0.008$), anxiety ($p=0.006$), depression ($p=0.007$), and reduced physical function ($p=0.002$) than non-MS. In the active groups, overall symptom levels were lower, and between-group differences were less pronounced. The Group×Activity interaction was not statistically significant; however, smaller differences in fatigue and pain were observed among active participants.

Conclusion: Symptom burden was higher in PwMS, particularly among those who were insufficiently active. Although the interaction was not statistically significant, the observed trend toward smaller differences in pain and fatigue among active participants suggests that these symptoms may be important targets for physical activity interventions. Larger studies are warranted to confirm these trends.

SO.2.15-13

Comparative Effects of Exercise and Mindfulness Therapies on Depression and Anxiety in Individuals with Chronic Primary Low Back Pain. The BACKFIT Project

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SO.2.15 Mental Health and Wellbeing: Mind, Body, and Technology: Emerging Strategies in Mental Health Care
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Purpose: The prevalence of depression and anxiety among individuals with chronic primary low back pain (CPLBP) is around 50%, and these conditions usually occur simultaneously. The aim of this study was to compare the effects of exercise and a multimodal approach (exercise + mindfulness) with those of a usual rehabilitation care group on depression and anxiety in individuals with CPLBP.

Methods: Of 105 randomized participants, 50 individuals with CPLBP (aged 53 ± 10 years) who attended more than

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65% of the program were analyzed: control group (CG, $n=16$), exercise group (EG, $n=14$), and exercise + mindfulness group (EMG, $n=20$). All groups completed an 8-week intervention twice weekly (45 minutes/session). The CG received usual care (stretching and motor control exercises). The EG and EMG performed muscle-strengthening exercises mainly. Additionally, the EMG attended a weekly mindfulness session (2.5 hours/session). Depression and anxiety were assessed using the Beck Depression Inventory-II and the State-Trait Anxiety Inventory. Assessments were performed pre- and post-intervention and after a 2-month detraining period.

Results: Repeated-measures analyses (Wilcoxon test) showed that CG (median (Me) = 8.5; interquartile range (Q1–Q3) = 1.5, 18.25; $p = 0.013$), EG (Me = 6.00; Q1–Q3 = 3.5, 11.5; $p = 0.002$), and EMG (Me = 9.5; Q1–Q3 = 4.25, 12.75; $p = 0.006$) reduced depression after the intervention. CG (Me = 19.50; Q1–Q3 = 9.00, 35.00; $p = 0.026$) and EG (Me = 17.50; Q1–Q3 = 11.25, 25.75; $p = 0.030$) also reduced anxiety after the intervention. After the detraining period, EG maintained the improvements in depression (Me = 15.50; Q1–Q3 = 3.75, 18.50; $p = 0.026$) and anxiety (Me = 16.00; Q1–Q3 = 10.50, 32.25; $p = 0.003$), whereas no significant differences were found in CG or EMG (all $p > 0.05$). The Kruskal-Wallis test showed non-significant post-pre or re-pre differences between groups (all $p > 0.05$).

Conclusion: The interventions significantly reduced depression scores across all groups, although no inter-group differences were detected. While anxiety was reduced post-intervention in the exercise and control groups, no differences between-groups were detected. Only the exercise group sustained these improvements during the detraining period.

SO.2.16-01

Inequalities and Intersectionality in Post-pandemic Food Insecurity in Southern Brazil

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

Room 7, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Food insecurity is a public health problem in the country, and it has been intensified due to the pandemic. Brazil is a country characterized by significant sociodemographic inequalities. This study aims to assess the inequalities and intersectionality of sociodemographic factors related to food insecurity among adults and the elderly in southern Brazil.

Methods: This cross-sectional study was conducted in 2022-2023 among adults aged 18 and over in Southern Brazil. The outcome was food insecurity, assessed using the short version of the Brazilian Food Insecurity Scale. The participants were classified as experiencing food insecurity if they answered affirmatively to at least one of the five questions. The exposures to build the intersectionality variable, called the Jeopardy Index, were sex, self-reported skin color, and completed years of education. Within the intersectionality framework, a score of 0 indicates the least inequity (male, Caucasian, and a high level of education). In contrast, a score of 4 refers to the most significant degree of inequity (female, Black/Brown/Yellow, and Indigenous people with a low level of education). Poisson regression was used to calculate the prevalence ratio (PR) and its 95% confidence interval (95% CI).

Results: Of the 1,918 individuals interviewed during follow-up, the prevalence of food insecurity was 34.1% (95%CI 32.0; 36.3). After the adjustments, it was observed that females had a 1.68-fold higher prevalence of food insecurity than males, and participants with 0 to 8 years of schooling had a food insecurity prevalence ratio 1.70-fold higher than those with ≥ 12 years of schooling. No statistically significant differences in FI were observed according to skin color. According to the jeopardy index, women, Black/Mixed/Asian, and Indigenous people with low levels of education were approximately three times more likely to experience food insecurity than males, White participants, and those with high levels of education [PR = 3.05 (95%CI 1.88; 4.95)].

Conclusion: Inequalities were evident in the characteristics analyzed separately, in addition to an interaction between them that produced a cumulative risk of food insecurity in the most vulnerable groups, such as women, those of black/brown/yellow or indigenous skin color, and individuals with low socioeconomic status.

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SO.2.16-02

Psychosocial and Individual Determinants of Beverage-related Behaviors in Children: Findings from the DRINK Trial (Belgium, 2021-2022)

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Children's beverage consumption behaviors are shaped by a combination of individual characteristics and broader socioeconomic and family environments. These influences have rarely been examined jointly within a multidimensional study framework. This study aimed to investigate the associations of demographic and psychosocial determinants with several children's beverage-related behaviors.

Methods: Data were drawn from the inclusion phase of the cluster randomized DRINK trial, conducted in 46 Belgian French-speaking primary schools. A total of 3,139 children aged 8-11 years completed a self-administered questionnaire in class. Logistic regression modelling was used for the following binary outcomes, derived from multiple-item questions or scores: susceptibility to food marketing (0: $\leq$ P75 vs. 1: $>$ P75), peer influence toward beverage consumption (0: $\leq$ median vs. 1: $>$ median), perceived parental permissiveness regarding beverage consumption (0: low to medium vs. 1: high), and liking for sugar (0: $\leq$ P75 vs. 1: $>$ P75). Key independent variables included age, sex, family affluence, country of birth, living with both parents, self-efficacy, self-rated health, and life satisfaction. Multilevel modelling was used to account for clustering at the school level.

Results: Children aged 7-8 years (aOR: 1.60 [1.14-2.23]; ref: 11-13 years), those from low-affluence families (aOR: 1.78 [1.28-2.46]; ref: high affluence), with self-efficacy above the median (aOR: 1.42 [1.17-1.71]; ref: below median), and those perceiving their health negatively (aOR: 1.53 [1.19-1.97]; ref: positive perception) were more likely to be in the highest quartile of susceptibility to marketing. Boys (aOR: 1.26 [1.08-1.47]), children from low-affluence families (aOR: 1.46 [1.11-1.92]), and those with self-efficacy above the median (aOR: 1.19 [1.02-1.40]) were more likely to be in the half most influenced by peers. Parental permissiveness was associated with age, family affluence, self-rated health and country of birth, while sugar-liking was associated with sex and self-efficacy. School-level effects were limited but statistically significant across models.

Conclusion: Younger age, negative self-perceptions and socioeconomic disadvantage appear to be linked with increased vulnerability to beverage-related behaviors. These findings underscore the complex interplay between social environment and individual factors in shaping such behaviors among children. They will inform the interpretation of the DRINK trial outputs.

SO.2.16-03

Food Insecurity and Adolescent Mental Health in Belgium and Ireland: Evidence from the 2021/22 HBSC Survey Using Multiple Mental Health Indicators

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Food insecurity (FI) is often assumed to be non-existent in high-income countries and therefore, is infrequently assessed. Yet it may have short- and long-term detrimental effects on mental health. This study compared mental health outcomes among food-insecure adolescents and their food-secure counterparts in Belgium and Ireland, two

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high-income countries with distinct contexts, using indicators ranging from reduced wellbeing to clinical conditions.

Methods: Data came from the standardised Health Behaviour in School-aged Children (HBSC) survey conducted in 2021/22 in French-speaking Belgium and Ireland. Among randomly selected schools and eligible participants, 10,387 (Belgium) and 6,155 (Ireland) adolescents aged 10-17 years were finally included in analyses. FI was assessed using the USDA nine-item module and classified as food secure (≤ 1 point) or food insecure (2-9 points). Mental health outcomes included self-rated health (4-answer question), life satisfaction (Cantrill ladder), loneliness (5-answer question), and wellbeing (WHO-5). Weighted logistic regressions were conducted separately by country to examine associations between FI and these outcomes, adjusting for sex, age, Family Affluence Scale (FAS), and family structure. Interactions with FAS were tested and additional stratified analyses were performed.

Results: In 2021/22, 15.7% [95%CI: 14.4-17.1] and 12.0% [11.3-13.0] of adolescents were food insecure in Belgium and Ireland, respectively. FI prevalence was similar across sexes (e.g.: 16.3% boys and 15.2% girls in Belgium) but significantly increased with age in Ireland and decreased with higher FAS levels in both countries (from 27.8% to 5.2% in Belgium; from 20.0% to 7.4% in Ireland). In both countries, FI was consistently associated with poorer outcomes across all mental health indicators. Indeed, adolescents experiencing FI were more likely to report low life satisfaction (Belgium: 2.70 [2.27-3.20]; Ireland: 2.63 [2.11-3.28]) and loneliness (Belgium: 2.18 [1.85-2.58]; Ireland: 2.73 [2.23-3.35]). Across all FAS categories, FI remained associated with adverse mental health outcomes, except for depression risk among those with high FAS (Belgium: 0.83 [0.36-1.87]; Ireland: 1.43 [0.69-2.96]).

Conclusion: As this study was cross-sectional, causal relationships cannot be inferred. Nonetheless, the consistent associations observed across multiple mental health indicators highlight the need for monitoring and targeted interventions addressing FI and its potential mental health consequences among adolescents.

SO.2.16-04

Mapping Structural Inequities: Deprivation and Breastfeeding Outcomes across California

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: In the United States, persistent breastfeeding disparities reflect underlying structural and socioeconomic inequities. Understanding how regional deprivation contributes to these differences can inform public health planning and resource allocation. This study developed a measure of regional deprivation across California and examined its association with breastfeeding outcomes during the first three months of life.

Methods: Socioeconomic characteristics by California county (local administrative regions comparable to districts or provinces) were obtained from the 2021 Census Bureau American Community Survey 5-year estimates. Principal Component Analysis (PCA) identified indicators that accounted for the most variance across counties to construct the deprivation index. Final deprivation scores were standardized to have a mean of 0 and a standard deviation of 1, with higher scores representing more deprived areas. In-hospital breastfeeding initiation was collected during the California Newborn Screening program within 24-48 hours of birth. Any breastfeeding and exclusive breastfeeding at 3 months were collected through the California Maternal and Infant Health Assessment statewide survey and available for 35 of 58 counties with sufficient birth sample sizes. Meta-regression analyses incorporating county-level estimates and confidence intervals were used to examine the association between county deprivation and in-hospital initiation, any breastfeeding, and exclusive breastfeeding at 3 months.

Results: The first principal component, which accounted for 73% of the variance, was used to construct the final county deprivation index, including the variables: home value, males in professional occupations, households in poverty, households earning under \$45,000, and population unemployed. California county deprivation scores ranged from -2.17 (least deprived) to 2.15 (most deprived). Despite high in-hospital breastfeeding initiation ($94 \pm 3\%$), rates declined at 3 months for any breastfeeding ($72 \pm 9\%$) and exclusive breastfeeding ($35 \pm 9\%$). County deprivation was not associated with in-hospital breastfeeding initiation ($p=0.630$), but was associated with any ($\beta = -0.077$, $SE=0.007$; $p<0.001$), and exclusive ($\beta = -0.047$, $SE=0.010$; $p<0.001$) breastfeeding at 3 months, corresponding to a 4.7 and 7.7 percentage-point decrease per 1 SD higher deprivation.

Conclusion: County deprivation across California was associated with lower rates of breastfeeding continuation,

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but not initiation. Advancing breastfeeding equity will require coordinated policies and programs that tackle the structural and community-level inequities shaping infant feeding practices.

SO.2.16-05

Addressing Food Insecurity and Diet Quality in Low Income Pregnant Populations Using a Systems Alignment Approach

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Nourishing Beginnings is an integrated service delivery model that supports low-income, pregnant individuals in accessing nutritional food during pregnancy, facilitated by a community health worker. In this pilot study, participants were randomly assigned to two alternatives to healthy food access throughout their pregnancy and up to six months postpartum. The goal was to determine program feasibility and to examine the impact on birth outcomes (gestational age, birthweight, complications, NICU stay) as well as proximal maternal outcomes of prenatal care, diet quality, and psychosocial factors (depression, stress, social support, cooking attitudes).

Methods: We enrolled and randomized 160 pregnant individuals (>18, less than 22 weeks pregnant; 80 per arm) to receive either bi-weekly, home-delivered, medically tailored groceries (MTG) curated by registered dietitians and delivered by the local food bank, or bi-weekly cash assistance (CASH) with healthy food access navigation. Key data was collected at baseline, near delivery (36-38 weeks gestation), and three months postpartum, each of which included a survey, two 24-hour food recalls and clinical data. Intervention groups are compared to each other and a concurrent matched sample from Medicaid data.

Results: When compared to the CASH group, the MTG group reported a significant reduction in food insecurity ($p<0.05$); however, both groups reported similar improvements in stress, depression, and social support. MTG babies were less likely to be preterm (<37 weeks; 15.3% vs. 19.0%), low birthweight (<2500 gms; 16.4% vs. 19%), or admitted to the NICU (14.4 vs. 19.4%) than CASH group babies, however, these differences were not statistically significant - both sample size and lack of a pure control group, likely contributing. When comparing to matched Medicaid controls, the CASH group, but not the MTG group, was different from the controls on birthweight and gestational age (negative findings).

Conclusion: As one of the first randomized trials of MTGs with low-income pregnant individuals, our pilot confirmed the directionality of intervention impact, confirmed feasibility and study retention, and provided valuable lessons learned that are now being applied to a newly NIH funded RCT that will compare the home delivered MTG approach with a hospital-based MTG program and one with a supplemental training and education component.

SO.2.16-06

Affordability of Healthy Food Baskets and Access to Food Assistance Programs in Subnational Regions of Uruguay, a High-income Latin American Country

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

Room 7, May 29, 2026, 2:00 PM - 3:00 PM

Purpose: Monitoring economic access to healthy foods is key to developing policies to achieve food security and the right to food. In this context, the present study aimed to analyze households' affordability of a Healthy Food Basket (HFB) and access to food assistance programs in subnational regions of Uruguay, a high-income Latin American country.

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Methods: The database from the National Survey on Household Expenditure and Income (2016-2017) was used (n=6889). Baskets were constructed for two regions: the capital city Montevideo; the rest of the country. They were based on linear programming for a representative individual of each region, considering their nutritional needs and dietary patterns, and were composed of unprocessed, minimally processed and processed foods and beverages. Rates of non-affordability and participation in State-provided cash and in-kind transfers, and average benefit amounts were calculated for deciles of household disposable income. Welch's ANOVA and Pearson's Chi-square tests were conducted to analyze mean and proportion differences, respectively. A significance level of 5% was used. Analyses were performed using R software.

Results: The costs of the HFB in May 2017 were 4.4 dollars for Montevideo and 4.1 dollars for the rest of the country (international dollars per person per day). Approximately 37% of the households presented non-affordability, i.e., lower food expenditure compared to the cost of the HFB. Households from Montevideo presented a lower rate of non-affordability ($p<0.001$). More than 50% of the households of income deciles 1 and 2 had food expenditures lower than the cost of the basket, whereas among deciles 9 and 10 the non-affordability rates were lower than 20% ($p<0.001$). Households of lower income had higher participation rates in State-provided programs aimed at increasing food access and received higher benefits. However, benefits represented, on average, less than 10% of the HFB cost in low-income households.

Conclusion: A relevant share of the Uruguayan population faces economic barriers to accessing healthy foods, underscoring important limitations to the exercise of the right to food and the achievement of minimum levels of well-being. Results provide input for developing policies to increase the coverage and benefits of cash and in-kind transfers for the most deprived households.

SO.2.16-07

Navigating Complementary Feeding in Food Insecure Households: Experiences of New Zealand Mothers

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Household food insecurity, defined as a limited or uncertain availability of nutritionally adequate and safe foods or limited ability to acquire acceptable foods in a socially acceptable way, is an important public health issue affecting one in four families with infants in New Zealand. Household food insecurity disproportionately impacts mothers and may compromise infant nutrition due to mothers' central role in feeding. This study explored mothers' feeding behaviours and experiences of introducing complementary foods to their infants in food insecure households, addressing a research gap that has largely focused on breastfeeding in this context.

Methods: In 2022, in-depth semi-structured interviews were conducted in person with 15 mothers from the First Foods New Zealand study (2020-2022) in Dunedin, New Zealand. Mothers experienced moderate or severe household food insecurity when their infants were 7-10 months old. Interviews focused on mothers' infant feeding experiences and particularly complementary feeding. Audio recordings were transcribed verbatim, and transcripts were analysed using a reflexive thematic analysis approach.

Results: Three themes, including one subtheme, were generated from the interviews: (1) food purchasing strategies were used to stretch money; (2) the infant's nutrition was prioritised (subtheme: breast milk was perceived to support the infant's nutrition); and (3) support was appreciated, but seeking money or food often brought a sense of shame and disempowerment.

Conclusion: Mothers demonstrated remarkable determination and resourcefulness in feeding their infants nutritiously by stretching limited resources, compromising their own diets, and seeking support despite significant challenges. Their experiences reflect the extensive labour and emotional and cognitive strain involved in food provision in the context of household food insecurity. These findings highlight that educational interventions aimed at improving knowledge of food acquisition are unlikely to address the challenges faced by mothers experiencing food insecurity. Greater financial support is needed to ensure that mothers can consistently provide adequate and nutritious food for themselves and their families.

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SO.2.16-08

Are Enslaved Black Adolescents from the Amazon Region in Brazil Losing their Food Culture? A Mediation Analysis between Food Insecurity and Dietary Patterns

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Racial/ethnic vulnerable groups in Brazil, including *Quilombolas* adolescents, descendent of enslaved blacks formed during the colonial period, have the highest prevalence for food insecurity (FI). Many quilombolas reside in rural and/or remote areas in the Amazon region, but their traditional cultural food practices may be eroded in the current food systems. The study examined socio-demographic aspects of quilombolas adolescents that mediate FI and dietary patterns.

Methods: Three hundred full-time high school students ($M_{age} = 14.09 \pm 2.68$, 55.15% female) completed a self-reported eating behaviour questionnaire with 9 food items and 5 items related to the meal occasions. The eating behaviour questionnaire was used to compute the dietary diversity scores. Parents completed the Brazilian Food Security Scale. Weight and height were self-reported. Parents and adolescents completed a socio-demographic questionnaire. Descriptive statistics and path analysis were performed.

Results: Large proportion of the adolescents' experience FI (83.39%). The mean dietary score was 8.61/14 (95% CI 8.38; 8.83) and as increase severity of food insecurity lower is the dietary score. Approximately 45% of the top 3 food consumed by food secure adolescents were represented by starchy roots (18.97%), fruits (13.36%) and beans (12.93%); while severe food insecure participants were salty snacks (14.48%), starchy roots (13.79%) and processed meats, sugar sweetened beverages and sweets/candies ranked the top 3 (11.72%). Adolescents who consumed snacks and lunch had respectively 40% (OR = 0.61; 95%CI 0.44; 0.84) and 60% (OR: 0.39; 95%CI 0.20; 0.76) to be FS. Adolescents weight status had a negative direct effect on dietary scores ($\beta = -0.32$; SE 0.13) and food insecurity status (-0.61 ; SE 0.24); while race had negative direct effect on food insecurity status ($\beta = -2.12$; SE 0.87). Parents' receiving some governmental benefits had a negative direct effect on food security status ($\beta = -1.62$; SE 0.60).

Conclusion: Study revealed a higher prevalence of food insecurity in quilombolas from the Amazon region, and many of them are losing the cultural food tradition. Many socio-demographic characteristics mediated the association between FI and diet diversity. It is important that governmental programmes would favour ethnically diverse adolescents to encourage their cultural-tradition food practices to attenuate the impact of FI.

SO.2.16-09

Food Purchasing and Consumption in Families at Risk of Poverty: Links to Health and Household Economic Factors

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: The aim of this study, which was conducted as part of the larger MEGA_kids project, was to gain a deeper understanding of the nutritional situation and health characteristics among individuals living with children at risk of poverty in Germany using grocery receipts as an objective measure for food purchase patterns.

Methods: Participants were instructed to collect all grocery receipts for a two-week period. Data were aggregated based on food categories. Mean prices adjusted for household size were calculated for each food category. The relationships between grocery expenses, socio-demographics, health characteristics, frequency of family meals, food insecurity status and nutrition knowledge were investigated.

Results: A total of 308 households provided grocery receipts. On average, households spent 118.95 € on food over the

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2-week period. Adjusted for household size, the largest share of expenditures was allocated to sweet and salty snack foods (19%), followed by meat and sausages (18%). Milk and dairy products accounted for 12% of the total purchase value of average purchases, while fruits and vegetables each represented 7%. Several significant associations were found between grocery expenses, dietary preference categories and characteristics such as additional household economics, socio-demographics, health data, and other nutrition-related aspects.

Conclusion: This study enhances the understanding of the realities of life for families at risk of poverty and generates objective data on dietary habits and economic decisions related to health. The findings provide a robust basis for practice, research, and policy, facilitating the development of more targeted and effective interventions to improve the nutritional situation of families at risk of poverty.

SO.2.16-10

Social Inequalities and Food Insecurity during Pregnancy: Findings from the ECAIL Study

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Food insecurity is a growing public health concern linked to increased obesity risk. In France, these disparities are pronounced in the Hauts-de-France region, which has the highest rates of obesity, poverty, and unemployment nationwide. Social inequalities in nutrition can emerge during pregnancy, yet socially vulnerable families remain underrepresented in epidemiological research. This study aimed to estimate the prevalence of food insecurity among marginalized pregnant women and examine its associations with socioecological factors.

Methods: The ECAIL trial recruited 607 pregnant women experiencing social vulnerability from two maternity wards in Hauts-de-France. Participants are followed at home by dietitians until their child's second birthday. Those in the intervention arm receive personalized support, including breastfeeding promotion, guidance on nutrition and active lifestyles, and financial incentives to access kitchen utensils and healthy foods at reduced prices. This analysis used baseline data from all participants. Food insecurity during pregnancy was measured using the 10-item Household Food Security Survey Module (HFSSM). Applying a socioecological framework, nested multivariable logistic regression models assessed associations between food insecurity and maternal sociodemographic characteristics, including age, birthplace, household size, cohabitation status, education, employment, and household income.

Results: Nearly one-third (29.5%) of participants experienced moderate or severe food insecurity. Compared with those born in mainland France, participants born in sub-Saharan Africa had significantly higher odds (OR 4.56; 95% CI 2.89–7.26). Participants with secondary education or less were more likely to experience food insecurity than those with post-secondary education (OR 2.05; 1.37–3.11), as were participants who were unemployed during pregnancy compared with those who were employed (OR 1.88; 1.03–3.41). Participants with household incomes below €1500/month had higher odds of food insecurity than those earning €2500/month or more (OR 3.25; 1.70–6.45).

Conclusion: These findings reveal a high prevalence of food insecurity among socially disadvantaged pregnant women, driven by intersecting structural determinants. A socioecological lens highlights how broader systems—migration, education, employment, and income—interact with individual factors to shape nutritional vulnerability. Targeted interventions are needed to address immediate food access and upstream drivers. Future research should explore barriers faced by families of sub-Saharan African origin and co-develop culturally adapted strategies to reduce inequities.

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SO.2.16-11

A Cross-sectional Study to Understand Experiences of Severe Food Insecurity and Associations with Nutrition Behaviours among Adolescents in Canada

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Despite widespread concern, there is a lack of contemporary and population-level evidence on food insecurity among adolescents. Understanding associated nutrition behaviours is necessary to inform appropriate interventions. This study aimed to: 1) examine the prevalence of food insecurity among sociodemographic subgroups; 2) explore associations between food insecurity and recommended nutrition behaviours.

Methods: We used cross-sectional survey data from 34,356 secondary school students in Canada that participated in the 2023/2024 COMPASS study. Single items asked students about the number of days in the last week that they: Ate less because their family was running out of money for food (an indicator of severe food insecurity), contributed to meal/food preparation, ate meals at home with family, ate food from restaurants, ate snacks from convenience stores/vending machines, brought home-packed lunches to school, and consumed fruit, vegetables, and water. Descriptive statistics explored food insecurity by sociodemographic subgroups. Poisson regression models examined associations between food insecurity (dichotomized as yes=at least one day, no=0 days) and nutrition behaviours (treated as count), controlling for sociodemographic characteristics and school clustering.

Results: One-tenth of adolescents experienced severe food insecurity, with a higher proportion reported among transgender and gender diverse (20.8%), older, Black (19.4%) and Another ethnicity (15.0%), and immigrant (0-5 years in Canada 12.3%; 6+ years 11.1%) students relative to their cisgender (cis-girls 9.7%, cis-boys 8.4%), younger, White (8.1%) and born in Canada (9.1%) peers. Food insecure students reported having family meals at home and consuming vegetables on a 32% and 29% lower number of days in the past week than food secure students, respectively (family meals: estimated 3.34 days in food insecure students vs. 4.88 days in food secure students; vegetable intake: 4.32 vs. 3.09 days); whereas the expected number of days that food insecure students reported meal preparation was 1.05 times higher than food secure students (2.61 vs. 2.48 days). Results for additional nutrition behaviours (listed in Methods) will be presented.

Conclusion: An alarming proportion of adolescents are eating less due to food insecurity; populations at greatest risk warrant targeted interventions. Nuanced results across nutrition behaviours challenge assumptions and reinforce the importance of avoiding interventions that further stigmatize populations.

SO.2.16-12

Exploring Multi-level Protective Factors Shaping Food Security Status and Skin Carotenoid Levels among U.S. Hispanic/Latino Adults: A Mixed-methods Study

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: U.S. Hispanic/Latino households experience a high prevalence of food insecurity and nutrition-related chronic disease risk factors. While households often leverage resources to manage food insecurity, mixed-methods evidence is needed to identify behavioral intervention targets. This mixed-methods study sought to elucidate

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protective factors promoting household food security and diet quality among U.S. Hispanic/Latino adults.

Methods: Guided by the Socioecological Model and a capacity-oriented approach, we conducted a cross-sectional convergent parallel mixed-methods study with Hispanic/Latino adult (≥ 18 years) patients at a Federally Qualified Health Center in San Diego, CA. Participants completed VeggieMeter® skin carotenoid scans (objective correlate of fruit and vegetable intake), the 6-item U.S. Household Food Security Module Short Form, and a focus group. For analyses, we dichotomized carotenoid levels by the sample median (≥ 249 (high) vs. <249 (low); range: 128 – 452) and used the 4-category household food security status (high, marginal, low, very low). We integrated thematic content analysis of focus group data with quantitative data by comparing multi-level influences and food provisioning strategies by carotenoid level and household food security status.

Results: Among 45 participants across 8 focus groups, most (73.3%) experienced some level of household food insecurity (marginal ($n=3$), low ($n=17$), very low ($n=13$)). In the mixed-methods analysis, many participants with high carotenoid levels reflected on learning about food provisioning strategies from their parents and most discussed proactive, weekly engagement with a variety of purposeful and culturally relevant strategies related to economical meal planning, food shopping, food acquisition (including accessing free produce), and meal preparation. In contrast, most participants with low carotenoid levels discussed fewer proactive and purposeful food provisioning strategies. Comparisons by household food security status were less distinct; many participants with some level of food insecurity reported using a variety of purposeful food provisioning strategies, whereas participants with high food security reported using fewer strategies.

Conclusion: A combination of knowledge, skills, social networks, and available food resources facilitated access to nutritious, culturally relevant foods for Hispanic/Latino adults, underscoring the complex process of maintaining a healthy diet and food security. Enhancing multi-level health-promoting resources may improve diet quality among Hispanic/Latino households even in the context of food insecurity.

SO.2.16-13

Socioeconomic Difference in Cardiovascular Disease: The Mediating Role of Environmental and Lifestyle Factors in the Maastricht Study

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SO.2.16 Socio-economic inequalities: The Intersection of Inequity, Diet, and Health: Global Perspectives on Food Security

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Purpose: Individuals with lower socioeconomic position (SEP) are at a higher risk of developing cardiovascular disease (CVD). Harmful neighborhood conditions may contribute to higher allostatic loads and additionally make it more difficult to achieve healthy behaviors as a result of poor design and unfavorable social environments. We investigated the relationship between SEP and incident CVD and aimed to determine whether the environment independently, and jointly with lifestyle factors, mediated this association.

Methods: Data from 7,195 participants with a mean age of 59.5 years (52.1% female) from The Maastricht Study in the Netherlands were used. Self-reported education level was utilized as an indicator of SEP. The food environment was measured using GIS data enriched by a food outlet healthiness rating index. Walkability and social cohesion were gathered from questionnaires. Diet quality was obtained from the Dutch Healthy Diet index 2015 derived from a food frequency questionnaire. Physical activity was measured by a thigh worn accelerometer while alcohol and smoking use were self-reported. A standardized composite score was calculated for the environment (food environment, walkability, social cohesion) and lifestyle factors (diet, moderate-to-vigorous physical activity, alcohol, smoking). CVD incidence was defined by self-reported non-fatal events in an annual questionnaire over up to an 11-year follow-up period. Generalized structural equation modeling tested the mediating effects of the environmental and lifestyle factors, and the serial pathway of the environment through lifestyle factors between education and CVD.

Results: Lower education was associated with a higher risk of developing CVD (HR: 1.08; 95% CI: 1.03, 1.12). Harmful environments independently mediated 12.4% of this association (HR: 1.01; 95% CI: 1.00, 1.02), while 62% was mediated by harmful lifestyle factors (HR: 1.04; 95% CI: 1.03, 1.05). Harmful environments through harmful lifestyle factors mediated a small proportion (3.1%) of the effect of lower education and CVD (HR: 1.00; 95% CI: 1.00, 1.00).

Conclusion: This study shows that harmful lifestyle factors mediated a greater proportion of the association between

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low SEP and CVD while the neighborhood environment had a smaller influence, both independently and jointly. Further studies should investigate additional environmental exposures, behaviors, and risk factors on the pathway to CVD.

SO.2.17-01

Exploring Parental Needs and Municipal Capacity for Parent-focused Interventions in Public Health through Implementation Science

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel
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Purpose: Parent-focused interventions play a key role in shaping children's health behaviours and supporting healthy family food environments, yet how these interventions can be implemented, sustained and adapted to local contexts, is not well understood. In addition, such interventions can be less effective if failing to meet actual needs and preferences of the target group. Guided by implementation science and the Interactive Systems Framework for Dissemination and Implementation (ISF) this study examines how governance and service delivery interact to affect implementation success.

Methods: The study was conducted in a Norwegian municipality, providing an in-depth case to understand how local structures and context shape intervention initiation, implementation, and sustainability. A qualitative design was used, with semi-structured interviews (n=14) and focus groups discussions (n=4) involving municipal leaders and frontline staff to explore implementation strategies and processes. In addition, semi-structured interviews with parents (n=12) were used to explore experiences and needs for support to promote healthy dietary habits for children. Interviews were analysed using reflexive, thematic analysis.

Results: Preliminary findings show that parents needed more practical guidance on how to manage their children's changing food preferences through different developmental stages, as well as support that could strengthen their confidence in ensuring their children receive adequate and balanced nutrition. While the municipality staff valued evidence-based practice, understanding of what this involves varied. There was a desire for innovation, but efforts seemed to lack formal structures and relied on individual initiative facing limitations as time and competing priorities. At the same time, leaders expressed encouragement and support of innovations from frontline personnel, which they thought would increase engagement and the chances of successful implementation. They also had experienced that interventions were more likely to succeed when timing and shared interests among key actors aligned.

Conclusion: The study highlights that municipal implementation capacity depends on interactions between leadership and frontline systems. More broadly, the study contributes to implementation science in public health by showing how municipalities can improve readiness, collaboration, and sustainability of interventions. Findings will, together with the insights from the parent's interviews, guide the co-creation of an intervention to support healthy food parenting practices.

SO.2.17-02

How Boys and Girls Differ in Sedentary Time and Physical Activity across Daily Domains: The IDEA-kids Study

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Purpose: To examine gender differences in device-measured sedentary time (ST) and physical activity (PA) across daily space-time domains (home, school, other locations, and total day) and transport modes among Spanish children, acknowledging that movement behaviors vary by context.

Methods: Participants were 143 children (42.7% girls; mean age=10.9±0.6 years) from the IDEA-Kids study. Children wore accelerometers (ActiGraph GT3X+) and GPS (Qstarz BT-Q1000XT) in 2024–2025 from three rural Spanish schools. Days with ≥10h of valid wear were included (mean=5.1±2.1 valid days per participant). GPS data linked accelerometer records to four space-time domains: home (within each child's residential buffer), school (school campus during school hours), other locations (anywhere else), and total day. For each valid day, the percentage of time spent in ST, light PA (LPA), and moderate-to-vigorous PA (MVPA) was computed. Transport modes (walking, cycling, and vehicle) were identified from GPS trips and analyzed as the percentage of daily transport time. Linear mixed-effects models (domain × gender; mode × gender) with random intercepts for participants were fitted, adjusted for age and daily wear time.

Results: Children spent on average 63% of their total day in ST, 32% in LPA, and 5% in MVPA. At home and school, sedentary behaviors predominated, while most MVPA occurred in other locations and during transport. After adjustment, girls spent a higher proportion of time sedentary at home ($p=0.007$), whereas boys accumulated more MVPA in other locations ($p<0.001$). No significant gender differences were observed for total-day distributions of ST, LPA, or MVPA. During transport, girls spent more of their travel time walking (36% vs. 27%; $p<0.001$), boys spent more time in vehicles (63% vs. 58%; $p=0.001$), and cycling did not differ significantly between genders (7% vs. 9%; $p=0.102$).

Conclusion: Although no overall gender differences were found in total daily ST and PA, domain-specific analyses revealed distinct patterns between boys and girls. Girls were more sedentary at home and walked more during transport, while boys were more active in community settings. These results confirm that movement behaviors are domain- and context-specific and support the need for targeted, gender-sensitive interventions to increase PA and reduce ST among children.

SO.2.17-03

Understanding the Wishes and Needs of Young Children and Key Stakeholders for Promoting Physical Activity in Young Children

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel
Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Physical activity (PA) levels among young children have declined in recent decades, mirroring global patterns linked to negative health outcomes. A recent study conducted across 33 countries showed that only 49.2% of the 3- and 4-year-old children meet the World Health Organization's PA guidelines (Chong et al., 2024). These findings highlight the urgency of developing early, context-sensitive strategies to promote PA in early childhood. To ensure such strategies are meaningful and sustainable, it is crucial to adopt a systems approach that actively involves children, parents, and professionals in co-creating PA promoting strategies.

Methods: Prior to the co-design method, an empathize phase was conducted to explore the underlying factors and actors that influence PA behavior among children aged 3 to 6 years. Through participatory activities, children completed movement themed workbooks and took photographs of places where they enjoyed or disliked being active. We discussed these with parents. Parallel to this, a local community of practice was established, bringing together key stakeholders (e.g., early childhood educators, health professionals, policymakers) to identify additional needs and contextual barriers and facilitators of PA, exchange practice-based insights and to ensure the sustainable implementation of the systems approach. Findings from these sessions were translated into personas and design requirements that could be used in co-designing the systems approach.

Results: The empathize phase revealed a diverse set of wishes and needs next to interacting factors and actors influencing young children's PA, ranging from parental attitudes and peer interactions to environmental opportunities and institutional policies. Stakeholders emphasized the need for flexible, locally adaptable interventions that connect family, school, and community settings.

Conclusion: Gathering qualitative data among young children and key stakeholders on preferences, needs and

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perceived barriers provides a deeper understanding of the complex, multi-level influences on children's PA and helps in defining requirements for co-designing systems approaches. Involving children, parents, and professionals as equal partners offers a promising pathway toward developing sustainable, contextually relevant strategies to promote PA in early childhood.

SO.2.17-04

What Is the Relationship between Outdoor Risky Play and Health in Children?

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel

Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Risky play is a thrilling and exciting form of free play that involves elements of uncertainty and the possibility of physical injury, and includes activities such as climbing to heights, moving at high speeds, using tools and engaging in rough-and-tumble play. In recent years, a growing body of research has heightened awareness of the potential benefits of outdoor risky play for children's health. The purpose of this systematic review is to synthesize the evidence regarding the relationship between outdoor risky play and health outcomes among children aged 3-12 years.

Methods: A systematic literature search of five databases identified eligible studies that assessed associations between children's (ages 3-12) outdoor risky play and health outcomes. Measures of risky play as an exposure variable were included as well as categories of risky play behaviours. Health outcomes were defined as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity'. Quantitative and qualitative data were analyzed by quantitative narrative synthesis and qualitative framework synthesis, respectively, and synthesized using a Pillar Integration Process.

Results: A total of 71 studies met the criteria for inclusion. Four categories of exposure were identified: general risky play (n=12); environments that support risky play (n=20); independent mobility (n=18); and rough-and-tumble play (n=21). Health outcomes were grouped into physical, mental health and well-being, aggression, social, cognitive, and risk competence and injury outcome categories. Quantitative studies showed an overall positive effect of risky play on physical health-related outcomes, in particular children's physical activity levels. Mixed findings were synthesized for mental health and well-being, aggression, social, cognitive, and injury and risk competence outcomes. Qualitative studies identified a wider range of health outcomes than those investigated quantitatively, providing direction for future enquiry. Study quality across included papers was low to moderate, outlining a need for higher quality research in this field.

Conclusion: These results offer insights into how children's health is influenced through participation in thrilling and challenging play experiences. Importantly, this review affirms the significant contribution of risky play experiences to children's physical activity participation.

SO.2.17-05

The Impact of LifeLab Dublin: A Co-designed Youth Health Literacy Intervention

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel

Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Health literacy is vital to good health and wellbeing, and recognised as a critical determinant of health. Research has shown health literacy to consistently and persistently exist on a social gradient. Strong calls have been made for co-designed, integrative, and preventative approaches to improving health literacy, and schools have been proposed as a vital context for embedding health literacy programmes. LifeLab Dublin is a health literacy intervention co-designed by and for post-primary students in Ireland. Specifically, LifeLab was co-designed by students and

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teachers from identified areas of disadvantage over the last five years, leading to the co-development of a nine-week intervention programme. The purpose of this study was to evaluate the impact of participation in LifeLab on health literacy and well-being in a cohort of Irish adolescents from communities at risk of disadvantage and social exclusion.

Methods: Four schools took part in this study, across 15 class groups with a total of 352 students. Pre-tests were conducted a week before schools started the programme, post-tests within a week following completion, and retention tests at three and six months. Participants completed health literacy and wellbeing assessments including HLSAC, WHO-5 and Kidscreen-27. Data was analysed using a mixed-effects model implemented in R.

Results: Analyses indicated significant improvements in HLSAC health literacy scores over time ($p < 0.001$ & Cohen's $d_z = 0.37$), sustained at 3- and 6-month follow-ups. WHO-5 well-being scores also increased significantly ($p < 0.05$ & Cohen's $d_z = 0.03$). Kidscreen-27 results varied by domain, with gains in physical and psychological well-being but not in school environment or autonomy. Improvements were maintained at retention, suggesting sustained impact.

Conclusion: Findings demonstrate the potential of LifeLab in positively impacting the health literacy levels of adolescents. Future research is warranted to evaluate the impact of LifeLab against a control group, and follow up over a longer period of time. These findings, taken in consideration with previous participatory and qualitative work, point to the need to explore the feasibility of LifeLab intervention at scale.

SO.2.17-06

Communitites4Walkability: Investigating Walkability for Children and Young People Living in Rural Australia

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel

Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Walking offers significant health benefits and supports independence and social connection for young people. While strong evidence links the physical environment to walking behaviour, most research has focused on urban settings. Children and young people living in rural and regional communities remain underrepresented in research. This study explored community-identified walkability barriers and facilitators in rural Tasmania, Australia, focusing on perceived needs for children and young people.

Methods: This mixed-method study used a citizen science approach to engage rural community members in assessing the walkability of their town and identify priorities for action. Eighty-seven citizen scientists (age 12-65+years) across 10 rural towns completed quantitative walkability audits, including 473 photographs. Fifty-six participants attended workshops held in each town and were asked to consider the needs of children and young people to identify key issues, priorities and solutions. Thematic analysis of workshop transcripts and audit photographs was conducted.

Results: Barriers for young people included limited safe access to destinations due to lack of footpaths, connectivity, pedestrian crossings, unsafe intersections associated with speeding traffic and poor visibility (*"You're crossing on a junction, you've got traffic coming from three possible ways... that's one of the main barriers to my kids walking independently."*). Poorly maintained footpaths and physical obstacles were additional barriers for those walking with prams. Facilitators identified were connected footpaths with buffers between pedestrians and vehicle (*"That's when formed pathways are more important, because it enables... younger people with children... to be a bit safer."*), recreational spaces, pedestrian-friendly signage, and curbs for those walking with prams. Identified priorities for action to support children and young people were lower speed limits (*"Lowering the speed... It's 50 at the moment? The school is just there, these kids run round."*).

Conclusion: Findings illustrate the importance of ensuring pedestrian infrastructure addresses the needs of rural children and families. Investing in pedestrian infrastructure and traffic safety features especially around key community destinations used by young people such as bus stops, schools, and recreational areas may encourage more young people to walk and create positive flow-on effects for other community members.

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SO.2.17-07

Sociodemographic Patterning of Adventurous Play: An Update from the 2025 British Children's Play Survey

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel
Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Adventurous (or risky) play - thrilling, exciting play involving some fear and uncertainty – supports physical activity and good mental health in children, yet opportunities may differ across social and demographic groups. This study examines sociodemographic differences in children's adventurous play across the United Kingdom using new data collected in 2025.

Methods: A nationally representative survey of 2,022 parents of 5–11-year-olds was conducted by YouGov. Parents reported the time their child played in multiple locations. The level of adventure in each place was rated on a five-point scale (1 = very low to 5 = maximum). Total hours per year in adventurous play were calculated by summing time across locations rated ≥ 2 (mild adventure or higher).

Child age, gender, ethnicity, social grade, birth order, learning difficulties, physical disability, urbanicity, and UK region were modelled separately with covariates informed by directed acyclic graphs. Because the outcome was zero-inflated and right-skewed, a two-part hurdle model was used: (1) probit regression estimating whether children engaged in any adventurous play; and (2) a generalised linear model (gamma family, log link, hrs/year) restricted to those who engaged in any adventurous play.

Results: The probability of any adventurous play did not differ significantly by age, though it declined slightly from 5 to 11 years. The GLM showed a significant quadratic age pattern: predicted means were 1,121 hours at age 5, 997 at 7, and 1,293 at 11 (turning point ≈ 7.4 years). Boys averaged more adventurous play than girls (1,209 vs 990 hours; $p < 0.001$). No significant effects were found for ethnicity, birth order, social grade, urbanicity, or physical disability. Children with learning difficulties showed marginally lower participation (93% vs 96%). Children from London engaged in highest levels of adventurous play (1,381 hours), due primarily to high levels reported at age 11, likely linked to independent mobility.

Conclusion: Adventurous play appears broadly equitable across UK sociodemographic groups, though age, gender, and regional differences persist. A mid-childhood dip (≈ 7 years) may represent a developmental transition point. Findings reinforce the value of supporting adventurous play environments, particularly for girls and regions with fewer opportunities.

SO.2.17-08

Examining How Outdoor Play Space Design and Loose Parts Integration Influence Children's Fundamental Movement Skills and Engagement across Diverse Physical Activity Intensities

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel
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Purpose: To examine how outdoor play space features, in combination with outdoor loose parts play (OLPP), influence children's fundamental movement skills (FMS) and physical activity (PA).

Methods: Data were collected from two after-school programs in Nova Scotia, Canada, following a six-week OLPP intervention. Site A was a nature-based setting (trees, expansive open space), while Site B featured an asphalt basketball court and smaller green areas. Behavioural mapping captured children's FMS (locomotor, object control,

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stability) and PA intensities (stationary, slow/easy, moderate-to-vigorous physical activity [MVPA]) using the Movement Observations during Play (MOP) tool developed for this study, alongside the Children's Activity Rating Scale (CARS). Descriptive analyses summarized behaviours, and binary logistic regression (odds ratios; OR) was employed to assess associations between loose parts (LP) and FMS and PA.

Results: A total of 612 play observations were recorded at Site A and 563 observations at Site B. Play patterns differed between sites and across features. At Site A, open space and trees generated the most observations ($n = 384$, 62.7%; $n = 173$, 28.3%). In open spaces, object control (40%) and slow/easy movement (43%) were the most frequent play behaviours, as was locomotor play without LP (OR = 4.26). Stability skills were less likely in open space alone but twice as likely when natural materials were used. When using LP, children were significantly more likely to combine FMS in their play. At Site B, open space ($n = 217$; 35.5%) and the basketball court ($n = 227$; 40.3%) supported higher-intensity play (MVPA). In these open spaces, object-control activities significantly increased with LP use (OR > 10); locomotor-object control movement combinations were also more frequent with LP, particularly manufactured materials (OR = 9.61). Object-control activities were also predominant in the basketball court (45% of observations) and more than half of play observations were at MVPA. At both sites, trees supported stability-based play, yet more so without LP.

Conclusion: Outdoor play space features, in conjunction with LP, afford distinct movement opportunities and increase the likelihood of movement combinations. Outdoor environments should be restructured to offer diverse play affordances as a mechanism for supporting children's FMS development and PA.

SO.2.17-09

"It's Way Fun" or Is it "Really Too Tiring"? Students Discuss the 'Pau Te Hau' High-intensity Interval Training Programme

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel

Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Exploring how students engage with and respond to high-intensity interval training (HIIT) in schools contributes to the knowledge needed for successful praxis. This presentation aims to share how students experienced the *Pau te Hau* high-intensity interval training (HIIT) programme from a socio-cultural perspective. By centering student voices, the study explores students' perspectives on the inclusion of Mātauranga Māori (through indigenous narratives), the use of digital technologies, and their learning about physical activity. These aspects all contributed to shaping the outcomes of the intervention.

Methods: The *Pau te Hau* programme consisted of 10–15 minute HIIT sessions, delivered 2–3 times weekly by generalist teachers ($N = 17$) to 10-year-old students ($N = 401$) over one school term (nine weeks). Students followed the *Pau te Hau* app which was instrumental in the delivery of the programme, supported by the generalist teacher facilitating each session. At the end of the intervention, 58 focus group interviews were conducted with students in groups of 5–6 (36 girls and 22 boys), and these were recorded and thematically analysed.

Results: Students found the *Pau te Hau* HIIT programme highly enjoyable, often describing it as "way fun" and sometimes "the exercises is they're like too tiring". However, they mostly appreciated the chance to exercise with friends, which fostered social connection. The integration of Mātauranga Māori (indigenous knowledge) gave the programme cultural relevance, deepening students' sense of belonging and making the experience more meaningful. The use of instructional videos and digital tools made sessions more engaging and accessible, keeping students motivated. Overall, students viewed *Pau te Hau* as a positive, enjoyable, and culturally rich programme that supported both their physical and social development.

Conclusion: The *Pau te Hau* intervention enabled the voices of children to be heard, offering critical insights into how students engaged with HIIT, and the effects on their learning and wellbeing. By actively listening to students, the programme revealed the value of culturally relevant and technology-supported approaches in promoting positive educational and health outcomes. These perspectives are essential for informing future practice, ensuring that interventions are responsive to students' lived experiences and genuinely support their development.

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SO.2.17-10

Digging Deeper: What Are the Key Elements of School Gardening?

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel

Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: School gardening programmes are used to promote healthy eating among children and to provide them with nature education. However, the programmes vary largely in set-up and design. The aim of this study was to develop an overarching model intervention for school gardening programmes, describing a set of key intervention elements that contribute to effectiveness.

Methods: The model intervention was developed through close collaboration between science and practice. First, a literature scan on school gardening interventions was executed to extract effective key intervention elements, potential mechanisms of change, and barriers and facilitators for implementation. Second, stakeholder workshops were conducted to gather insights from practice and create consensus on the key intervention elements, criteria, and goals.

Results: Fourteen review articles were included, revealing considerable variation in the school gardening programmes, with the number of gardening sessions varying between 3 to 72 lessons. The reviews showed that school gardening programmes can be effective on various child outcomes, with strongest evidence for positive effects on children's fruit and vegetable eating behaviour.

Insights from both the literature scan and stakeholder workshops led to a list of 11 key elements for effective school gardening among children aged 8-12 years. Important behaviour change techniques that were used in the school gardening programmes were knowledge development, repeated exposure, social influence and role modelling, experiential learning, repetition of behaviour, and a sense of ownership and active involvement of the children.

Sufficient funding, availability of human resources, high commitment and expertise of those delivering the program, availability of a school garden, institutional support within the school, and the integration of gardening within the school curriculum were identified as important factors facilitating implementation.

Conclusion: The school gardening model intervention is the first model intervention that was included in the Dutch intervention database of the National Institute for Public Health and the Environment (RIVM). By providing an overarching framework with key intervention requirements, the model intervention boosts quality improvement and is an important step towards evidence-based school gardening interventions that effectively change children's behaviours.

SO.2.17-12

Father's Motivation as a Driver of Reciprocal Reinforcement in Father-child Dyads: Associations with Obesity-related Behaviors and Weight Status

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel

Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Reciprocal reinforcement (RR) describes mutual influence in father-child health behaviors through dynamic feedback. As a first step toward measuring RR, we developed and validated a father-focused instrument with two scales: motivation to engage in health behaviors for oneself (F-RR) and for one's child (C-RR). Based on the premise that paternal motivation can initiate RR processes, we examined associations between F-RR and C-RR and father-child health outcomes.

Methods: We analyzed data from 187 father-child dyads (fathers: age=39.86±7.09; 46% overweight, 54% obese; children: age=8.26±1.79; 37% female; 52.94% overweight/obese) participating in a community-based efficacy trial.

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Sociodemographic, anthropometric, RR, and accelerometry data were collected. Four Actor-Partner Interdependence Models (APIMs) tested associations between F-RR and C-RR and dyadic (father-child) moderate-to-vigorous physical activity (MVPA), sedentary time (ST), screen use (SU), and body mass index (BMI; BMI Z-score for children). Model assumptions were tested, and robust maximum likelihood estimation was used. Models controlled for father-child characteristics, father-reported familism, and socioeconomic status (SES) derived via multiple correspondence analysis. Global and local fit were assessed, and Monte Carlo simulations confirmed model stability.

Results: Fathers averaged F-RR=3.7(0.8), C-RR=3.8(0.8), MVPA=36.7(28.5) min/day, ST=540.2(104.3) min/day, and SU=358.3(202.8) min/day; children averaged MVPA=34.3(20.2) min/day, ST=403.6(91.4) min/day, and SU=298.1(192.2) min/day. In the APIMs, greater F-RR was associated with lower father's BMI (actor-effect, -0.91, $p<0.001$), lower father's SU (actor-effect, -66.4min/day, $p=0.015$), and higher child's MVPA (partner-effect, 3min/day, $p=0.006$). Greater C-RR was associated with reduced father's ST (partner-effect, -27.8min/day, $p=0.009$). Dyadic interdependence emerged across MVPA ($\phi=0.18$, $p<0.001$), ST ($\phi=0.19$, $p=0.046$), and SU ($\phi=0.23$, $p=0.006$). Boys had more MVPA (8.5min/day, $p=0.001$) and SU (38.5min/day, $p=0.031$). Older children had more ST (31.7min/day, $p<0.001$) and SU (23.3min/day, $p=0.003$), and less MVPA (-4min/day, $p<0.001$). Higher Familism was associated with higher father's BMI (1.1, $p=0.009$) and higher father's ST (35.1min/day, $p<0.001$). Higher SES was associated with lower child's BMI Z-score (-0.47, $p=0.006$). All models showed adequate global and local fit.

Conclusion: F-RR and C-RR are associated with father-child health outcomes. These associations and dyadic interdependence reflect reciprocal influence, positioning fathers and father-child dynamics as strategic targets for family-based lifestyle interventions.

SO.2.17-13

Shifts in Device-specific Screen Use, Physical Activity and Play among Young Children in Portugal, 2016-2024

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SO.2.17 Children and families: Promoting Movement: From Outdoor Play to Active Travel
Auditorium, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Digital media environments have evolved rapidly, yet few population-level studies have examined how device-specific screen behaviors and children's play and activity patterns have changed over time in early childhood. This study aims to compare screen use, internet exposure, physical activity, and play behaviors among Portuguese children aged 3 to 6 years in 2016 and 2024, and to examine whether changes over time persisted after accounting for child, parental, and household factors.

Methods: Two independent, nationally distributed samples of parents of children aged 3–6 years were surveyed in 2016 ($n=1,128$) and 2024 ($n=1,001$). Bivariate analyses (χ^2 tests, independent-samples t tests, and Cohen's d for effect sizes) compared sociodemographic characteristics, screen use, and physical activity across years. Logistic regression models estimated the crude effect of survey year (Model 1) and the adjusted effects of year plus child characteristics, parental behaviors, digital environment, and socioeconomic factors (Model 2) on device-specific screen use (television, computer, video games, smartphone, tablet), active and passive play, and sport participation.

Results: Children's behaviors changed substantially between years. Smartphone use more than doubled (Cohen's $d = -0.54$), while time on television, computers, and video games declined. Internet use increased (56.5% to 66.2%), and the presence of screens in bedrooms decreased. Structured sport participation was lower in 2024 (62.2% to 51.2%), whereas active play increased modestly. Logistic regressions showed that survey year remained a significant determinant of smartphone use ($\beta \approx 2.0$), computer use ($\beta \approx -1.0$), sport participation ($\beta \approx -2.5$), and passive play ($\beta \approx -1.2$) even after adjusting for demographic and parental characteristics. Devices in the child's bedroom and parental screen time were consistently associated with higher child screen use.

Conclusion: Device-specific patterns of young children's screen and activity behaviors in Portugal shifted markedly over eight years, with a pronounced move toward smartphone-based media and reduced engagement in structured sport. These trends persisted beyond demographic and household differences, reflecting broader technological and social changes shaping early childhood. Family-centered guidance on mobile media, expanded opportunities for structured physical activity, and ongoing surveillance of device-specific behaviors are needed to support healthy development in an increasingly digital early-life environment.

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SO.2.18-01

Interventions that Address Food Insecurity for Children Aged 0-11 Years, Families and Pregnant Women in the UK: A Systematic Review of Intervention Studies

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

Room 1, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Food insecurity has increased in recent years due to economic shifts and rising food prices, with 13.6% of UK households experiencing food insecurity, of which 47% include children. This systematic review aimed to explore the impact of UK food insecurity interventions for children, families, and pregnant women.

Methods: We conducted a systematic search of seven databases and two clinical trial registers, with title and abstract screening in duplicate, for articles published between 2008 and November 2023. Forward and backward citation searches used CitationChaser. Data extraction was undertaken in duplicate by four reviewers. Peer-reviewed intervention studies were eligible if they were conducted in the UK, had an experimental design and targeted at least one food insecurity pillar (accessibility, utilization, availability, stability). Studies were eligible if most participants were children aged 0-11 years, families with at least one child aged 0-11 years, or pregnant women. We followed PRISMA guidelines and present a narrative synthesis.

Results: 18,225 articles were identified; 11 intervention studies were included. Types of interventions included: cooking interventions (n=4), free school meals (n=3), holiday clubs (n=2), supermarket vouchers (n=1), and food bags (n=1). Food availability was targeted in seven studies, food accessibility and utilization in five each, and food stability in one, only one study included food insecurity as an outcome. The interventions demonstrated a range of barriers and facilitators to inform future intervention development. Most studies were considered serious or critical risk of bias.

Conclusion: This review identified a lack of high-quality interventions addressing food insecurity in the UK for children aged 0-11 years, families and pregnant women, with most targeting food availability. Further research is needed to co-develop and test the effectiveness and acceptability of comprehensive interventions with these groups.

SO.2.18-02

Association between Caregiver Feeding Styles and Ultra-processed Food Consumption among Toddlers Aged 6–23 Months in Clark County, Nevada: A Cross-sectional Study

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

Room 1, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: This cross-sectional study analyzed the association between responsive and non-responsive caregiver feeding styles and ultra-processed food (UPF) consumption among toddlers aged 6–23 months in Clark County, Nevada. Given the rising prevalence of early childhood malnutrition and global increases in UPF intake despite recommendations to limit these foods before age two, understanding the role of caregiver feeding styles is essential.

Methods: We used data from a survey conducted with 235 caregivers of toddlers aged 6–23 months in Clark County, Nevada. UPF consumption was assessed based on WHO/UNICEF dietary intake guidelines. Responsive and non-responsive (i.e., laissez-faire, pressuring, restrictive, indulgent) caregiver feeding styles were evaluated using the validated Infant Feeding Style Questionnaire (IFSQ). Multivariate logistic regressions assessed the association between caregiver feeding styles and UPF adjusted for household, maternal, and toddler sociodemographic characteristics.

Results: About 57% (n=133) of toddlers consumed UPF in prior 24 hours of the survey. Responsive caregiver feeding style (AOR=0.50; p=0.030) and non-responsive restrictive feeding (AOR=0.41; p=0.005) reduced the odds of UPF consumption, while a non-responsive indulgent feeding style increased the odds of UPF consumption (AOR=2.22;

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$p=0.032$). Non-responsive laissez-faire and pressuring feeding styles showed no significant association with UPF consumption. Non-responsive caregiver feeding styles increased the risk of UPF consumption, while responsive and restrictive caregiver feeding style protected toddlers from consuming UPF.

Conclusion: Encouraging responsive and structured feeding approaches may improve toddlers' dietary quality and help mitigate early childhood obesity risk. Future research should test interventions supporting responsive caregivers feeding style to foster healthy dietary behaviors during early childhood.

SO.2.18-03

Content Validation of the Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ) for Indian Children and Adolescents

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors
Room 1, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Physical activity (PA) surveillance among children and adolescents in India has been limited by the lack of standardized and culturally appropriate tools to measure active living behaviours. Using the evidence-based Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ) developed by an international research team, this study aimed to assess content validity in India prior to widespread use in PA surveillance studies. The GAC-PAQ assesses PA among 8- to 17-year-olds across key domains, including school, chores, work, transport, free time, and outdoor time.

Methods: As part of a larger 15-country initiative to validate and implement the GAC-PAQ, India participated in a two-phase content validation study. Phase 1: Indian PA experts completed an online survey rating agreement (5-point Likert scale: 1=strongly disagree to 5=strongly agree) with statements about relevance and comprehensiveness of each questionnaire domain. Phase 2: Structured cognitive interviews were conducted with child-parent dyads in English ($n=6$) and Marathi ($n=13$) from rural ($n=8$) and urban ($n=11$) settings. Framework analysis identified challenges and suggestions, which were triangulated across countries to inform questionnaire revisions.

Results: Expert agreement exceeded the 75% threshold across all domains. Cognitive interviews revealed India-specific challenges across multiple domains. For PA intensity, participants reported struggling to differentiate intensity levels in household and work chores. For school PA, participants reported difficulties with physical education terminology (i.e., confusion between 'physical education' and 'organized sport'), duration estimation, and intensity reporting. Cross-cutting challenges included difficulty estimating activity duration, and the need for culturally appropriate images and examples in the survey (e.g., depiction of Indian households and culturally relevant attire in images).

Conclusion: Indian participants' feedback contributed to substantial revisions including domain-specific preambles, country-specific images, simplified terminology, „don't know“ options for school questions; and removal of the work section from the child survey version. The revised GAC-PAQ will be pilot-tested in an app-based format in English, Hindi, and Marathi among urban and rural populations in India. Findings emphasize the critical importance of culturally grounded content validation when developing PA surveillance tools for diverse populations. Forthcoming implementation of the GAC-PAQ will be a critical step in addressing PA surveillance gaps in India and globally.

SO.2.18-04

Movement Behaviors in Pregnancy and Infant Body Composition: A Compositional Data Approach

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors
Room 1, May 29, 2026, 3:00 PM - 5:00 PM

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Purpose: To examine associations of 24-hour movement behaviors (sleep, sedentary behavior [SB], light physical activity [LPA], and moderate-to-vigorous physical activity [MVPA]) in early and late pregnancy (gestational weeks 14 and 37) with infant body composition 1-2 weeks postpartum.

Methods: Data were drawn from the HealthyMoms trial. Movement behaviors were assessed via wrist-worn accelerometers over seven consecutive days in gestational weeks 14 (n=224) and 37 (n=226). Infant outcomes included birthweight, length, and body composition (air-displacement plethysmography). Compositional regression models were used to assess associations of movement behaviors and infant outcomes.

Results: In early pregnancy, reallocating 10 min/day to MVPA and reducing the other behaviors was associated with -23.8 g (95% CI: -44.2 to -3.38) lower infant birthweight and -0.11 cm (95% CI: -0.20 to -0.02) birth length. In late pregnancy, reallocating 10 min/day to MVPA in favor of the other behaviors was associated with -25.5 g (95% CI: -48.0 to -3.0) lower birthweight, and 30 min/day reallocation to SB from sleep was associated with 0.10 kg/m² (95% CI: 0.03 to 0.17) higher FFMI. No further statistically significant associations were observed (all $P \geq 0.089$).

Conclusion: Our findings suggest that MVPA in pregnancy is of importance for infant weight and length at birth, but the clinical relevance appears limited. Further research on how movement behavior reallocations influence infant growth, particularly through mechanisms affecting neonatal lean mass, is warranted.

SO.2.18-05

Co-designing a Prevention Program with Caregivers to Support their Mental Health and Wellbeing

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

Room 1, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: The transition to parenthood is a life-changing and high-risk period for caregivers' mental health and wellbeing. This has implications for how well caregivers can look after themselves physically and mentally, and how they care for their children. To create effective and sustainable supports it is critical to involve caregiver perspectives and needs. Therefore, we aimed to identify evidence-informed supports that align to the concerns and needs of caregivers that can be implemented into routine maternal and child health services.

Methods: Guided by the Knowledge Translation Complexity Network Model, we conducted a mixed-methods triangulation study. With oversight from a caregiver advisory committee, we employed methodological triangulation with data from 1) a focus group study, 2) a service review, and 3) a scoping review.

Results: Caregivers (n=25) accessing maternal and child health services participated in focus groups to explore their mental health and wellbeing concerns. The key concerns faced by caregivers were described as the pressure of expectations, feelings of anxiety and failure, no 'village' support, mental health not addressed or supported, services being too baby focused, and feeling unprepared. Four universal services were identified through the service review and 74 studies reporting on 70 unique mental health and wellbeing interventions were identified via the scoping review. Through applying a triangulation protocol, we identified 28 triangulated findings with no disagreement across the findings, identifying opportunities to build on what maternal and child health services currently offer, to support the concerns of caregivers, informed by available evidence-based supports.

Conclusion: This study worked with caregivers to identify their mental health and wellbeing concerns and triangulated these with findings from a service review and scoping review to identify opportunities to embed evidence-based support into existing maternal and child health services. Through prioritising the voice of caregivers, the findings of this study informed the co-design of the "Caring for Caregivers" program which has been successfully pilot tested within maternal and child health services early parenting groups.

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SO.2.18-07

Correlates of Preschool Children's Passively Assessed Screen Use

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

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Purpose: Most research on children's technology and digital media (TDM) use has relied on parent- or self-reported TDM use resulting in possible biases and inaccurate estimates. The aim of this study was to describe demographic and environmental correlates of preschool children's objective, passively measured TDM use.

Methods: Baseline data from the ongoing Technology Effects on Children's Health (TECH) longitudinal study was used. Children's TV viewing was objectively assessed for 10-days using the FLASH-TV system on up to 3 TV's at home. Mobile device use was assessed with the Chronicle App (Android devices) or screenshots of Screentime metrics (Apple devices). Parents completed surveys including demographics and a Neighborhood Disorder scale. Staff completed a TDM home inventory with parent's assistance. The dependent variables were mean minutes/day of TV, mobile, or combined TDM use using generalized linear regression with demographic and environmental covariates.

Results: The child sample (N=111) had a mean age 4.0 (SD 0.7) with 50% girls; 45% Hispanic; and 31% Black, 16% multiracial/other and 53% White. Sixty percent of parents were college graduates/postgraduates; had a mean income-to-poverty ratio 1.88 (SD 1.25); and a range of 1-6 children living in the home. The preschoolers watched TV for mean of 50±53 minutes/day, used mobile devices for 60±92 minutes/day; with a combined use of 108±106 minutes/day; 4.5% of the children did not watch a TV and 45.1% did not use a mobile device. TDM use was higher among children from households with more mobile devices/person ($\beta \pm SE = 0.23 \pm 0.09$, $P = 0.012$), and children who have a bedroom TV ($\beta \pm SE = 0.59 \pm 0.24$, $P = 0.01$). More TV viewing was associated with the total screens at home ($\beta = 0.05 \pm 0.02$, $P = 0.042$). Greater mobile use duration was associated with more household mobile devices/person ($\beta = 0.44 \pm 0.13$, $P < 0.001$), presence of bedroom TV ($\beta = 1.62 \pm 0.46$, $P < 0.001$), fewer screens in the home ($\beta = -0.12 \pm 0.04$, $P = 0.004$), number of children in the home ($\beta = 0.31 \pm 0.13$, $P = 0.018$), and less Neighborhood Disorder ($\beta = -0.71 \pm 0.27$, $P = 0.009$).

Conclusion: Objectively-measured total TDM duration was associated with the home screen environment, however mobile device use was associated with additional factors at the home and neighborhood levels.

SO.2.18-08

Baseline Analysis of the Association between Food Insecurity and Health-related Behaviors among 4-6-year-Old Children in the COACH 2.0 Randomized Controlled Trial

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

Room 1, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Childhood obesity is a public health crisis for Hispanic children living in the U.S. Food insecurity (FI), or lack of consistent access to food, may influence health-related behaviors that contribute to childhood obesity. The goal of the study was to examine the cross-sectional associations between FI and the health-related behaviors of child sleep, screentime, and parenting practices around physical activity among Hispanic families.

Methods: COACH was a health behavior randomized controlled trial among Hispanic families in Nashville, TN that included a 4–6-year-old. This cross-sectional analysis included survey data from the baseline study timepoint. The exposure of interest was household FI, measured by the United States Department of Agriculture 6-item food security module. Outcomes were sleep duration (calculated from typical bedtime/waketime), screentime (frequency of digital device use and TV minutes/day), and parenting practices around child physical activity. This was measured by the Preschooler Physical Activity Parenting Practices (PPAPP) scale. The PPAPP includes the Discouragement (safety) sub-scale, the Discouragement (lack of money) single item, and the Encouragement sub-scale. Associations were

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assessed using regression models, adjusting for prespecified covariates: child age and sex, and parent education and birth region.

Results: Among 301 randomized parent-child pairs, the mean (SD) child age was 5.2 years (0.8), 25.3% of children had obesity, 33.4% experienced FI, 86.9% were insured through Medicaid, and 98.0% of parents had low acculturation. Households with higher FI had higher scores on the PPAPP discouragement (safety) sub-scale ($B=0.40$; 95% CI=[0.10, 0.69]; $p=0.009$) and higher scores on the discouragement (lack of money) item ($aOR=2.70$; 95% CI=[1.64, 4.46]; $p<0.001$). Households with FI had higher amounts of child TV minutes/day, though this did not reach statistical significance ($IRR=1.24$; 95% CI=[0.99, 1.55]; $p=0.063$). No significant associations were detected between FI and child sleep duration or frequency of digital device use.

Conclusion: In a sample of Hispanic children living in the U.S., household food insecurity was associated with significantly greater discouragement of PA due to lack of money and perceived safety and with marginally increased child screentime. Future studies are needed to clarify these relationships and inform the development of obesity treatment interventions among children and families who experience FI.

SO.2.18-09

Evaluation of Outcome Measurement Instruments Used to Measure Caregiver Feeding Practices, Feeding Environment, Diet, and Weight-related Outcomes in Infants

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

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Purpose: Poor quality and heterogeneous measurement of infant feeding outcomes limits evidence synthesis and intervention evaluation. However, it is currently unclear what are the best outcome measurement instruments (OMIs) to use. This systematic review aimed to evaluate the feasibility and measurement properties of OMIs used to measure core infant feeding (e.g., diet, feeding practices) and weight-related outcomes in infants aged ≤ 1 year.

Methods: OMIs for core infant feeding and weight-related outcomes identified in previous scoping reviews were screened to evaluate relevance, fit-for-purpose, and feasibility. A systematic search of PubMed, EMBASE, CINAHL, and PsycINFO databases from inception to February 2025 was then conducted to identify published development or validation articles of OMIs with infants aged ≤ 1 year. Methodological study quality, measurement properties, and quality of evidence were assessed following the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) Initiative methodology. Evaluation of study-specific OMIs, without published development or evaluation studies, was informed by qualitative focus groups with caregivers and researchers.

Results: Thirty-five articles evaluating 41 OMIs were included in the systematic review. For caregiver and diet-related outcomes, one OMI measuring feeding method showed sufficient criterion validity, and one OMI assessing responsive feeding showed insufficient internal consistency. Three OMIs had sufficient content validity based on published evaluations, and 10 had sufficient content validity based on reviewer ratings. Four weight-related OMIs were identified: parent-reported weight, bioelectrical impedance analysis (BIA), air-displacement plethysmography (ADP PEA POD), and digital infant scales. ADP showed sufficient criterion validity for body composition. All four weight-related OMIs had sufficient content validity based on reviewer ratings. Caregivers ($n=8$) and researchers ($n=11$) reported challenges interpreting study-specific OMIs, including unclear terminology, and varied preferences for question design, response format, and recall period. Parenting experience influenced how OMIs were interpreted and completed, underscoring the need for tools that are adaptable to diverse caregiver contexts.

Conclusion: There is limited high-quality evidence supporting the measurement properties of OMIs for core infant feeding and weight-related outcomes. Gaps in content validity, internal consistency, and feasibility hinder standardised measurement in research and practice. Further refinement and evaluation of OMIs are needed to strengthen infant feeding research and intervention assessment.

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SO.2.18-10

Associations between Maternal Dietary Patterns and Fetal Cardiac Outcomes Using Multivariate Reduced Rank Regression

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

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Purpose: Diet during pregnancy influences fetal development, yet its effects on prenatal cardiac development remain unclear. We aimed to examine associations between maternal dietary patterns and fetal cardiac development, considering both functional and morphological outcomes.

Methods: We studied 825 pregnant women from the Barcelona Life Study Cohort (BiSC), recruited during their first trimester (2018–2021). Maternal diet was assessed at gestational week 20 using a 114-item Food Frequency Questionnaire (FFQ). Eight dietary scores were derived: Dietary Approaches to Stop Hypertension (DASH), Alternative Healthy Eating Index (AHEI), Relative Mediterranean Score (rMED), Alternate Mediterranean Score (aMED), Ultra-Processed Foods (UPF), Plant-Based Dietary Index (PDI), Healthy Plant-Based Dietary Index (hPDI), and Unhealthy Plant-Based Dietary Index (uPDI). Fetal echocardiography at gestational week 32 measured 59 parameters of cardiac function and morphology. Associations were analyzed using mixed-response sparse reduced-rank regression (msRRR) with resampling, adjusting for relevant covariates.

Results: Preliminary results suggest that AHEI, rMED and aMED were consistently associated with fetal heart function, while aMED, AHEI, uPDI, UPF, and DASH were related to morphology. Mediterranean-style diets (rMED and aMED) and AHEI were linked to cardiac function, while DASH, UPF, and uPDI showed selective associations with morphology. (The finalized results will be presented at the time of conference).

Conclusion: Our preliminary results indicated that maternal dietary patterns were associated with both functional and morphological fetal heart development. These findings highlight the potential role of maternal nutrition in shaping prenatal cardiac development, with possibly lifelong consequences.

SO.2.18-11

Evaluating a Summer Childhood Obesity Prevention Intervention: A Controlled Trial

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

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Purpose: Children gain excess weight during summer. This study evaluated a pilot summer childhood obesity prevention intervention, measuring effects on weight status, health behaviors, knowledge, and activity self-efficacy.

Methods: The controlled trial was conducted with 25 adolescents (intervention group[IG] n=13; control group[CG]

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$n=12$; ages 11–14) in Louisiana, USA. It included a two-week summer camp involving physical education, nutrition messaging, AI-assisted behavior management training on an APP, campus walks, and FitBit-assisted self-monitoring. Beyond the camp, participants continued using the Fitbit and APP to set and track health goals, and parents regularly received reminders and resources. CG attended a virtual coding program weekly (1hr/week). Weight/height (using Seca 777) and waist circumference (WC; using Seca 201 tape) were pre- and post-measured for both groups and IG's weight status was also measured on the final camp day. Health behaviors (i.e., physical activity[PA], diet, screen time), knowledge, and self-efficacy were pre- and post-measured using a questionnaire (PA further assessed using accelerometers). IG also wore accelerometers on camp days.

Results: MVPA averaged 120.4 ± 9.6 min/day during camp. APP usage was high during camp but declined afterwards ($M=19.2$ vs. 4.2 entries/week). Compared to CG, IG showed slightly less gains for body weight ($\Delta M=0.98$ kg vs 1.83 kg), BMI ($\Delta M=0.16$ kg/m² vs. 0.46 kg/m²), and WC ($\Delta M=3.93$ cm vs. 6.30 cm), but time*group interaction effects did not reach significance (Weight: $p=0.13$, $\eta^2=0.10$; BMI: $p=0.07$, $\eta^2=0.13$; WC: $p=0.50$, $\eta^2=0.02$). During the camp, IG's WC showed a significant decline ($\Delta M=-3.14$; $p=0.02$, Cohen's $d=-0.72$), while BMI presented a non-significant decline ($\Delta M=-0.08$ kg/m², $p=0.65$). Over the summer, the number of active days, activity self-efficacy, and knowledge favored the IG, but PA intensity and diet favored the CG (non-significant time*condition interaction effects; $ps>0.05$).

Conclusion: The pilot intervention offered structured PA, nutrition messaging, technology-assisted self-monitoring and behavior management, and parent engagement to reduce adolescents' obesity risk. The summer camp made an acute impact on weight status (i.e. WC). The overall intervention produced promising effects on weight status, health behaviors, knowledge, and self-efficacy. Future interventions should focus on removing the barriers to post-camp lifestyle changes, making summer days more structured, and involving a larger sample with random group assignments.

SO.2.18-12

An Examination of Dyadic Breastfeeding Attitudes and their Association with Maternal Breastfeeding Intention among a Sample of Non-hispanic Black Women Living in the United States

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

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Purpose: Our study uses data from the „Mothers & Others“ (M&O) randomized controlled trial to describe the extent to which mothers and study partners hold similar attitudes toward breastfeeding and whether dyadic breastfeeding attitudes are associated with maternal breastfeeding intention, the most robust predictor of breastfeeding behavior in the M&O cohort.

Methods: Data are from 299 mothers and study partners (fathers, grandmothers, other relatives, non-relatives) who participated in M&O. All data come from the baseline survey administered at 28 weeks of pregnancy. Breastfeeding attitudes were measured among both mothers and partners using the Iowa Infant Feeding Attitude Scale (IIFAS), ranging from 17 (most positive attitude toward feeding commercial milk formula) to 85 (most positive attitude toward breastfeeding). Dyadic breastfeeding attitude scores were calculated by subtracting the partner's IIFAS score from the mother's. Dyads were also categorized into 4 groups according to breastfeeding attitudes, with high defined as $IIFAS \geq 60$: mother-low/partner-low, mother-high/partner-low, mother-low/partner-high, mother-high/partner-high. Maternal intention to breastfeed was measured using the Infant Feeding Intention Scale (IFIS), ranging from 0 (strong intention not to breastfeed) to 16 (strong intention to exclusively breastfeed for 6 months). Linear regression models were used to test for associations between categorical dyadic breastfeeding attitudes (referent: mother-low/partner-low) and maternal breastfeeding intention.

Results: Mean breastfeeding attitude score was 60.4 ± 7.6 for mothers and 58.4 ± 7.9 for partners, and mean breastfeeding intention score was 10.2 ± 4.7 . Differences in breastfeeding attitudes between mothers and partners ranged from 0 (perfect agreement) to ± 36 points. 34.8%, 26.1%, 11.4%, and 27.8% of dyads had breastfeeding attitudes categorized

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as mother-low/partner-low, mother-high/partner-low, mother-low/partner-high, and mother-high/partner-high, respectively. Categorical dyadic breastfeeding attitudes explained 25% of the variance in breastfeeding intention. As compared to mother-low/SP-low dyads, breastfeeding intention was higher among all other categories: mother-high/partner-low (B -coefficient=4.79, 95% Confidence Interval: 3.63-5.96), mother-low/partner-high (B =1.86: 0.36-3.35), and mother-high/partner-high (B =4.61: 3.45-5.77).

Conclusion: Maternal intention to breastfeed was higher when one or more dyad members had a high breastfeeding attitude, even when maternal breastfeeding attitude was low. In the breastfeeding literature, breastfeeding intention consistently predicts breastfeeding behavior, thus findings highlight the importance of targeting prenatal breastfeeding attitudes of multiple family members and support persons.

SO.2.18-13

Co-designing a Nutrition and Exercise Lifestyle Intervention Program (NELIP) Sensitive to Culture and Religion to Prevent Gestational Diabetes in Marginalized Arab Muslim Pregnant Women

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SO.2.18 Children and families: Early-Life Nutrition, Sleep, and Sedentary Behaviors

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Purpose: Previous work using a Nutrition and Exercise Lifestyle Intervention Program (NELIP) showed that this strategy prevents gestational diabetes mellitus (GDM) and excessive gestational weight gain. However, NELIP may not work for all populations especially marginalized high-risk groups without considering culture and religious beliefs. We developed a template for co-design with a patient-centred holistic approach based on the **Obesity-Related Behavioural Intervention Trials** or **ORBIT** model that can be used for any diverse population. Our purpose was to explore how culture and religion influenced nutrition and physical activity behaviours in high-risk pregnant Arab Muslim women as the first phase in co-design.

Methods: After consultation with leaders in the Arab Muslim community to advise on how to approach pregnant women, and how to ask culturally appropriate questions, we recruited pregnant or up to 1-year postpartum individuals to participate in a 2-hour structured interview in either English or Arabic. The interviews were translated and transcribed. Summative content analysis was used to identify their behaviours, and thematic content analysis was used to identify themes on how culture and religious beliefs influenced nutrition and physical activity behaviours.

Results: Thirty-two participants (11 pregnant/21 recently pregnant), with a mean age of 30.9 ± 6.5 years, time since immigration 7.4 ± 7.5 years and a mean household size of 5.2 ± 2.1 persons, were interviewed. Four themes emerged; Nutrition as a central focus associated with several cultural and religious traditions; Daily physical activity integrated into everyday life; Health of the baby; and Factors involved in lifestyle choices. Nutrition was a priority over physical activity and exercise was not encouraged during pregnancy, however, walking and prayer were the most popular. Of daily physical activities, cooking (97%) and grocery shopping (81%) were the most enjoyed.

Conclusion: Culture and religious beliefs are extremely important and highly influence behaviour. Exercise was not considered as important as nutrition and thus for an intervention to be successful, nutrition and dietary education should be included with a physical activity component linked to prayer and cultural beliefs.

SO.2.19-01

Movement Behaviour Patterns and Major Adverse Cardiovascular Events after Stroke

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration

Room 2, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Stroke survivors remain at high risk of major adverse cardiovascular events (MACE). International guidelines emphasize reducing sedentary behaviour and promoting physical activity as one of the key strategies for stroke prevention and rehabilitation. However, evidence on the association between post-stroke movement behaviour patterns and long-term cardiovascular outcomes is limited. Understanding these associations may help identify individuals who would benefit most from targeted movement-based secondary prevention. This study aimed to examine whether post-stroke movement-behaviour patterns are associated with the six-year risk of MACE and all-cause mortality.

Methods: A prospective cohort study was conducted using data from 190 participants with a first-ever stroke (age = 68.1 ± 11.0 years; 65% male; median NIHSS= 3), who were discharged to their home environment. Movement-behaviour patterns were objectively assessed using accelerometry (Activ8) within the first weeks after hospital discharge. Participants were classified into active or inactive movement-behaviour groups with cluster analysis. Associations with MACE were evaluated using cause-specific Cox proportional hazards models, adjusting for potential confounders. The association with all-cause mortality was analyzed in a separate model. The proportional hazard assumption was evaluated, and sensitivity analyses were performed.

Results: Results are expected in January 2026.

Conclusion: The findings of this study will contribute to a better understanding of how post-stroke movement behaviour relates to long-term cardiovascular outcomes. This understanding may help identify individuals who could benefit most from targeted movement-based secondary prevention.

SO.2.19-02

Navigating Transitions between Physical Activity Initiatives across Health Care and Community Settings: A Qualitative Systematic Review of Barriers and Facilitators

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration

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Purpose: Many (ex)patients experience a decline in physical activity or disengage entirely when transitioning between (health)care settings, posing a significant challenge for health care. The aim of the current study was to gain insight into the barriers and facilitators that influence the transition(s) between (or within) health care settings or between health care and the community setting, related to physical activity initiatives for (ex)patients.

Methods: A qualitative systematic review was conducted in line with PRISMA. A systematic search was performed in March 2025 in Medline PubMed, Embase, Cinahl and Web of Science. Keywords of the search strategy included: (ex)patients, (care)transitions, physical activity initiatives and barriers and facilitators. Studies were included if they reported barriers or facilitators of physical activity engagement when transitioning across settings. Transitions could take place between or within health care settings or between health care and community settings. We conducted a qualitative data synthesis guided by the COM-B model to categorise the data.

Results: In total 102 articles were included. Earliest studies date back to around 2000, with a notable increase in publications over the last five years. Studies covered diverse populations, such as individuals with cancer, cardiovascular disease, and stroke, and addressed various physical activity approaches, including referral schemes, local exercise programs, and rehabilitation initiatives. Various facilitators were identified, including support by peers, patients' knowledge of physical activity initiatives, and guidance by health care professionals. Common barriers included lack of transportation, financial constraints, and side effects of treatments and diseases such as fatigue or pain.

Conclusion: This review synthesises a growing body of literature addressing transitions related to physical activity promotion initiatives for (ex)patients across various (health)care and community settings. Findings reveal that

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successful transitions are influenced by a complex interplay of facilitators, such as peer and professional support, and patient awareness of physical activity initiatives. Barriers included transportation issues, treatment side effects, and financial constraints. Targeting these factors is essential in order to effectively maintain and promote higher physical activity levels of (ex)patients between and within health care settings, and between health care and the community setting.

SO.2.19-03

Exploring the Association of the Peak and End Rule with Variables Associated with Future Physical Activity: A Scoping Review

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration
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Purpose: The peak and end rule heuristic postulates that the affective peaks of largest magnitude (i.e., high and low peaks) and the affective response at the end of an experience (i.e., end affect) may influence variables associated with future behavior. Recent studies support the role of this heuristic and of other similar predictors (i.e., Gestalt characteristics of an experience) in the context of physical activity. However, to the best of our knowledge, a literature review that explores these associations in detail has not yet been developed. As such, the objective of this scoping review was to explore the association of the peak and end rule with psychological variables associated with future physical activity (e.g., remembered affect; enjoyment).

Methods: A throughout search was conducted on the PubMed, SPORTDiscus, PsycINFO, ClinicalTrials.gov, and SportRxiv databases for experimental and non-experimental studies where it was possible to identify an association between the peak and end rule or other Gestalt characteristics with variables associated with future physical activity. The PRISMA extension for scoping reviews was followed thoroughly.

Results: Nineteen studies (N = 867; 86% with both sexes represented), published between 2000 and 2025, were qualitatively analyzed. A total of seven Gestalt characteristics were found (i.e., high peak, low peak, end affect, peak-end average, start affect, affective mean, and affective slope), with end affect being identified in every included study. End affect appears to influence remembered (n = 10) and anticipated affect (n = 4), enjoyment (n = 10), intention (n = 4), and habit (n = 1), with a more pleasurable end of an exercise session originating more favorable results in these variables. Additionally, five studies demonstrated the predictive power of at least one Gestalt characteristic for remembered affect, anticipated affect, and enjoyment.

Conclusion: The peak and end rule and other Gestalt characteristics appear to be associated with psychological variables related to future physical activity. Of these, remembered affect, anticipated affect, enjoyment, and intention are among the most identified. Further studies are necessary to better understand these associations and provide additional scientific support for the still-limited body of evidence on this heuristic in the context of physical activity.

SO.2.19-04

Physical Activity Patterns Assessed by Thigh-worn Accelerometer and their Sociodemographic Correlates among Singaporean Adults: Findings from COBRA Study

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration
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Purpose: The Continuous Observations of Behavioral Risk Factors in Asia (COBRA) study aims to characterize free-living sleep, physical activity, sedentary behavior patterns using thigh-worn accelerometers and to identify sociodemographic correlates of guideline adherence in Singaporean adults.

Methods: A total of 1304 adults participated in a 10-day monitoring period with a thigh-worn accelerometer (Axivity AX3, Axivity Ltd.). Raw data were processed with ActiPASS software to classify time spent in sleep, sedentary behaviour (SB), light-intensity physical activity (LPA), and moderate-to-vigorous physical activity (MVPA) and to estimate daily steps. Adherence to guidelines was defined as: ≥ 7 hours sleep/night, ≤ 8 hours SB/day, ≥ 150 minutes/week MVPA, or ≥ 7000 steps/day. Associations with age, gender, ethnicity, education level, income, BMI, and waist circumference were examined using generalized linear models in Python.

Results: Of 1304 participants, 1019 adults (mean age 40.7 ± 14.0 years; 63% female) provided valid accelerometer data. Most were Chinese (63%), university educated (54%), Mean BMI 24.9 kg/m^2 and waist 81.6 cm. On weekdays, participants averaged 284 mins of sleep, 590 mins of SB, 200 mins of LPA, 66 mins of MVPA, and 8561 steps/day. On weekends: participants averaged 319 mins sleep, 599 min sedentary, 225 min LPA, 70 min MVPA, 9263 steps/day. Sleep duration, LPA, MVPA, and steps were higher on weekends (all $p < 0.001$) while SB showed no difference ($p = 0.12$). Adherence to behavioral guidelines was low: 2.42% of participants met the sleep recommendation (≥ 7 h/night), 14.13% met the SB guideline (≤ 8 h/day), and 66.7% achieved the step guideline (≥ 7000 steps/day).

Conclusion: The weekday-weekend differences may reflect Singapore urban, lifestyle, highlighting the workplace as a potential setting to promote LPA and MVPA and reduce SB. Consistently long SB suggests leisure time activities are predominantly sedentary. Two-thirds of participants achieved steps guideline, though adherence to other guidelines was markedly lower. In the future, the prompt might be integrated and multi-behavior.

SO.2.19-05

Within-day Patterns of Self-monitoring Dietary Intake and Weight Loss in Adults with Obesity

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration
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Purpose: Participants in behavioral weight-loss programs (BWLPs) are typically encouraged to self-monitor dietary intake each day, preferably throughout the day (i.e., as eating/drinking occurs). Despite theoretical support for the importance of self-monitoring throughout the day, little is known about within-day patterns of self-monitoring and their associations with weight loss. Thus, we aimed to examine these patterns using data from a 16-week BWLP.

Methods: We examined associations between within-day patterns of self-monitoring and weight loss in 449 adults with obesity (mean $\pm$ SD age = 49.5 ± 11.4 years, BMI = $35.7 \pm 4.0 \text{ kg/m}^2$, 83.5% female) who enrolled in the 16-week BWLP. Participants were asked to self-monitor dietary intake daily, preferably throughout the day, using the FatSecret smartphone app; data were automatically downloaded and time-stamped every 15 minutes from the FatSecret server. Weight was measured at baseline and end of intervention using BodyTrace e-scales. T-tests were used to examine differences in self-monitoring between participants who lost $\geq 5\%$ of their baseline weight (a clinically-significant weight loss) versus those who lost $< 5\%$.

Results: Participants lost an average (mean $\pm$ SD) of $6.4 \pm 4.9\%$ of their baseline weight; 61.9% ($n=278$) lost $\geq 5\%$. Overall, participants did not self-monitor dietary intake on 20.8% of 111 possible days, “back-logged” (recording intake ≥ 1 day after consumption) on 29.2% of days, self-monitored at the end of the day on 17.7% of days, self-monitored throughout the day on 30.5% of days, and “pre-logged” (recording intake ≥ 1 day prior to the day of consumption, without later edits) on 1.8% of days. Compared to participants who lost $< 5\%$ of their baseline weight, participants who lost $\geq 5\%$ were significantly less likely to not self-monitor (39.9% versus 9.0% of days, $p < .0001$) and were more likely to self-monitor at the end of the day (19.1% versus 15.3%, $p = .032$), throughout the day (40.0% of days versus 15.1% of days, $p < .0001$), and to pre-log (2.3% versus 1.1% of days, $p = .004$). There was not a significant difference between groups in back-logging (29.6% versus 28.6%, $p = .616$).

Conclusion: Results provide empirical evidence supporting recommendations for individuals to 1) regularly self-monitor and 2) self-monitor dietary intake *throughout* the day versus waiting until the end of the day.

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SO.2.19-06

Sample Size Calculations for Movement Behaviour Interventions

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration

Room 2, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Lifestyle interventions commonly target behaviours that are *compositional*, that is, interdependent variables that must sum to a constant value. For example, exercise interventions to increase physical activity will require reductions in other movement behaviours (e.g., sitting or sleeping). These trade-offs should be appropriately considered *a priori* in experimental design, for example when determining the required sample size to ensure adequate statistical power to detect a meaningful effect. This study describes a method for conducting sample size calculations tailored for compositional data.

Methods: We demonstrate how to empirically determine required sample size for a given power and alpha, specifying effect sizes that account for the outcome's compositional nature. Our target effect is a 15-minute increase in moderate-to-vigorous physical activity (MVPA) at the expense of sedentary behaviour (while holding light physical activity and sleep constant) in the treatment group compared to the control group. The target effect size is incorporated in the isometric log-ratio response variable scale used in compositional data analysis. Statistical power to detect the target effect size is determined using repeated sampling from real data and using multivariate isometric log-ratio response mixed-effects linear models with group (control vs treatment) and time (pre vs post intervention) as fixed effect predictors, and participant random intercepts to account for repeated measures.

Results: We generated simulated datasets with a mean intervention effect of 15 minutes more MVPA at the expense of sedentary time from a previous study. Doing so incorporated properties of the complex longitudinal and dependent time-use variables consistent with real data (e.g., baseline means, trends, and hierarchical variance-covariance structure). 1000 randomly resampled datasets were generated for each of the sample sizes $n = 200$ to 400 (increments of 10) and had the same multivariate response linear mixed model fit to each. The proportion of times the target effect was detected at $\alpha = 0.05$ at each sample size yielded an empirical power curve, that demonstrated 80% power was achieved at $n = 210$ participants, with 1:1 allocation.

Conclusion: Accounting for the co-dependency of movement behaviours in power analyses enhances both methodological rigour and resource efficiency, ultimately strengthening the evidence base for behavioural interventions.

SO.2.19-07

Reallocation of 24-hour Physical Behaviour Composition and Mortality: Exploring Effect Modification by Sleep Characteristics

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Purpose: Time compositions spent in physical behaviours (sleep, physical activity, posture) is associated with premature mortality, but the moderating role of sleep remains unclear. To investigate the associations of time reallocations between physical behaviours with all-cause, cardiovascular disease (CVD) and physical activity-related cancer mortality, and the potential effect modification by sleep duration and regularity.

Methods: Population-based prospective cohort study of 58,149 adults from the UK Biobank accelerometry subsample, collected between 2013 and 2016, followed up to 2022. Daily sleep duration, sleep regularity index (SRI), sedentary behaviour (SB), standing, light-intensity (LPA) and moderate-to-vigorous physical activity (MVPA), measured from wrist-worn accelerometers. Participants were categorized based on age-specific sleep duration recommendations, and sample-based sleep regularity index. Associations of behavioural reallocations with all-cause, major CVD, and PA-related cancer mortality were examined using compositional Cox regression.

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Results: Over a mean follow-up of 8.0 years, 2,209 mortality events occurred (345 CVD and 997 cancer). Displacing sleep with MVPA was associated with lower all-cause and CVD mortality risk in the whole sample, regardless of sleep duration and regularity. Among participants who meet sleep duration guidelines, reallocating 30 minutes from sleep to standing, LPA or MVPA was favourably associated with all-cause mortality with HRs of 0.86 (95%CI 0.79, 0.93), 0.87 (0.80, 0.95), and 0.80 (0.73, 0.87), respectively. Reallocating 30 minutes from sleep to SB, standing, or LPA was adversely associated with CVD risk (HRs 1.08 (1.02, 1.15), 1.10 (1.01, 1.20), and 1.11 (1.03, 1.20)) among those not meeting guidelines. Beneficial associations of reallocating SB to sleep were evident only amongst short (<7h/day) or regular (SRI>87.8) sleepers.

Conclusion: Sleep duration and regularity may modify the theoretical replacement effects of sleep and other physical behaviours on mortality. Replacing sleep with equivalent amounts of MVPA appears universally protective; however, replacing sleep with lower intensity of activity (LPA and standing) is only protective for those who are already meeting sleep duration guidelines. Health effects of increasing sleep may depend on initial sleep regularity and duration. Future personalised behavioural interventions could be optimised by incorporating baseline sleep characteristics in their design and behavioural targets.

SO.2.19-09

Associations between Food Agency and Dietary Quality, Cooking Frequency, and Fast-food Intake among a Large, National Sample of US Adults

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Purpose: Diet quality in the United States (US) is persistently low and the Dietary Guidelines for Americans recommends cooking meals at home as a key strategy to promote healthy eating. Food agency, one's ability to procure and prepare food given contextual constraints, has been associated with some measures of dietary intake but has not been examined in relation to an overall measure of diet quality nor with fast-food consumption. The objective of this study was to examine how food agency is associated with dietary quality, frequency of cooking dinner at home, and frequency of consuming fast food among adults in the US.

Methods: We conducted a large, national, web-based survey of US adults in November 2023 (N=4,453) using the CloudResearch panel. Food agency was measured using the Cooking and Food Provisioning Action Scale-Short (CAFPAS-short), a newly validated 11-item version of the original CAFPAS. Dietary intake was assessed using the Prime Diet Quality Score-30d (PDQS-30D; 0-126 points). The survey also included cooking frequency (0-7 days in past week), fast-food consumption frequency (0-32 times in past week), and sociodemographic characteristics. Multivariable linear and Poisson regression models adjusted for sociodemographic characteristics were used to estimate the association between food agency and dietary quality, cooking frequency and fast-food consumption frequency.

Results: Higher food agency was associated with better diet quality as measured by PDQS-30D score ($\beta=1.04$, $p<0.001$), greater frequency of cooking dinner (IRR=1.04, $p<0.001$), and lower frequency of consuming fast food (IRR=0.96, $p<0.001$). Compared with the lowest quartile of food agency, being in the highest quartile was associated with better diet quality ($\beta=6.28$, $p<0.001$), greater cooking frequency (IRR=1.27, $p<0.001$) and lower fast-food frequency (IRR=0.74, $p<0.001$). Overall, comparing the highest to lowest quartile of food agency, predicted values were significantly higher for diet quality (Q4: 59.7, Q1: 50.8, $p<0.001$), cooking frequency (Q4: 5.37, Q1: 4.09, $p<0.001$), and fast-food frequency (Q4: 4.74, Q1: 6.83, $p<0.001$).

Conclusion: Food agency is associated with better diet quality, higher cooking frequency and lower fast-food consumption. Utilizing a food agency framework in policies and interventions may be useful to promote greater home cooking and healthier dietary behaviors.

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Movement Behaviour Patterns in People with Multiple Sclerosis

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Purpose: High amounts of sedentary behaviour and low levels of physical activity and sleep, separately increase limitations in daily living and reduce the quality of life in people with Multiple Sclerosis (MS). However, these behaviours are not independent and research on the 24-hour movement behaviour patterns as a whole is lacking in this population. This information is needed to determine who would benefit from interventions to support improving their movement behaviour patterns and what factors need to be addressed in such interventions. Therefore, we aim to:

- 1) Identify the 24-hour movement profiles in people with MS.
- 2) Determine the association between the 24-hour movement profiles and limitations in daily living, quality of life and the risk of cardiovascular disease.
- 3) Determine what factors (demographic, MS related and behavioural) are associated with the 24-hour movement profiles.

Methods: An observational study is being conducted including at least 200 community dwelling people with MS who are able to walk independently. 24-Hour movement behaviour is objectively measured using an accelerometer for 7 consecutive days, capturing short sedentary bouts (<30 min), prolonged sedentary bouts (≥30 min), light physical activity, moderate-to-vigorous physical activity and sleep. Compositional data analysis using isometric log-ratio transformations will be used for principal component analysis, followed by k-means clustering to identify separate groups of 24-hour movement behaviour profiles. The optimal number of clusters will be determined using the Calinski-Harabasz index. To determine the relationship between the 24-hour movement behaviour patterns and limitations in daily living, quality of life and the risk of cardiovascular disease, multinomial logistic regression analyses will be performed using the movement behaviour patterns, a.k.a. clusters, as the outcome variable. The same analysis will be used to determine the association between the movement behaviour profiles and demographic, MS and behavioural related factors (e.g. fatigue, self-efficacy and views regarding physical activity).

Results: The results will be available early 2026.

Conclusion: We anticipate that insights into movement behaviour patterns and the associated factors will reveal valuable information to develop behavioural interventions to support people with MS to improve their movement behaviour and thereby reduce the impact of MS on daily life.

SO.2.19-12

Strength or Steps? Acceptability of a Two-arm Workday Intervention to Improve Strength and Glycemic Control in 2-minute Bouts

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Purpose: Many jobs are sedentary characterized by prolonged periods of sitting. The detrimental effects of prolonged sitting can be reversed through short bouts of movement, such as walking. Emerging evidence suggests that short bouts of strength training may not only reverse these effects but also confer additional physiological benefits. This

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randomized controlled pilot study seeks to compare two types of movement breaks (walking and strength training) on muscular strength and glycemic control among sedentary working adults.

Methods: This study uses a parallel-group, two-arm randomized controlled design. We recruit 80 sedentary adults to receive a progressive strength training program (n=40) or a walking breaks program (n=40) consisting of four two-minute breaks per workday. The study includes a 2-week baseline, 8-week intervention, and 4-week follow-up. The intervention period includes weekly Zoom check-ins, automated self-monitoring surveys, weekly tailored feedback, and peer-modeled strength training videos for the strength group. The primary outcome is feasibility and acceptability of the program, and we also explore efficacy for muscular strength and glycemic control. Muscular strength is assessed at 3 timepoints (baseline, mid-intervention, and post-intervention) by asking participants to perform repeated movements until failure. Glycemic control is assessed at baseline and post-intervention using continuous glucose monitors (CGMs) and HbA1C blood tests. We also interview participants at the conclusion of the study to assess barriers and facilitators to engaging in short bouts of physical activity during the workday.

Results: The study is currently recruiting participants for a final cohort. 64 participants have enrolled, and 54 have completed the study. Final results are anticipated in 2026.

Conclusion: Current recommendations for sedentary behavior focus on stretching, walking, and seated movements. No studies have examined an equipment-free, short bout strength training program in real-world settings. Findings will inform a fully-powered trial, with an extended study duration.

SO.2.19-13

The Development of a Multi-component Intervention to Improve 24-hour Movement Behaviours in People with Multiple Long-term Conditions and Carers: An Intervention Mapping Approach

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SO.2.19 Motivation and behavior change: Interrupting Sedentary Time and Movement Integration

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Purpose: The aim of this study was to develop a theory and evidence-based intervention to improve 24-hour movement behaviours (physical activity, sedentary behaviour and sleep) in people living with multiple long-term conditions (MLTCs) and frailty, and their informal carers.

Methods: Intervention Mapping (IM) was used to develop the intervention. A literature search, Patient and Public Involvement groups (n=16 people with MLTCs and frailty, and n=8 carers), and Focus Group Discussions (FGDs) with 22 carers and 31 Healthcare professionals informed the needs assessment step of IM. The most important determinants were identified from behaviour change theory, and performance and change objectives formulated. Behaviour Change Techniques (BCTs) and their applications were specified in a matrix of change, and the programme plan formulated. FGD data were analysed using reflexive thematic analysis.

Results: The IM steps specified the behavioural and environmental outcomes, performance objectives and determinants to improve 24-hour movement behaviours of people with MLTCs and frailty and their carers. Determinants included knowledge, self-efficacy, skills, outcome expectations, motivation and perceived behavioural control. Key BCTs included goal setting, action planning, problem solving, information about health consequences, instructions on how to improve 24-hour movement behaviours, feedback, self-monitoring, reviewing goals, and social support. The resulting intervention includes seven one-to-one sessions and bi-weekly telephone calls over six months. Shared Decision Making around 24-hour movement behaviours is facilitated by a personal decision aid and a digital tool (MyHealthMapp) which uses wearable data and integrated patient-reported outcomes to inform these conversations. Subsequent personalised goals and action plans are supported by Steps4Health, a digital tool which provides personalised step goals, tracking, and guided exercise features. Both tools have been adapted and refined for the target populations. At month 3, individuals are referred to a Physical Activity Officer to support attendance at a community-based group or activity within their local community.

Conclusion: The IM process facilitated the systematic and transparent integration of theoretical frameworks, empirical

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evidence, and stakeholder perspectives. A mixed-methods feasibility randomised controlled trial will evaluate the feasibility and acceptability of the intervention and a future definitive trial.

SO.2.20-09

Scaling up a Physical Activity Program for Older Adults: Findings from a Project at the Municipality Level

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality

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Purpose: Physical activity (PA) represents a central protective factor in dementia prevention. Building on this evidence, the GESTALT – Get 10 project aims to scale up a PA program within municipal prevention practice. The PA program targets older adults who are inactive or engage in very little PA, and combines different forms of exercise with social and cognitive approaches. Results of the scaling up and implementation of the PA program in ten municipalities in Bavaria (Germany) from 2020 to 2024 are presented below.

Methods: Using a participatory approach with researchers and local authorities, the evidence-based GESTALT-PA program was systematically introduced and made accessible to stakeholders in ten participating communities. Local scaling up was primarily overseen by the project-specific municipal coordinators, who acted as a bridge for knowledge integration, resource management, and program delivery. The implementation of the PA program was carried out by exercise instructors specifically trained for this purpose. Using standardized questionnaires, which were completed by the municipal coordinators directly after the funding phase and analysed by the research team, the program's scaling and implementation were evaluated.

Results: Over the course of the project the GESTALT-PA program was scaled up in all ten municipalities. Specifically, 45 GESTALT-PA programs (initial courses) and 44 follow-up programs were implemented. In addition, 23 new PA initiatives, such as walking groups, were established across the ten participating municipalities. Overall, 74 exercise instructors were educated to implement the GESTALT-PA program, also five supervisors were additionally qualified to educate future instructors. Six months after funding was secured, the GESTALT-PA program continued in all ten municipalities, albeit at different levels.

Conclusion: Through the targeted provision and GESTALT-PA program-specific qualification of local exercise instructors, the effective implementation of the program across all ten municipalities was achieved. At the same time, this successful implementation also indicates that the scaling of the PA program in the planned region has been effectively accomplished. Further research is warranted to examine whether and how the transfer of the program to neighbouring municipalities can be effectively achieved and sustained in practice.

SO.2.20-01

Effects of Physical Activity and Sedentary Behaviour Interventions in People Living with Frailty and Multiple Long-term Conditions: A Systematic Review and Meta-analysis

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Purpose: To establish the effect of physical activity (PA) and sedentary behaviour (SB) interventions in people living with frailty and multiple long-term conditions (MLTCs) on physical function, QoL, PA and body composition.

Methods: Systematic review and meta-analysis (PROSPERO: CRD42024501164). Ten databases were searched (2000-October 2025). Randomised controlled trials (RCTs) evaluating PA or SB interventions in people with MLTCs (≥ 2 long-term conditions) and frailty were included. Evidence synthesis used a random-effects meta-analysis. Certainty of evidence was assessed using GRADE. Risk of bias (ROB) was assessed using the Cochrane Collaboration's tool (v2).

Results: Thirty RCTs were included. The majority ($n=29$, 97%) focused on PA; all were structured exercise programmes, three (10%) included a walking component. One study (3%) addressed SB.

21 studies ($n=1812$) measuring physical function were appropriate for meta-analysis. Eleven studies included in meta-analysis had unclear overall RoB, nine high RoB and one low RoB. There was a significant pooled effect (SMD= 0.78, 95% CI: 0.54 to 1.02 $p \leq 0.05$) favouring intervention. There was considerable statistical heterogeneity ($I^2 = 81.22\%$) and low certainty of evidence.

Six studies ($n=750$) which measured QoL were appropriate for meta-analysis. Four studies had unclear overall RoB and two had high RoB. There was a significant pooled effect (SMD= 0.31, 95% CI: 0.04 to 0.59, $p \leq 0.05$) favouring intervention. Statistical heterogeneity was considerable ($I^2 = 66.66$) and there was very low certainty of evidence.

There was low certainty evidence PA interventions were associated with improvements in PA ($k=3$, $n=506$, SMD 0.73, 95%CI 0.40 to 1.06, $p < 0.001$). For body composition, there was very low certainty evidence of a reduction in fat mass ($k=4$, $n=149$, MD -1.94 kg, 95%CI -3.68 to -0.10, $p=0.03$), but no impact on lean, fat-free or muscle mass (very low certainty evidence).

Conclusion: Physical activity interventions led to improvements in QoL, physical function and PA in people living with MLTCs and frailty compared to usual care. They also reduced fat mass but had no other effects on body composition. Further high-quality trials are indicated given the low certainty of the evidence. This should include SB interventions, which may be more accessible for those with high treatment and symptom burden.

SO.2.20-02

Food Insecurity, Cooking and Food Behaviours and Confidence in Changing Food Behaviours Amid the Cost-of-Living Crisis on the Island of Ireland: Nationally Representative Cross-sectional Study

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality

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Purpose: The cost-of-living crisis is having significant impacts on household budgets, forcing spending adaptations, but, there is little understanding of how individuals are adapting their food and cooking behaviours. This study aimed to assess consumers' cooking and food-related behaviours (e.g., food purchasing and storage), levels of food insecurity, and their confidence in changing these behaviours during the cost-of-living crisis.

Methods: A nationally representative cross-sectional online survey of adults (≥ 18 years old) living on the island of Ireland conducted between March and April 2025. Participants were eligible if they prepared a meal in the kitchen at least once every two weeks and/or had primary or shared responsibility for household food shopping. Data were collected on demographics, food insecurity, cooking skills, food behaviours, food engagement, confidence in changing food behaviours, mental wellbeing and diet quality, using validated measures where available. Data analysis used chi-square tests, Kruskal-Wallis H tests, and hierarchical multiple regression with adjustment for relevant covariates ($p < 0.05$) in IBM SPSS version 29.

Results: Of 1006 adults (51% female, mean age 44.1 years, SD 15.6), 30.3% had low (20.0%) or very low (10.3%) food security. Participants from Republic of Ireland were more likely to be food insecure than food secure ($p < .05$). Females, low-income households, below university level education and non-white ethnic groups were overrepresented in food insecure groups. Engagement in food-related behaviours was significantly lower in food secure groups ($p < .001$). However, no significant differences were found in cooking skills confidence, behaviour change confidence or fruit and vegetable intake. Mental wellbeing was positively associated with food security, behaviour change confidence, and total food engagement score (adjusted $R^2 = 0.204$).

Conclusion: Food insecurity on the island of Ireland was common, disproportionately affected disadvantaged groups, and linked to poorer wellbeing. Food-insecure adults reported similar cooking confidence and behaviour-change

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levels to food-secure peers but higher food engagement and lower wellbeing. Food security, food engagement, and behaviour-change confidence were independently associated with better wellbeing, suggesting that material support and opportunities to engage positively with food may help protect mental health in food-insecure households. Cooking and food skills programmes could help and should be explored alongside measures addressing economic hardship.

SO.2.20-03

Nutrition Security and Hemoglobin A1c among Adults with Type 2 Diabetes at Risk of Food Insecurity: Baseline Findings from the LINK Trial

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Purpose: Food insecurity affects 13.5% of U.S. households and disproportionately impacts marginalized groups. It is associated with elevated hemoglobin A1c (HbA1c) and greater chronic disease risk through mechanisms related to access and intake of health-promoting foods. Nutrition security was introduced to address limitations in food security metrics, including the lack of diet quality and health equity indicators. However, this concept remains conceptually and empirically underdeveloped, and few studies have examined its relationship with clinical biomarkers relevant to chronic disease management. This analysis examined whether nutrition security, measured via a validated survey, was associated with glycemic control (HbA1c) among adults with food insecurity and uncontrolled Type 2 diabetes (T2D) participating in a pragmatic trial addressing food and nutrition security.

Methods: We analyzed baseline cross-sectional data from 247 participants enrolled in the LINK randomized controlled trial through healthcare clinics in a Midwestern city in the U.S. Eligibility criteria included age ≥ 18 years, T2D diagnosis, HbA1c $\geq 7.5\%$, and a positive screen for food insecurity. Nutrition security was assessed using the Household Nutrition Security Scale (HNSS) and categorized as low or high. Linear regression models tested associations between nutrition security and HbA1c. Parallel models tested food security, diet quality, and health-related social needs, all assessed via validated measures.

Results: Participants were primarily female (68%) and Black (64%), with a mean age of 53 years and mean HbA1c of 9.3% (SD=1.9). Half reported low nutrition security, and 75% reported food insecurity. In adjusted models (n=240), nutrition security was not significantly associated with HbA1c ($\beta=-0.08$, 95% CI: -0.58, 0.42; $p=0.76$). Food security, diet quality, and social needs similarly showed no significant associations. Older age was associated with lower HbA1c.

Conclusion: Nutrition security and food security were not associated with glycemic control at baseline. Non-overlap between these constructs supports their conceptual distinction. Findings underscore the need for ongoing refinement of nutrition security measures and greater conceptual clarity regarding how food security and nutrition security interrelate. Longitudinal analyses within intervention contexts like LINK are needed to clarify potential pathways through which these constructs may influence diabetes outcomes.

SO.2.20-04

Pre-requisite Physical Function to Increase Steps/Day from a Walking Intervention for Adults with Arthritis

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Purpose: We explored the relation of baseline self-reported physical function with changes in steps/day and incidence of walking >6,000 steps/day over 6 weeks following the Walk with Ease (WWE) physical activity intervention in adults with arthritis.

Methods: We conducted a secondary analysis of a trial of adults with doctor-diagnosed arthritis randomized to either a 6-week WWE telephone-delivered intervention or a waitlist control. Physical function difficulty was determined based on self-reported difficulty on any of the following Health Assessment Questionnaire items: limitation with walking, climbing 5 steps, and rising from a chair. Steps/day were measured using an ActiGraph GT9x Link worn on the waist over 7 days (> 10hr/day). Study outcomes included change in steps/day from baseline to 6 weeks and incidence of walking >6,000 steps/day (previously found to protect against developing functional limitation) at 6 weeks among participants walking <6,000 steps/day at baseline. We examined where study outcomes were predicted by the following categorical exposure variable based on limitation and randomized condition: 1) Control with limitation, 2) WWE with limitation, 3) Control without limitation and 4) WWE without limitation. Difference scores, risk ratios (RR), and 95% confidence intervals (CI) were used in separate models.

Results: A total of 266 adults with arthritis (64.1±9.4 years, 92% women, BMI 34.2±7.7 kg/m²) were included (n=131 in WWE, n=135 in control). At baseline, 47 (17.7%) participants walked >6,000 steps/day. WWE participants who reported any difficulty with rising from a chair had 777 fewer steps/day (95% CI [-1607, 51]) over 6 weeks and were 87% less likely (RR 0.13 95% CI [0.02, 0.91]) to walk >6,000 steps/day compared to those in the WWE group without difficulty with rising from a chair. There were no differences for changes in steps/day or incidence of walking >6,000 steps/day for difficulty walking or climbing 5 steps.

Conclusion: The ability to rise from a chair without difficulty may be an important functional pre-requisite for adults with arthritis to increase physical activity. Future studies should examine whether targeting sit-to-stand impairments prior to physical activity could help to increase overall long-term physical activity levels in adults with arthritis.

SO.2.20-05

Association between Physical Activity Bout Duration and Physical Functioning in Older Adults: A Longitudinal Cohort Study

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality

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Purpose: Moderate-to-vigorous physical activity (MVPA) is often quantified by summing all movement that exceeds a certain absolute intensity threshold. However, the duration of activity bouts is a key component of aerobic activity, especially when intensity is defined relative to aerobic capacity. We examined the independent association between bouts MVPA and functional capacity over a four-year follow-up in older adults. We hypothesise that the activity bout duration is independently associated with maintaining functioning only when intensity is quantified in relative terms.

Methods: The participants (n=295) were community-dwelling men and women aged 75–85 years. MVPA was assessed using a thigh-worn accelerometer. The absolute threshold was set at acceleration equivalent to 3 METs (10.5 ml/kg/min). The relative threshold was individually determined based on the intensity of a six-minute walk test. Functional capacity was measured at baseline and after four years using the six-minute walking distance and the time to complete a five times sit-to-stand test (STS). Traditional and compositional linear regression analyses were used to study the associations for total MVPA and bouts vs. nonbouts MVPA, respectively. Models were adjusted for age, sex, BMI, follow-up time, and total physical activity.

Results: At baseline, walking distance was 432 (75) meters and STS time 12.1 (3.6) seconds. During follow-up, walking distance decreased by 51 (46) meters and STS time increased by 1.0 (4.3) seconds. The associations of bouts vs. nonbouts MVPA using 30-second to 30-minute bout requirement were not significant with walking distance or STS when using either absolute or relative threshold. Only total MVPA using relative ($\beta=0.27$, $p=0.004$) but not absolute (-0.06 , $p=0.643$) threshold was associated with the change in walking distance during the follow-up. Total MVPA was not associated with the change in STS time.

Conclusion: The duration of activity bouts was not independently associated with functional capacity. The total amount of activity at sufficient intensity relative to individual capacity appears to be a more important factor than bout duration for maintaining functional capacity in older age.

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SO.2.20-06

E-ACTIVE AGING: An Exergame-based and Multicomponent Exercise Program for Community-dwelling Older Adults at Risk of FallingP. Lillo-Urzuá^{1,2}, J. Ugarte Llanten², I. Cigarroa², M. Cuenca-García¹¹Universidad de Cádiz, Department of Physical Education, Faculty of Education Sciences, School of Education., Cadiz, Spain, ²Universidad Católica Silva Henríquez, Facultad de Ciencias de la Salud, Escuela de Kinesiología, Santiago, Chile

SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality

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Purpose: To evaluate the effectiveness of a supervised exergame-based multicomponent intervention compared with a traditional multicomponent training program in community-dwelling older adults at risk of falling.**Methods:** A randomized controlled trial with parallel groups and blinded assessment was conducted among older adults (≥ 60 years) attending National service for the elderly (SENAMA) day centers in Santiago, Chile. Fifty-two participants were randomly allocated to either an exergame plus multicomponent exercise group (EE+ME, $n=26$) or a traditional multicomponent exercise group (ME, $n=26$). Both groups completed supervised sessions twice weekly for 12 weeks, based on the multicomponent program and ACSM guidelines. The outcomes included fall risk (Downton Fall Risk Index), dynamic and static balance (Timed Up and Go and Single-Leg Stance), body composition (InBody® 270) and upper and lower limb strength (grip strength test and five-repetition sit-to-stand test). All analyses were performed with SPSS v.26 considering $p < 0.05$ and GraphPad Prism v8. Study adhered to CONSORT and SPIRIT guidelines and was approved by the Universidad Santo Tomás Ethics Committee (N°238-MZS, November 2024). Trial registration: ClinicalTrials.gov ID NCT07024004.**Results:** A significant time effect was found for Timed Up and Go ($p=0.002$, $\eta^2 = 0.010$), single-leg stance on both sides ($p < 0.001$, $\eta^2 = 0.046-0.047$), and Five-Times Sit-to-Stand ($p=0.008$, $\eta^2 = 0.047$) indicating improved dynamic and static balance and lower-limb function. No significant time effect was observed for handgrip strength ($p=0.138$, $\eta^2 = 0.004$). A group effect emerged for fat mass percentage ($p < 0.001$, $\eta^2 = 0.071$), favoring the EE+ME group, while total lean mass showed a small non-significant trend ($p=0.083$, $\eta^2 = 0.066$). No significant interaction effects (time $\times$ group) were detected in all outcomes, suggesting similar improvements across interventions.**Conclusion:** Both interventions produced significant improvements in functional performance, dynamic and static balance, and lower-limb strength over time, confirming the effectiveness of multicomponent exercise for fall-risk reduction in older adults. Although no significant interaction effects were found, small effect sizes favored the Exergame+Multicomponent group, suggesting that integrating exergames may provide comparable or slightly greater benefits while maintaining motivation and adherence among community-dwelling older adults.

SO.2.20-07

Maintaining Function and Participation through 24-hour Movement Behaviours for People with Multiple Long-term Conditions and Frailty (PERSONAL-AGILITY Study): Protocol for a Randomised Controlled Feasibility TrialV. Hall¹, M. Thomas², L. Wilde¹, L. Herring¹, M. Davies², M. Hamza², P. Sarkar², A. Harris³, G. Laura², S. Greenwood⁴, M. Hadjiconstantinou², J. Hawkins⁵, K. Khunti², M. Maddocks⁶, A. Sayer⁷, A. Rowlands², S. Seidu², T. Yates², H. Young²¹University Hospitals of Leicester NHS Trust, Leicester Diabetes Centre, Leicester, United Kingdom, ²University of Leicester, Leicester, United Kingdom, ³Active Together, Leicestershire County Council, Leicester, United Kingdom, ⁴King's College Hospital NHS Trust, London, United Kingdom, ⁵Cardiff University, Centre for Development, Evaluation, Complexity and Implementation in Public Health Improvement (DECIPHER), School of Social Sciences, Cardiff, United Kingdom, ⁶Kings College London, Cicely Saunders Institute of Palliative Care, Policy & Rehabilitation, London, United Kingdom, ⁷Newcastle University and Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle, United Kingdom

SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality

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Purpose: The PERSONAL-AGILITY study will determine the feasibility of a randomised controlled trial (RCT) and explore the acceptability of a theory- and evidence-informed 24-hour movement behaviour (physical activity,

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sedentary behaviour, and sleep) intervention in people with multiple long-term conditions (MLTCs) and frailty, and their informal carers.

Methods: A mixed-methods feasibility RCT with an embedded process evaluation (ISRCTN14362764, 25/11/2024). Fifty participants with MLTCs and frailty (+carers) will be recruited and randomised 2:1 to intervention or usual care. Primary outcomes include eligibility, recruitment, retention, and outcome completion rates assessed against *a priori* progression criteria. Secondary outcomes include body composition, blood pressure, accelerometer-assessed 24-hour behaviours, physical function, and patient-reported outcomes (goal attainment, quality of life, participation, symptoms, carer burden) assessed at baseline, 12, and 24 weeks.

Implementation will be explored via fidelity assessments, dose (adherence data) and reach (demographics, completion and engagement data). Potential mechanisms of impact will be explored using secondary outcome data alongside interviews. The influence of context will be explored using site profiles alongside interview data.

Quantitative and qualitative data will be analysed separately before being integrated. Quantitative data will be analysed using descriptive statistics and 95% confidence intervals and qualitative data using reflexive thematic analysis. Data sets will be integrated using joint display.

Results: The study commenced in June 2025. As of November 2025, of the $n=50$ people who expressed an interest in the study, $n=32$ (70%) were eligible, and $n=16$ (50%) consented to participate ($n=2$ with carers). To date, $n=8$ people with MLTCs and frailty have been randomised (five intervention, three usual care).

Conclusion: Twenty-four-hour movement behaviours are increasingly recognised as a key component of holistic and person-centred healthcare. The intervention aligns with the NHS Long Term Plan and NICE guidance on multimorbidity, supporting integration into care pathways. Carer involvement and integration with community services provides continuity of support, improved engagement, and coordination of care. The PERSONAL-AGILITY study is the first to evaluate the acceptability of a 24-hour movement intervention in people living with MLTCs and frailty, and the feasibility of a future RCT evaluating clinical and cost-effectiveness. Results will help refine trial design, intervention components and delivery.

SO.2.20-08

Scaling Up Community-based Dance Classes for Healthy Ageing and Fall Prevention: Pilot Trial Outcomes and Recommendations

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality

Room 3, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Evidence-based exercise programs that improve balance and strength can reduce fall risk in older adults but are often unpopular. Tailored dance programs may offer an enjoyable alternative. Our previous evaluation of popular community-based tailored dance classes developed a program theory explaining high participation and sustained attendance, but their effectiveness for fall prevention remains untested. This pilot trial assessed the acceptability and feasibility of a tailored dance intervention and identified program and implementation features to inform future trials.

Methods: We conducted a randomised waitlist-controlled pilot delivering a 10-week, twice-weekly dance program to community-dwelling adults aged 65+. The intervention incorporated meaningful music, narrative, imagery, modifications for accessibility, and a relational teaching approach delivered by experience dance teachers. Participants completed pre- and post-intervention surveys and functional assessments; a sub-sample participated in semi-structured interviews. Primary outcome: program acceptability; secondary outcomes: feasibility, social networks, mental health, quality of life, dance and balance self-efficacy, physical activity, falls, physical function, and memory.

Results: Acceptability was high: 98% of participants ($n=56$) would recommend the program to others like them; 91% wished to continue; 95% endorsed study procedures. Feasibility was demonstrated: recruitment took 12 weeks; 47% of all expressions of interest ($n=139$) were screened, enrolled, and randomised ($n=63$). Retention was 90% ($n=57$), and average class attendance was 86%, with all attending $\geq 70\%$ of sessions. Intervention participants showed significant improvement in dance self-efficacy ($p<0.01$); no other quantitative changes were detected. Qualitative interviews ($n=19$ participants, 4 instructors) confirmed and extended program theory, highlighting mechanisms such as physical

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and mental benefits, enhanced self-esteem, camaraderie, and emotional uplift. New insights addressed scalability: building trust in unfamiliar communities, adapting for diverse abilities, training instructors from varied dance backgrounds, and managing venue and life circumstance challenges.

Conclusion: The pilot demonstrated strong acceptability, feasibility and safety, confirming tailored dance programs can be delivered at scale with high engagement. Findings support further evaluation in a larger trial with falls as the primary outcome. If effective, tailored dance programs could provide an accessible, enjoyable and sustainable strategy for fall prevention and wellbeing in older adults.

SO.2.20-10

PROWELL: The Impact of Increased Protein Intake and Physical Activity on Markers of Well-being in Postmenopausal Women

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality
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Purpose: Nutrition plays an essential role in the health, function, and wellbeing of older adults. Nutritional strategies can mitigate the development of sarcopenia, physical impairment, and poor wellbeing. Several studies have identified dietary protein as a key supportive nutrient for skeletal muscle health in middle-aged and older adults. In addition to the proposed benefits on skeletal muscle, optimal protein intake can help maintain energy balance, reduce cardiometabolic risk, and promote overall wellbeing. The objective of this study is to determine the effects of consuming a higher protein diet with or without regular physical activity for 16 weeks on wellbeing in postmenopausal women.

Methods: Postmenopausal women aged 50 years and older (at least 12 months since last menstrual cycle) who regularly participate in physical activity (e.g., 2-4 bouts of physical activity per week) are being recruited to participate in the study. The study is a parallel design with participants randomized to one of three arms 1) control group (current n=15) which maintains protein consumption at 0.8 g protein /kg body weight or less and limit red meat consumption for 16 weeks, 2) higher protein diet (n=16; 1.6 g protein/kg body weight); and 3) a higher protein diet (n=16) 1.6 g protein/kg body weight in combination with 150 minutes of physical activity, including strength training 3 times per week. Markers of well-being are assessed at 0, 4, 8, 12, and 16 weeks. Sleep quality and duration is assessed via an ActiGraph triaxial wrist accelerometer GT9X Link, and subjective sleep quality is assessed using the Pittsburgh Sleep Quality Index (PSQI). The Profile of Mood States (POMS) questionnaire is being used to assess mood.

Results: Preliminary analysis suggests protein intake improves markers of sleep (global sleep score) and mood (total mood disturbances) over 16 weeks and addition of physical activity further improves these measures, compared to the control group. These changes were accompanied by a decrease in android fat in postmenopausal consuming protein, independent of physical activity.

Conclusion: Increasing dietary protein intake to 1.6 g protein/kg body weight may improve wellbeing through better sleep and improvements in mood in postmenopausal women. NCT06849817

SO.2.20-11

A Pilot Randomized Controlled Trial of an Automated Online Exercise Program after Knee Replacement

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality
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Purpose: The purpose of this pilot randomized controlled trial was to examine the acceptability and preliminary efficacy and maintenance effects of a fully automated, online physical activity (PA) intervention for adults ≥ 1 year post-knee replacement (TKR).

Methods: Fifty older adults (80% female, 68.0 ± 6.8 years, 6.1 ± 5.1 years post-TKR) from 23 U.S. states were randomized to begin a 3-month intervention immediately (Energize!) or after 3 months (Delayed Energize!). The online program provided PA goals, progressing from 75 to 200 min/week, along with weekly behavioral video lessons and homework assignments. Participants planned and recorded their weekly PA on the website and received weekly automated, personalized feedback based on goal attainment and reported any barriers. Acceptability was assessed through program adherence, retention rates, and a 7-point Likert participant satisfaction and program usefulness survey. Repeated measures ANOVA assessed changes in ActiGraph-measured PA (Moderate-to-vigorous intensity PA [MVPA] min/week, steps/day) and patient-reported outcomes (pain intensity/interference, cognitive function, sleep disturbance) across time and between groups at 3 months. Paired samples t-test were used to examine the maintenance effects from 3-6 months for the Energize! group.

Results: Energize! participants' adherence was as follows: video lessons viewed (93.4%), exercise plans submitted (87.3%), exercise reported (89.4%), and homework completed (74.6%). Retention was greater in Energize! (70.4%) vs. Delayed Energize! (95.6%; $p=0.02$). Energize! participants reported high satisfaction with the program (5.8 ± 1.6) and rated the program features for planning (5.7 ± 1.5), and reporting PA (5.5 ± 1.3) to be the most useful. At 3 months, Energize! participants had greater increases in PA (MVPA: 70.39 ± 73.66 min/week, $p < 0.001$; steps/day: 1224.58 ± 1251.82 , $p < 0.005$) compared to Delayed Energize! (MVPA: -7.71 ± 25.77 min/week; steps/day: -70.49 ± 1134.14), but changes were not sustained at 6 months. No changes in patient-reported outcomes were observed across time or between groups.

Conclusion: A fully automated online PA program was well received by adults with TKR and produced short-term increases in PA. Future studies should identify strategies that could be added to the fully automated program to support long-term changes in PA.

SO.2.20-12

Cognitive Benefits of an Intergenerational Cognitive-physical Activity Program in Adults with Mild Cognitive Impairment: Findings from the *Brain in Motion* Study

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SO.2.20 Ageing: Clinical Interventions, Frailty, and Physical Functionality
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Purpose: Dementia poses one of the most pressing public health challenges worldwide, and multicomponent interventions combining physical, cognitive, and social stimulation are crucial to strengthen cognitive reserve in people with Mild Cognitive Impairment (MCI), a key stage for prevention. The *Brain in Motion* study examined whether a 12-week intergenerational cognitive-physical activity program, grounded in the Ronnie Gardiner Method (RGM®); a rhythm- and music-based approach combining movement, coordination, and cognitive challenge; could enhance cognitive, physical, and psychosocial health in adults with MCI. The program engaged dyads of MCI participants and their adult son/daughter, who joined weekly RGM-based group sessions complemented by home-based exercises and motivational interviewing. The present analysis focuses on cognitive outcomes in adults with MCI.

Methods: A quasi-experimental pretest-posttest control group design was used, including 19 adults with MCI (IG=14, CG=5; mean age= 70.0 ± 6.0 years; 42.1% female). Cognitive outcomes were assessed at baseline and post-intervention using the CANTAB neuropsychological test battery. Primary outcomes included associative learning (Paired Associates Learning, PAL), delayed visual recognition memory (Delayed Matching to Sample, DMS), and executive functioning (Multitasking Test, MTT). Linear mixed models (intention-to-treat), adjusted for age and sex and using cluster-robust SE's, were applied to examine Group $\times$ Time effects.

Results: A significant Group $\times$ Time interaction was found for delayed visual recognition accuracy (DMSPCADZScore: $\beta=1.39 \pm 0.66$, $p=0.05$), indicating that the intervention group improved in recognition memory, whereas the control group remained stable. For associative learning (PALMETS: $\beta=0.47 \pm 0.21$, $p=0.04$), both groups showed improvements in learning efficiency (fewer errors post-intervention), with a slightly steeper decline in errors in controls, likely reflecting small-sample variability. Other cognitive domains (executive functioning and processing speed) showed positive but non-significant trends in both groups.

Conclusion: This study provides preliminary evidence that a 12-week intergenerational RGM-based cognitive-

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physical activity program can support learning and memory performance in individuals with MCI. The observed improvements in visual recognition memory highlight the promise of socially engaging, rhythm- and music-based cognitive-physical stimulation for supporting brain health in early cognitive decline. However, given the small sample size, particularly in the control group, further research is needed to confirm these findings and clarify effects on other cognitive domains.

SO.2.21-01

Adolescents' Perspectives and Experiences Using Dietary Mobile Health Apps: A Scoping Review

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

Room 4, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Considering the central role of smartphones in adolescents' daily routines, dietary mobile health (mHealth) apps (i.e., apps that provide education about dietary habits and tracking of these behaviors) are a window of opportunity to intervene on dietary habits. Despite many studies that have examined the effects of mHealth apps on dietary habits, few have explored adolescent perspectives and experiences of using these apps. We aimed to synthesize the evidence and map the research gaps on adolescents' perspectives (positive or negative) and experiences (attitudes, barriers, and facilitators) of using dietary mHealth apps on their smartphones.

Methods: We conducted a scoping review of published literature in PsycINFO, Embase, Medline, Web of Science and CINAHL. Mixed-methods studies were included and focused on adolescents (10-19 years of age) reporting perspectives (positive or negative) and experiences (attitudes, barriers, and facilitators) of using dietary apps. Two independent reviewers performed title, abstract and full-text screening using Covidence software. A third reviewer led a thematic analysis to identify overarching themes detailing adolescents' experiences with dietary apps.

Results: Out of 590 abstracts reviewed, 17 studies met the eligibility criteria. Ten studies tested the usability, feasibility and acceptability of a standalone or multi-component dietary mHealth app, while nine evaluated the likability and effectiveness of dietary apps. Positively perceived features included general food identification, food tracking and game features, although inaccurate food identification and game repetitiveness were negatively perceived. Commonly discussed barriers were technical difficulties, tracking inaccuracies, complicated delivery of information and lack of social engagement. Facilitators to app participation included ease of use, targeted delivery of information, social engagement, rewards and personal goal setting. Suggestions for app improvement pertained to tracking, interface and design improvements, information and feedback provision, and notification options. Finally, adolescents considered effective apps to increase eating habit awareness, and improve perceived dietary intake.

Conclusion: This scoping review explored adolescents' positive and negative perspectives, and experiences using dietary mHealth apps. Understanding these perceptions are crucial to inform the development of more positive and engaging experiences using dietary standalone or multi-component mHealth apps aimed to promote healthy nutrition habits.

SO.2.21-04

Mobile Health Plus Community Health Worker Support for Weight Management among Public Housing Residents (Path to Health): Results from a Three-arm Randomized Controlled Trial

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

Room 4, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: In the first known weight management trial using text messaging among low-income public housing residents, we tested whether a combined mobile health and Community Health Worker-delivered counseling intervention (mHealth+CHW) demonstrated improved weight loss efficacy compared to an mHealth only intervention (mHealth only) and an assessment-only group (control).

Methods: English- and Spanish-speaking adults with overweight/obesity (BMI $\geq$ 27.0), recruited from 17 U.S. urban public housing developments in Boston Massachusetts, were randomized 1:1:1 to mHealth+CHW, mHealth only, or control groups. The mHealth intervention was a 12-month interactive, theory-based text messaging intervention and a cellular-connected scale for self-weighing; the CHW counseling intervention was 12 monthly telephone calls focused on diet and physical activity using motivational interviewing. The primary outcome was objectively measured weight; secondary outcomes were diet (via 24-hour recalls) and physical activity (via accelerometry), each collected at baseline, 6-, and 12-month follow-up. Between-group analyses were conducted to examine 6-month outcomes using ANOVAs.

Results: Participants (n=286) mean age was 53.7 (range=18-87 years). The majority were female (85.0%), Hispanic (71.7%), and had $\leq$ high school education (63.9%). Assessment completion was $>80\%$ across groups. Mean (SD) weight change was -2.86 (12.94), -2.85 (9.57), and -1.86 (8.94) pounds, in the mHealth+CHW, mHealth only, and control groups respectively (not statistically significant). For diet behaviors, mean changes were 0.12 (1.74), -0.16 (1.98), -0.13 (2.25) cups of fruits and vegetables; 0.06 (16.37), -2.90 (15.46), and 1.15 (15.68) grams of solid fat; and -0.51 (6.18), -0.47 (6.70), and 0.47 (5.45) teaspoons of added sugars, in the mHealth+CHW, mHealth only, and control groups respectively (not statistically significant). Minutes of moderate/vigorous physical activity were not significantly different between groups. Intervention engagement data was: text message response rate=50.9%; number (SD) of self-weighing readings/participant mean=79.2 (130.3); and number (SD) of completed CHW counseling calls/participant mean=6.4 (3.5).

Conclusion: The combination of mHealth with CHW counseling was well accepted by public housing residents and showed beneficial changes at 6-month follow up in weight and related diet behaviors (increased fruits and vegetables and reduced sugar consumption). Results provide promising support for implementation of technology-based interventions supplemented with personalized culturally relevant support from CHWs to public housing populations facing multiple health disparities.

SO.2.21-05

Enhancing Shared Decision Making Regarding 24-hour Movement Behaviours between People with Multiple-long-Term Conditions and Healthcare Professionals: A Qualitative Think-aloud Study of the MyhealthMapp mHealth Tool

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

Room 4, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Physical inactivity amongst people with multiple long-term conditions (MLTCs) increases the risk of poor outcomes such as frailty. Considering the full spectrum of 24-hour movement behaviours (sleep, sitting, stepping,

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sweating, and strengthening) offers more opportunities to improve activity levels and health. MyHealthMapp is an mHealth tool designed to support shared decision-making (SDM) between healthcare professionals and patients by providing red-amber-green ratings of their 24-hour movement behaviours (from wearable devices) and health outcomes to set personalised goals. This study aimed to identify potential refinements to MyHealthMapp for people with MLTCs.

Methods: People with MLTCs were recruited through the Leicester Diabetes Centre volunteer database and university hospital networks. Of 75 respondents, 20 were eligible and consented to participate. Participants completed one think-aloud interview while using *MyHealthMapp*, followed by a semi-structured interview. Transcripts were analysed using think-aloud and framework thematic analysis. Subsequently, findings were mapped to the APEASE (Acceptability, Practicability, Effectiveness, Affordability, Side-effects, Equity) and MoSCoW (Must-have, Should-have, Could-have, Won't have) frameworks to inform refinements.

Results: Participants (mean age 67 years; range 39-89; 11 males) were predominately White British (n=10) or South Asian (n=8), with one of Tanzanian and one of Irish ethnicity. Frailty levels ranged from Clinical Frail Scale (CFS) <4 (n=10) to CFS 4-7 (n=10). Three key themes were identified:

1. **Usefulness:** Participants perceived MyHealthMapp as valuable for real world use, particularly in supporting meaningful conversations with Healthcare Professionals, e.g., "It's got a lot of information there that can be useful."
2. **Understanding:** Participants found medical jargon, abbreviations, and RAG ratings confusing, e.g., "I don't know what the red signifies."
3. **Usability:** Participants were able to navigate MyHealthMapp with ease; however certain content was overlooked due to design, e.g., "There should be an instruction to hover over the dots."

Conclusion: MyHealthMapp shows potential to enhance SDM and support positive change in 24-hour movement behaviours among people with MLTCs. Feedback has guided refinements to MyHealthMapp, including clearer language, enhanced visual design, and improved user guidance. MyHealthMapp is being evaluated for feasibility and acceptability within an intervention (Personal-Agility) to support SDM and improve 24-hour movement behaviours in people with MLTCs and frailty.

SO.2.21-06

Acceptability of the Foodbot Factory Digital Curriculum-based Nutrition Education Intervention among Elementary School Children

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

Room 4, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: To test the hypothesis that a digital, game-based nutrition education intervention (Foodbot Factory) is more acceptable to children than a traditional educational intervention (control).

Methods: A parallel cluster-randomized controlled trial was conducted among Grade 4 and 4/5 (ages 8-11) classrooms in Ontario, Canada. Classrooms were eligible if they had not covered the nutrition curriculum and were randomized in a 1:1 allocation ratio to: 1) an intervention group using the Foodbot Factory intervention; or 2) a control group using conventional materials. Classrooms in both groups received five daily nutrition education lessons (35-40 minutes/day). Both interventions were iteratively co-designed with teachers and dietitians. Lessons were provided by a teacher on the research team. Intervention acceptability was assessed using an 11-item questionnaire (5-point Likert scales) based on the Theoretical Framework of Acceptability. A blinded outcome assessor collected data. A logistic regression model assessed the agreement for each acceptability item, accounting for clustering.

Results: 32 classrooms were randomized to the intervention (n=16 classrooms; n=286 participants) and control groups (n=16 classrooms; n=287 participants). Internal consistency for the acceptability scale was moderate (Cronbach's $\alpha=0.76$). Overall, acceptability was high in both groups, with agreement ranging from 78.7% to 90.2% (intervention) and 72.4% to 86.4% (control). However, all items had higher agreement in the intervention group. Participants in the intervention group were significantly more likely to agree that the intervention was fun (87.4% vs. 76.0%, $p=0.0062$).

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and that the goals were clear (86.0% vs. 78.7%, $p=0.046$). Other items demonstrated meaningful differences in acceptability, including higher agreement that using Foodbot Factory was a positive experience (84.3% vs. 77.6%, $p=0.069$) and higher self-reported learning about food and nutrition (90.2% vs. 83.3%, $p=0.056$). Participants in both groups agreed that learning about nutrition is important (89.5% vs. 86.4%, $p=0.27$) and that the interventions did not cause stress about eating behaviours (81.1% vs. 78.0%, $p=0.37$).

Conclusion: Foodbot Factory was more acceptable than control, suggesting that digital classroom-based interventions are well-received by children. The control intervention also had high acceptability, highlighting the importance of intervention design and teacher training for nutrition education. Registration: [clinicaltrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT05979259) registration NCT05979259 Funding: CIHR (186097).

SO.2.21-07

Effectiveness of a Text Message-delivered Behavioural Weight Management Intervention for Postpartum Women with Overweight or Obesity on Diet and Physical Activity: The Supporting MumS RCT

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

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Purpose: Effective and cost-effective behavioural weight management interventions in the postpartum period are lacking. The Supporting MumS (SMS) trial tested the effectiveness of an automated, text message-delivered intervention, promoting self-directed diet and physical activity behaviour change using behaviour change techniques, to support postpartum weight loss. This work examines the effect of the intervention on secondary diet and physical activity outcomes at 6 and 12 months.

Methods: Participants were women, between 6 weeks and two years postpartum, with a BMI ≥ 25 kg/m², from across the United Kingdom. The 2-arm, multi-centre, parallel group RCT randomised women to receive 12 months of text messages about weight management (intervention group) or child health and development (active control). We assessed the effectiveness of the intervention on diet (mean scores for Fat and Fibre Barometer (FFB) and intake of commonly consumed sugary foods) and physical activity (mean MET minutes/per week and high/low/moderate physical activity levels according to IPAQ- SF). Outcomes collected by self-report questionnaires at baseline, 6- and 12-months follow-up were compared between groups. Analysis was intention to treat using ANCOVA for continuous variables and logistic regression for ordinal variables, adjusting for baseline values, site, ethnicity and recruitment pathway.

Results: Of the 892 women recruited (445 intervention; 447 active control), 868 (97.3%), 733 (93.9%) and 658 (95.1%) completed questionnaires at the baseline, 6 month and 12-month timepoints, respectively. Statistically significant between groups differences showed improved FFB scores (adjusted mean difference 0.09 [0.04, 0.14], $p<0.001$), increased MET minutes/week (adjusted mean difference 417.2 [154.2, 680.1], $p=0.002$) and increased odds of having higher physical activity levels (OR 1.55 [1.14, 2.10], $p=0.01$), for the intervention group at 12 months. The same trends were observed at 6 months follow-up with exception of intake of sugary foods which showed a statistically significant reduction in the intervention group at 6 months (adjusted mean difference -0.10 [-0.20, -0.01], $p=0.04$) which was not maintained at 12 months.

Conclusion: A novel, fully automated text message-delivered behavioural weight management intervention supported modest improvements in diet and physical activity behaviours in a diverse sample of UK postpartum women with overweight or obesity.

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SO.2.21-09

Engagement Strategies in Nutrition Apps: A Systematic Scoping Review of Key Features in Adults

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

Room 4, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: This review synthesizes the engagement strategies and evaluation metrics applied in research trials of nutrition apps designed for adults, aiming to promote dietary behavior change and prevent chronic diseases.

Methods: We conducted a systematic search of PubMed, Scopus, Cochrane and Web of Science for relevant studies from January 1, 2013, to June 2024. Our inclusion and exclusion criteria followed the PICOS framework.

Results: Our searches retrieved 4,045 records and after exclusion of duplications, abstract screening and full-text review, 59 studies were included. The majority of these apps focused on adults with overweight and obesity and underwent (non-) randomized controlled trials, with varying durations (1 week to 18 months) and sample sizes (majority recruited 50-200 participants). Engagement was typically measured by frequency of specific function use and frequency of app usage right, followed by retention rate. The two most common engagement strategies reported in studies were push notifications (49%) and behavioral theory elements (41%). The lack of consistent definitions of user engagement limited comparison across studies and made it difficult to interpret the use and impact of engagement strategies. The majority of research examined short- to medium-term engagement patterns although this limited the understanding of long-term behavior change.

Conclusion: Our findings suggest that adaptive user-centered design together with standardized engagement metrics should be implemented to enhance nutrition app effectiveness.

SO.2.21-10

The Right Push at the Right Time: Exploring How Socioeconomic and Personal Factors Shape Nudge Effectiveness across Different Just-in-Time Nudges

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

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Purpose: Poor diets are a significant risk factor for chronic diseases, which disproportionately affect individuals with lower socioeconomic positions (SEP). As food purchasing increasingly moves online, digital platforms offer opportunities to promote healthier eating through timely and personalised nudges. It remains unclear which factors should guide personalisation and how to design effective just-in-time (JIT) nudges, timely choice-architecture modifications presented at the point of decision-making. This study investigates how SEP and individual traits influence the effectiveness of four digital JIT nudge types, examining moderating effects of SEP, decision-making styles (GDMS), and food choice motives (FCM), and mediating effects of reactance and ease of identifying healthier options.

Methods: A preregistered online experiment (OSF.IO/TRF4V) with a one-factor, five-level between-subjects design was conducted among 600 Dutch adults. Participants completed a grocery shopping task using MAND, a realistic mock supermarket app developed for research purposes. They were randomly assigned to one of five app conditions: no nudge, JIT visibility-only, descriptive nutritional label (DNL), hedonic enhancement, or social norm. When selecting an unhealthy product, participants saw a pop-up recommending a healthier alternative. Afterwards, they completed questionnaires. Primary outcomes were nudge effectiveness (percentage of healthier recommendations accepted) and basket healthiness (mean nutritional score of final purchases). Planned analyses include two conceptual models:

1. *JIT Nudge Presence Model:* testing effects of JIT visibility (vs. no nudge) mediated by reactance and

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identification ease and moderated by SEP, GDMS, and FCM.

2. *JIT Nudge Type Model*: comparing DNL, hedonic, and social-norm nudges (vs. JIT visibility) with the same moderators and mediators as above.

Results: Data collection will conclude by week 48 of 2025. We expect JIT visibility nudges to increase healthier choices compared to no nudge. DNL nudges are hypothesised to be most effective among higher-educated or health-oriented participants, hedonic nudges among intuitive or taste-driven individuals, and social-norm nudges among lower-SEP participants. There are additional preregistered hypotheses on the moderating and mediating effects mentioned above.

Conclusion: This study clarifies how SEP and individual traits interact with digital message design to influence healthier food choices. Identifying these personalisation parameters will inform the development of equitable and adaptive digital nudging interventions that encourage healthier diets.

SO.2.21-11

Effect of a Multimedia Messaging Intervention on Promoting Healthy Eating Among Amazonian Children

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

Room 4, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: This study evaluated the efficacy of a behavioral intervention delivered via mHealth in supporting healthy linear growth and improving dietary patterns among school-age children living in the Brazilian Amazon. It addressed the urgent need for scalable, low-cost strategies to promote child nutrition and growth equity in remote regions.

Methods: A single-blind randomized controlled trial was conducted with 266 caregivers of children aged 7–8 years from a birth cohort in the Brazilian Amazon. Participants were recruited via telephone and social media in June 2023 and randomly assigned to receive 19 weeks of multimedia behavioral mHealth messages (intervention) or usual care (control). Messages were cross-culturally adapted to the Amazonian context (Hovadick, 2025). The primary outcome was the change in BMI-for-age z-score, with height and weight measured according to WHO standards. The secondary outcome was dietary intake, assessed using a Food Frequency Questionnaire validated for the Western Amazon population. Analyses followed both intention-to-treat (ITT) and per-protocol (PP) approaches and were stratified by sex. Within-group (intragroup) changes were assessed using paired t-tests, and between-group (intergroup) differences were evaluated using independent t-tests (Stata 18.0; $P < 0.05$).

Results: In the ITT analysis, BMI-for-age significantly decreased within the control group (-0.10 ; 95% CI: -0.17 , -0.03), particularly among boys, while no significant intragroup change occurred in the intervention group. The intergroup difference was not statistically significant. In the PP analysis, boys in the control group showed a greater intragroup reduction, resulting in a significant intergroup difference (-0.25 ; 95% CI: -0.50 , -0.01), suggesting inadequate weight gain relative to linear growth. Regarding diet, no statistically significant intergroup differences were observed for any food or food group. However, both ITT and PP analyses revealed significant intragroup reductions in the consumption of ultra-processed foods, added fats, and added sugars in both groups, with more pronounced improvements in the intervention arm.

Conclusion: This mHealth behavioral intervention effectively supported adequate growth and promoted healthier eating patterns among Amazonian children. The convergence of favorable intragroup trends in the intervention group highlights its clinical and public health relevance and reinforces its potential for scalable, equitable nutrition promotion in low-resource settings.

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SO.2.21-12

Navigating a Cancer Journey at Work: An Elearning Intervention to Improve Breast Cancer Patients' Disclosure Practices

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

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Purpose: Managing a cancer diagnosis while employed adds significant distress to existing health challenges, prompting calls for supportive workplace interventions. Strategies reducing stigma and fostering chronic illness support may enhance participation in workplace or community programs targeting nutrition and physical activity (PA), thus advancing behavioral health practices. Advances in eLearning offer scalable, tailored options; this pilot study evaluates the feasibility and acceptability of three eLearning modules on workplace disclosure with supervisors, human resources personnel, and peers.

Methods: Breast cancer survivors completed a pre-survey, three weekly eLearning modules (each with a post-module survey), and a final survey; those who finished all modules were invited to an optional exit interview about their experience. Guided by the Disclosure Decision Making Model, the modules featured studio-produced videos created by research faculty and a patient advocate, with theoretically-informed scripts. Videos showcased women diverse in race, ethnicity, age, and career background.

Results: 58 women completed the pre-survey; 25 women completed the post-survey. The participants had a mean age of 33.91 years old. Participants reported ($p < .05$) that the intervention was usable ($M=4.60$), convenient ($M=4.40$), relevant ($M=4.80$), and valuable ($M=4.40$). Post-intervention breast cancer self-management self-efficacy was higher ($M=4.39$, $SD=.50$) than pre-intervention self-efficacy ($M=4.04$, $SD=.44$). We also assessed cancer knowledge, perceived cancer stigma, work-related social support, and disclosure decision making constructs. Qualitatively, participants reported wishing they experienced this intervention earlier and would use the strategies they learned in the future.

Conclusion: Employment changes often lead to financial hardship for cancer survivors; scalable interventions like eLearning modules can help mitigate this challenge. Preliminary mixed-methods data indicate that these modules are feasible, acceptable, and effective in improving workplace communication self-efficacy and reducing apprehension, thereby enhancing survivors' experiences at work. The format is adaptable for behavioral nutrition and PA interventions, supporting engagement with wellness resources and counseling through effective disclosure and advocacy. Increased self-management self-efficacy suggests eLearning can be extended to other domains, such as diet and exercise, where self-efficacy drives behavior change and sustained participation. This pilot demonstrates the potential of brief, user-centered eLearning tools to advance psychoeducational intervention methodology, informing integrative programs that combine communication with nutrition or PA modules for cancer survivors.

SO.2.21-13

Feasibility of a Citizen Science Approach to Tracking Dietary Behaviors among Adolescents

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SO.2.21 E- & mHealth: Digital Tools for Dietary Behavior Change

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Purpose: This pilot study, part of the multinational EU project PREVENT, aimed to evaluate a novel dietary monitoring approach using a citizen science model, where adolescents actively contributed to data collection to assess the overall healthfulness of students' diets.

Methods: Over one week, students were invited to participate in a behavioral monitoring action in their school through an information session and via QR-codes for self-registration in the study. After providing digital consent and completing an onboarding questionnaire, participants used a purpose-built mobile app to provide self-rated data and capture photos of all consumed fruits, meals, drinks, and snacks, including GPS and timestamp metadata.

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Demographic and image annotation data were merged for analysis. Manual researcher food-type annotations and self-reported sleep data were summarized at the participant level. K-means clustering was applied to identify dietary behavior patterns, while drink categories were clustered separately. Associations between food and drink clusters were tested using chi-square analysis, and ANOVA and Pearson correlation were used to explore relationships between sleep and dietary patterns.

Results: Sixty-two participants (mean age =16.8±1.18years; 44 women) uploaded 689 images (mean =10.8 per participant). Clustering revealed three main dietary patterns:

- Cluster1 (n=33): Higher intake of nutritious meals/snacks, lower junk food; average sleep =8.55hrs.
- Cluster2 (n=18): Moderate intake of ultra-processed foods other than junk food or sweet/savory snacks, plus a mix of healthy and less healthy items; average sleep =8.66 hrs.
- Cluster3 (n=11): High intake of junk food and sweet/savory snacks; average sleep =8.01hrs.

Drink clustering revealed three beverage profiles.

Chi-square analysis indicated a significant association between food and drink clusters ($\chi^2=9.55, df=4, p=0.049$).

ANOVA showed no significant sleep differences across food clusters ($p=0.34$).

Pearson correlation suggested a weak, non-significant negative association between junk food intake and sleep hours ($r=-0.23, p=0.09$).

Conclusion: This pilot demonstrates the feasibility of citizen science for adolescent dietary monitoring. Linked food and beverage patterns were identified, while sleep showed limited association. Analysis is ongoing, with planned regression models to examine parental education as a predictor of dietary patterns, addressing socio-economic influences and informing targeted interventions. Future work will also leverage GPS and timestamp metadata to explore spatial and temporal eating patterns within school environments.

SO.2.22-01

Art-based Methods in Co-creation with Children in an Asylum Seeker Centre: Lessons Learned from the B-challenged Project

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

Room 5, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Co-creation is increasingly used as a method to tackle complex research problems and is an effective tool to improve child empowerment. Children living in asylum seeker centres are often not involved co-creation. However, child empowerment is of great importance for these children, as it increases their resilience and gives them a voice in research. Including these children in co-creation activities can be challenging due to language barriers and because children frequently move away mid-project. As part of the larger European B-Challenged project, this project integrated art-based methods into co-creation to involve children living in an asylum seeker centre in the research process, with the purpose of making the co-creation process more accessible to this population of children.

Methods: Twenty-three participatory sessions took place at an asylum seeker centre in Amsterdam with a dynamic group of children aged 7-12 years. Sessions were facilitated together with an artist working for the Dutch foundation 'De Vrolijkheid' and an academic researcher. The overall goal of the sessions was to identify how art-based methods can aid the co-creation process when certain barriers (e.g. language, dynamic group of children) are in place. The co-creation process focused on obtaining children's perceptions on design criteria for developing a playground to improve children's physical activity. After each session, facilitators filled in reflection forms and session logbooks. These data were analysed using thematic analysis.

Results: Preliminary results show that art-based methods can aid the co-creation process especially when language barriers are in place. In traditional co-creation sessions language plays a substantial role in the process, for example in group discussions or plenary explanations of activities. By using art-based methods, the role of language is minimized, as children can express themselves through creating objects and plenary explanations are limited by showing physical examples. Concurrently, facilitators need to make sure activities are short and specific to keep them

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interesting to the children and making sure the appropriate research output is created.

Conclusion: This presentation provides insight in how art-based methods can be integrated into the co-creation process for children, especially to minimize the impact of possible language barriers on the process.

SO.2.22-02

Participatory Health Promotion Research with Youth in Vulnerable Positions: The Case of Practical Education Students in the Netherlands

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: Participatory research holds promise for health promotion program design with youth. However, youth in more vulnerable positions are currently underrepresented. Addressing this gap is important, as youth empowerment - one of the main benefits of participatory research - can be particularly valuable for these youth. Therefore, this research aims to gain insight into how participatory health promotion research with young people in vulnerable positions can be conducted in ways that are genuinely empowering.

Methods: The research was conducted in the context of the Healthy Lifestyle for Low Literate Teenagers (LIFTS) project, which aims to support a healthy lifestyle among practical education (PrO) students in the Netherlands. We used qualitative methods (interviews, participant observation and diaries) to reflect on the participatory research process with 179 students, seventeen school staff members, and three researchers at three PrO schools. The six-element framework for actualizing youth empowerment in participatory health promotion research (Chrifou et al., 2024) was used as an analytical lens.

Results: The results show that an environment that enables youth empowerment in the PrO context consists of several important elements: a safe and welcoming environment, the involvement of PrO staff, a flexible and inclusive research design, fun in the process, and increased knowledge and awareness of health behaviors.

Conclusion: As youth in vulnerable positions are still underrepresented in participatory research, the results of this study can contribute to knowledge in this field and inspire future researchers. This in turn will hopefully contribute to better health promotion programs for youth in vulnerable positions and more health equity.

SO.2.22-03

Exploring Perceptions of Self-determination Theory-based Autonomy-supportive Physical Activity Messages among Spanish-speaking Adults

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: To engage Spanish-speaking adults in the translation and adaptation of a physical activity (PA) support program for adults with overweight/obesity, we explored perspectives of four, Self-Determination Theory-based PA messages that support autonomy and intrinsic motivation.

Methods: We recruited Spanish-speaking adults to participate in a 120-minute virtual focus group. Adults (≥ 18 years) were included if they had a BMI ≥ 25 kg/m² and self-reported exercising < 150 minutes/week. The focus group was audio-recorded and transcribed verbatim. A team-based approach was used to conduct a content analysis using ATLAS.ti software to explore perceptions around four messages: 1) "All movement counts. Find opportunities to move throughout the day", 2) "Move in ways that feel good and/or that you enjoy. Benefits of PA include improved mood, sleep, less anxiety, more patience", 3) "You are a mover – By moving more, movement can become part of your identity" and 4) "Movement as self-care. By moving more, you are taking better care of yourself."

Results: Twenty adults (age: 42.7 (range 27-71 years); BMI: 32 (range 25-46 kg/m²); 30% male; 75% Hispanic, 25% Latino; 95% born outside of United States, 5% unknown) participated. Participants identified with all messages and found them acceptable and motivating. Qualitative categories specific to each message are outlined below. First message categories: a) exemplars of putting this message in action (e.g. parking further away, lifting/carrying a child), b) self-awareness of message helped participants "count" activities they previously didn't count (e.g., cleaning), and c) a misconception that occupational labor doesn't count. Second message categories: a) participants agreed with the benefits PA can bring, b) if exercise is fun (e.g., dancing), it is more motivating, and c) a desire to educate the community with this message. Third message categories: a) participants linked identity with how others see them and discussed social stigma around obesity. Fourth message categories included a desire to refine the message by a) more clearly linking self-care to better health (physical and mental), b) indicating that self-care should be a daily practice, c) adding "physical" in front of movement, and d) incorporating healthy nutrition.

Conclusion: Perspectives indicated high acceptability and opportunities for refinement.

SO.2.22-04

Effects of a Physically Active Learning Lesson on Daily and School-time Physical Activity in Secondary School Students

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: To analyze the effect of a physically active learning (PAL) lesson on daily physical activity (PA) levels and during school hours in secondary school students, by comparing a day with and without the implementation of a PAL lesson.

Methods: One hundred and four 7th and 8th grade students (12–14 years old) from two Spanish secondary schools were randomly assigned to the PAL intervention group. This intervention involved a weekly PAL mathematics lesson for 16-weeks. PA and sedentary time were recorded for seven full days using an Actigraph GT3X+ accelerometer, which was placed on the participants' non-dominant wrist. Measurements were taken prior to the intervention and during the last week of the intervention. A total of 50 participants with valid accelerometer data were included in the study. Two analyses of variance (ANOVA) for one (group)*two (times) were performed to analyze the effect of a PAL lesson on PA levels during the full-day and during school hours on the day of its implementation.

Results: The data were expressed as the average total daily and school-time minutes, as well as percentages relative to wear-time and total school time. Results for **full-day PA**, expressed in total minutes, showed an increase in sedentary time, light PA and moderate-to-vigorous PA (MVPA) on the day the PAL lesson was implemented. However, expressed as a percentage, they showed a slight reduction in sedentary time and light PA, as well as an increase in MVPA. In none of the cases the differences were statistically significant ($p > 0.05$). Focusing on **school-hours PA**, the data showed the same trend when expressed in minutes or as a percentage: a reduction in sedentary time and an increase in light PA, with statistically significant increases in MVPA ($p = 0.003$, $\eta^2 = 0.181$; $p = 0.002$, $\eta^2 = 0.185$, respectively) on the day the PAL lesson was implemented compared to days when it was not.

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Conclusion: Although the effect of a PAL lesson on full-day PA levels appears to be insufficient on the day it is implemented, it has the potential to significantly increase PA during school-hours on that same day. This may be due to methodological, contextual or individual factors.

SO.2.22-06

Promoting Healthy Diet and Movement Behaviours in UK Preschoolers: Evidence-based Co-production of Health Promotion Materials

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

Room 5, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Overweight/Obesity remains a concern for preschool-aged children (0-5-year-olds). To support action in practice, we synthesised systematic review evidence assessing determinants of dietary and movement health behaviours in 0-6-year-olds to inform the co-development and co-production of health promotion materials to support UK preschoolers' healthy weight.

Methods: Three phases of work were undertaken. In Phase 1, review-level evidence was synthesised for dietary (i.e. fruit and vegetable, obesogenic food and sugar-sweetened beverage consumption), feeding (i.e. portion size), and movement behaviours (i.e. physical activity and sedentary behaviour). Determinants (assessed in cross-sectional, longitudinal and intervention studies) and their direction of association with each behaviour were extracted and combined according to the socio-ecological model (i.e. individual, interpersonal, organisational and environmental domains). Phase 1 findings were used to inform five co-design webinars with policy and practice partners, healthcare practitioners and childcare providers ('interest-holders') (phase 2), leading to co-production of a range of materials to promote healthy behaviours (phase 3).

Results: Twenty-nine determinants were associated with two or more health behaviours [individual (n=8); interpersonal (n=11); organisational (n=6); and environmental (n=4) domains]. Positive associations were consistently seen between parental monitoring/goals and movement behaviours, and for childcare provider training/policies with movement and dietary behaviours. Negative associations for the use of rewards and treats, child preference/temperament, and parental barriers (including time), were consistently reported across dietary and movement behaviours. After consultation, ten determinants, which were plausible behaviour change targets and aligned with current early years strategies were taken forward to form the basis of the co-design and development work in Phase 2. Co-design webinars with 51 interest-holders identified that their key priorities included supporting healthy weight and promoting physical activity/ healthy food availability; they required resources for parents, childcare providers, healthcare professionals and community support workers; and requested social media friendly stills and videos. Combining this evidence, we co-produced a free-to-use infographic; four short animations (e.g. <https://tinyurl.com/yc8y5yzt>, <https://tinyurl.com/2wj82tbe>); social media stills and dominos (for children).

Conclusion: Common determinants of preschoolers' health behaviours were leveraged to co-develop health promotion materials, incorporating interest-holders' key priorities. Child- and public-friendly outputs, with diverse representations of families, were co-produced to support UK preschoolers' healthy weight.

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SO.2.22-07

Adolescents' Perceptions of Health: A Comparison of the Perspectives of Co-design Participants in Finland and the Netherlands

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: Understanding challenges and priorities of adolescents regarding health is essential for potentially effective lifestyle interventions¹. However, approaches to include adolescent perspectives in research have a tendency to generalize though adolescents are a heterogeneous group. This study explores adolescents' perceptions of health and the barriers and facilitators associated with healthy lifestyle behaviors in two different European countries.

Methods: One co-design protocol was applied with 11-14 year olds in Finland and the Netherlands, as part of the Horizon-EU funded SmartCHANGE project. Researchers facilitated 11-16 co-design sessions with adolescents to get insights in barriers and facilitators of adolescents' lifestyle behaviors, to inform the development of a healthy lifestyle app. Co-design sessions were audio recorded and subsequently transcribed. Facilitators completed logbooks and digitalized photos of session outputs such as posters and sticky-notes. All data was coded by at least one research from each study site. Through three in-person meetings, researchers the codebook was created, refined and finalized. Researchers compared the final codes through 6 online sessions.

Results: Both groups perceived social aspects of health (e.g., social support and perceived pressure from parents and teachers) and lack of sleep as more relevant than physical activity or diet, and indicated they did not need a lifestyle intervention themselves. Some unique perceptions in Finland included the prioritization of nature as a facilitator of health and wellbeing, and school duration and homework as a barrier to healthy lifestyle behavior. Dutch adolescents saw their lack of agency in for instance food choices as a barrier for healthy lifestyle behaviors and felt that competition with classmates would motivate them to engage in physical activity, whereas Finnish adolescents felt a strong sense of agency over their food choices and disliked competition as a motivator.

Conclusion: Adolescents from Finland and the Netherlands experience similar perceptions regarding the social aspects of health, pressure and stress, the importance of sleep and not needing lifestyle interventions. Differences between Finnish and Dutch adolescents in their perceptions of health, barriers to healthy behavior and motivators to increase healthy behavior highlight the importance of co-designing interventions in close collaboration with adolescents from the local study sites.

SO.2.22-08

Co-designing BLOOM, a Digital Program for Early Childhood Education and Care Services to Enhance Preschoolers Social and Emotional Learning, Physical Activity, and Nutrition

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

Room 5, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Mental health disorders affect ~15% of young people aged 10-19 years globally. The social and emotional development which occurs during early childhood is key to providing children with the necessary skills to maintain optimal mental health and wellbeing over the life course. Physical health factors intersect with these outcomes, with adequate nutrition and physical activity positively influencing child mental health. There are few programs available which holistically target these risk factors for children aged 3-6 years and have the potential for scale. We aimed to co-design BLOOM (a digital program to support to support childcare services to embed social and emotional learning, active play and healthy eating into everyday) with childcare educators and managers to address this gap.

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Methods: The co-design process was guided by the Generative Co-Design Framework for Healthcare Innovation and involved three research activities with Australian childcare services and their staff. We conducted site visits in childcare services to observe daily activities of childcare services and understand the context of delivering a digital program targeting social and emotional learning with physical health, using an observation tool developed by the research team based on a validated observation tool and contextual research guidance. We conducted four, 1.5 hour online focus groups with childcare educators and managers, using an interview guide developed based on guides previously used by the research team, to understand current practices around social and emotional learning during meal and active play times, barriers and facilitators to implementation and preferences and perceived scalability, acceptability, appropriateness and feasibility of a digital program. We conducted workshops with educators and managers to undertake co-design activities, including storyboarding scenarios and prototype development.

Results: We recruited two services for site visits, 22 participants across focus groups and 12 participants across workshops. We will use thematic analyses to summarise the data, currently underway. We will design the processes, workflows, and features of BLOOM based on workshop findings, including refinement of content, frequency and intensity of implementation strategies and program features.

Conclusion: This co-design process will contribute to the development of BLOOM program and is expected to enhance the scalability and acceptability among childcare services.

SO.2.22-09

Giving Young Children a Voice: A Participatory Mixed-method Study on Physical Activity Preferences of 3- to 6-year Old Children

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: Young children are naturally inclined to be physically active. However, there is growing evidence that in today's society they do not engage in sufficient physical activity, which has serious consequences for their health and development. The aim of this study is to understand the preferences, barriers and needs of young children themselves, rather than relying on parental perspectives, in order to design effective physical activity intervention strategies that truly resonate with them.

Methods: A qualitative child-centered participatory approach was adopted based on the Mosaic approach (Clark & Moss, 2011) to explore multiple dimensions of children's lived experiences. Participants included 50 children aged 3-6 years and their parents, recruited from Dutch schools, preschools, childcare centers and community settings. Data were generated through

- (1) activity workbooks containing playful movement-related tasks,
- (2) a photovoice assignment in which children photographed places they liked or disliked for being active, and
- (3) short follow-up interviews with the children and parents to explore the stories behind the photos. Data collection continues until December 2025. All qualitative data will be analyzed thematically to identify recurring patterns and meanings.

Results: Preliminary findings indicate that children enjoy participating in the creative, visual methods and can clearly explain what makes movement fun ("running together," "playing outside," "dancing"). However, probing the underlying reasons for preferences remains challenging due to limited verbal abstraction at this age. The final analysis will identify key actors and factors influencing young children's movement behaviors, as well as barriers and facilitators for physical activity.

Conclusion: This study demonstrates that even very young children can meaningfully express their perspectives on physical activity when given the right tools and space. A child-centered participatory approach enriches our understanding of the intrinsic motivation of young children to be physically active and provides valuable insights for designing inclusive, system-based interventions to promote physical activity at young age, that truly reflect children's voices.

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SO.2.22-10

Physical Activity Promotion to Prevent Dementia: Lessons from a Participatory Case Study

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: Promoting physical activity (PA) for active ageing is crucial for the prevention of dementia. The GESTALT – Get 10 project pursued this goal by establishing PA promoting structures in ten municipalities in Bavaria (Germany) between 2020 and 2024. This study aimed to illustrate how a participatory approach can facilitate the development and implementation of municipal structures that support PA-related health promotion.

Methods: The theoretical understanding of the “Interplay between structure and agency” formed the framework for sustainably anchoring the project. The “cooperative planning approach” was applied to foster PA-related structural changes across various municipal levels through a participatory network that empowers local stakeholders (multipliers, political decision-makers, practitioners, researchers, and representatives of the population) in a targeted process. Further the implementation of an evidence-based PA program for dementia prevention was integrated in this process.

Results: Within the project funding, all municipalities hired local coordinators who were responsible for participatory implementation of the project. In 30% of the municipalities, the coordinator positions were made permanent after the funding period ended in order to manage PA-related health promotion in the municipality in the long term. During the project funding, a cooperative planning network was established in half of the ten participating municipalities, while the others used adapted network structures for various reasons. Six months beyond project funding, the established networks for promoting PA continued in 60% of municipalities. The GESTALT PA program was implemented in all ten municipalities and continued (partially adapted) six months after the funding period.

Conclusion: During the project’s funding phase, the establishment of local coordinators and the involvement of relevant stakeholders through a cooperative planning approach and tailored networking processes led to PA-related structural changes of varying scope. Six months after the end of the funding phase, however, efforts to establish sustainable structures at the local level were partially continued. In terms of the GESTALT PA program implementation, it was successfully implemented and continued across all ten municipalities. The extent to which this was positively influenced by the parallel establishment of PA promoting structures through the participatory approach requires further qualitative investigation.

SO.2.22-11

Time Measurement Validity and Reliability of the 6-M Gait Speed Test in Adult Population: The Adult-FIT Project

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: We aimed to examine the time measurement validity and reliability (inter-raters and test-retest) of the 6-m gait speed test to assess motor fitness, according to sex, age, and physical activity levels.

Methods: Cross-sectional study. A total of 410 adults (203 females) aged 18-64 years were involved. The time required to perform the 6-m gait speed test was recorded simultaneously by a trained (R1) and untrained (R2) raters (inter-rater reliability), and by photoelectric cells (time measurement validity). The test was repeated under the identical

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conditions (test-retest reliability) 48-72 hours later.

Results: The systematic errors between photoelectric cells with R1 and R2 were close to zero (0.015, $p < 0.001$), and ~ 0.2 seconds ($p < 0.001$), respectively. Both presented an effect size < 0.11 . There was a systematic error between R2 and R1 of ~ 0.2 seconds ($p < 0.001$), with an effect size of 0.051. Retest-test systematic error was -0.047 seconds ($p < 0.01$), with an effect size of 0.067. The intraclass correlation coefficient was 0.984 and all error measurements reported low values, except percentage coefficient of variation that was 14.386. There was not heteroscedasticity in all cases ($p > 0.05$). Time measurement validity and reliability were not influenced by sex, age groups and physical activity levels.

Conclusion: These findings suggest that measurements with R1 are a valid and reliable method for assessing the 6-m gait speed test in adults. It is strongly recommended that raters be trained in order to reduce the measurement error as much as possible.

SO.2.22-12

“Everything I Need Is a Walk away from Me:” Understanding Adolescents’ Active Mobility Habits in High-rise Environments

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: Active mobility is widely recognized as beneficial for health and well-being. While adults may intentionally cultivate a habit of active travel as part of a healthy lifestyle, adolescents face unique circumstances of developing autonomy and limited financial resources, increasing reliance on self-propelled, active modes. Through co-created research, this project investigates whether health considerations influence adolescents’ mobility in high-rise urban environments, or if active travel is an incidental benefit of their lifestyle.

Methods: Twenty-two adolescents (13-18) took part in participant-led go along interviews in diverse neighbourhoods across two Canadian cities (Toronto and Kitchener-Waterloo). Interview routes included locations youth perceived to impact their health. Locations and routes were logged by researchers while participants classified locations as “healthy/unhealthy” and captured photographs of locations with a smartphone app. Transcripts were analyzed using inductive thematic analysis, revealing key themes and subthemes focused on the meanings urban-dwelling adolescents construct about “getting around” in their daily lives.

Results: Connections between socialization, physical activity, and well-being were reflected throughout the interviews. Adolescents expressed a desire to walk or cycle around their neighbourhood to enjoy different sights, people, and “the energy,” where being outdoors was an escape from constant screen use. Participants also highlighted the importance of social spaces, including community centres, restaurants, and parks, while describing difficulties in visiting friends in the suburbs due to distances that cannot be spanned by foot or bike. As such, accessibility (“ease of reach”) of youth-friendly destinations was the defining determinant of where adolescents chose to go. Adolescents distinguished between movement for transport and movement for exercise. Sport was understood as deliberate physical activity, whereas active travel was simply how to get somewhere. This theme of “unconscious” and “conscious” mobility demonstrated how accessibility in high-rise environments encouraged adolescents to unconsciously favour active transportation modes.

Conclusion: Adolescents emphasized access to relevant spaces as important for shaping active travel as mode choice. These findings contribute to physical activity research by highlighting the need to connect youth-specific designs with active travel infrastructure, thereby advancing public health gains through physical activity, as well as chronic disease prevention, sustained healthy behaviours, and the mitigation of social isolation.

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SO.2.22-13

From Network to Action: Living Lab 'The Supportive Sports Club' as Breeding Ground for Developing a Sports Support Organization

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SO.2.22 Participatory Research in Health Promotion: Participatory Approaches and Co-Creation in Physical Activity and Health Promotion

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Purpose: Children with mild psychosocial problems frequently drop out of regular organized sport activities. Living Lab The Supportive Sports Club aims to strengthen collaboration between primary schools, health care institutions, and sports clubs in the Dutch municipality of Dronten by creating a interorganizational network. The current action-research aims to lower barriers to participation in organized sports for children with mild psychosocial problems (e.g., anxiety, impulsivity, social withdrawal).

Methods: The study follows an action-research design comprising three interdependent work packages:

(1) Screening and referral, a dual-stage screening process combining motor skills tests and behavioral observations by physical education teachers, community sport coaches and psychomotor therapists. Children and parents receive personalized advice on suitable after-school physical activities;

(2) After-school physical activities, building on existing activities, the Living Lab adapts and expands weekly structured physical activities. Implementation is monitored through semi-structured interviews with parents and trainers, participation counts and on-site observations by psychomotor therapists;

(3) Sport support, youth trainers receive on-site coaching from psychomotor therapists and digital support through the prototype mobile app App4Support, which provides contextual tips for dealing with challenging behavior. Evaluation includes semi-structured trainer interviews and observations. A triangulated approach integrated thematic analysis and participation trend data.

Results: The interorganizational network promotes trust and collaboration among professionals and youth trainers, increases trainers' competence and fosters children's engagement. The dropout rate from sports among the target group is expected to decrease. Coordination between organizations in the fields of education, care, and sport improves. Structural municipal funding enhances the sustainability of the network.

Conclusion: The Supportive Sports Club demonstrates how a Living Lab approach can translate collaboration into concrete practice. Establishing and developing an evidence-based pathway that bridges the gap between health, education, and sport. This replicable model fosters inclusive and permanent sports participation of children with mild psychosocial problems.

SO.2.23-04

Associations between Poverty and Dietary Patterns among University Students in a Socioeconomically Disadvantaged Area: A Cross-sectional Study

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health

Room 6, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: In Europe, young adults are at a higher risk of poverty than other age groups, potentially affecting their health, well-being, and academic outcomes. We analyzed the associations between poverty and dietary patterns among university students in a socioeconomically disadvantaged area.

Methods: In 2023, we initiated a sub-cohort of higher education students within the NutriNet-Santé study (an ongoing web-based cohort launched in France in 2009). The present cross-sectional analysis is based on data collected at enrollment in the study, from students attending University Sorbonne Paris Nord (France), located in a socioeconomically

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disadvantaged area, in the greater Paris area. The frequency of consumption of 15 food groups was assessed using a short food frequency questionnaire, and dietary patterns were derived by principal component analysis. Poverty in living condition was assessed using a questionnaire capturing material and social deprivation, with poverty defined as a score ≥ 5 . Multivariable linear regressions were performed to analyze associations between poverty and food patterns, adjusted for sex, age, field of study, scholarship, international status, and living with parents.

Results: This study included 442 students (57% women, mean [SD] age 21.2 [4.1], 44% reporting a situation of poverty, 10% reporting consuming the recommended five portions of fruits and vegetables per day). Three main dietary patterns were retained, explaining together 42% of the total variance in diet (19.0%, 14.8% and 8.3%, respectively): “low consumption” (negatively correlated with all food groups), “unhealthy” (negatively correlated with healthier food groups, eg fruits, vegetables, beans, nuts, fish, and positively correlated with less healthy food groups, eg snacking and fast-food products, sugary drinks, processed meat) and “meat-oriented” (positively correlated with poultry, red meat, whole grains). Poverty was positively associated with the “low consumption” (standardized β [95% CI] 0.09 [-0.01;0.19]) and “unhealthy” (standardized β [95% CI] 0.13 [0.03;0.23]) patterns, but not with the “meat-oriented” pattern.

Conclusion: Within a student population with substantial socioeconomic disadvantage, poverty was associated with less healthy dietary patterns after adjusting for sociodemographic characteristics, which may have implications for student-focused public policies. Poverty was not associated with the “meat-oriented” pattern, suggesting that meat consumption may be shaped more by cultural factors than by financial constraints.

SO.2.23-05

Building and Evaluating a Behavioral Support Intervention for Adolescents Undergoing Bariatric Surgery

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
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Purpose: Globally, the prevalence of severe obesity among adolescents is increasing. Stand-alone behavioral lifestyle modifications are insufficient for long-term clinically significant weight loss. Metabolic and bariatric surgery (MBS) is an effective treatment increasingly utilized among adolescents. Integrating MBS with lifestyle support may further optimize treatment outcomes. However, no standardized lifestyle interventions currently exist to address behavioral pre- and post-operative needs of adolescents undergoing MBS. We developed TeenLyft, a 6-month online behavioral intervention adapted from the Diabetes Prevention Program and guided by adolescent and parent input. Here, we describe the design process and evaluation using the RE-AIM framework.

Methods: We collected qualitative and quantitative data from adolescents undergoing evaluation for MBS (N=19, mean age 15.2 years, range 13-17, 76.0% female, 42.1% non-Hispanic Black, 42.1% non-Hispanic White, 15.8% Other, 59% Hispanic) and parents (N=13) to guide TeenLyft development. The subsequent proof-of-concept project enrolled 76 adolescents from an adolescent bariatric clinic to receive TeenLyft. Using a mixed-methods approach, data sources at baseline (pre-surgery), 3- and 6-month post-MBS follow-up included anthropometric measures, cardiometabolic biomarkers, physical activity, and interviews. Quantitative data provided descriptive statistics, and paired t-tests assessed within-subject changes over time to evaluate effectiveness. Qualitative data were thematically analyzed.

Results: Our formative work indicated adolescents desired content for healthy eating, stress management, motivation for weight management behaviors, and preferred online content delivery. RE-AIM evaluation showed *Reach* as 29 (38.1%) of 76 adolescents enrolled who completed MBS. *Effectiveness:* Older age was significantly associated with greater excess weight loss (EWL >50%: 16.8 $\pm$ 0.7 vs. 15.3 $\pm$ 1.1 years, $p=0.0083$), as was female sex ($p=0.0062$). Physical activity improved, but change was not significant from baseline to follow-up. Adolescents reported TeenLyft supported their physical health but needed more mental health content. *Adoption:* Clinical staff involvement was critical for recruitment and content development. *Implementation:* TeenLyft modifications included adding social media messaging for increased engagement. *Maintenance:* Adolescents attended follow-up clinic visits at 6- and 12-month (83% and 67% respectively).

Conclusion: Pairing MBS with behavioral support can positively impact health outcomes. Strategies to support mental health and long-term follow-up for monitoring weight regain, nutritional deficiencies, and psychological challenges are needed.

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SO.2.23-06

Validation of Step-counting Devices across Walking Speeds in Obese and Non-obese Nigerian Adults

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
Room 6, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Affordable step-counting tools are vital for promoting physical activity in low- and middle-income countries (LMICs) where access to objective activity monitors is limited. This study compared the Omron pedometer and ActivPAL accelerometer against a criterion step count across walking speeds in obese and non-obese Nigerian adults to assess their validity for population-level monitoring in resource-limited settings.

Methods: Thirty-two female university students (20 obese, 12 non-obese) completed treadmill trials at 1.9 m/s, 3.7 m/s, and preferred walking speed (PWS). Step counts (steps per minute, spm) from the ActivPAL accelerometer and Omron pedometer were compared against a criterion reference (mean of hand tally and video counts). Agreement between each device and the criterion was assessed using Bland-Altman analysis to estimate bias (mean difference), 95% confidence intervals, and limits of agreement (LOA) across walking speeds and BMI groups.

Results: Participants (mean age = 22.1 ± 1.0 y; BMI = 32.0 kg/m², IQR = 11.3) were classified as obese (27.7-37.2 kg/m²) or non-obese (19.0-23.7 kg/m²). Bland-Altman analysis showed the ActivPAL consistently underestimated step counts across speeds with smaller, more stable errors than the Omron pedometer. At PWS, biases were -14.5 spm (95% CI: -17.4 to -11.6; LOA: -23.1 to -5.9) [non-obese] and -2.7 spm (95% CI: -8.8 to 3.4; LOA: -31.3 to 26.0) [obese] for the ActivPAL, versus +7.5 spm (95% CI: 4.9 to 10.0; LOA: -0.1 to 15.1) [non-obese] and +5.9 spm (95% CI: -4.2 to 16.0; LOA: -41.4 to 53.2) [obese] for the pedometer. Across speeds, pedometer biases were -24.5 spm (95% CI: -32.2 to -16.7; LOA: -61.0 to 12.1) at 1.9 m/s, -0.5 spm (95% CI: -6.8 to 5.9; LOA: -30.2 to 29.3) at 3.7 m/s, and +5.9 spm (95% CI: -4.2 to 16.0; LOA: -41.4 to 53.2) at PWS, demonstrating greater error variability than the ActivPAL.

Conclusion: The ActivPAL showed more consistent agreement with the criterion across walking speeds and BMI groups, while the Omron pedometer exhibited greater variability, particularly among obese participants. These findings support the ActivPAL as a more reliable step-counting tool for research and public health applications in low-resource settings.

SO.2.23-07

Walking Cadence among Young Adults: Does the Absolute Threshold of 100 Steps/Min Really Correspond to a Moderate Intensity?

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
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Purpose: Physical activity (PA) surveillance studies have extensively used questionnaires to identify those who meet or do not meet the recommended minimum amount of moderate to vigorous PA (MVPA). Usually, any reported walking activity is computed as moderate PA, regardless of its intensity, which can lead to measurement errors. To overcome this limitation, walking cadence has been suggested as a low-cost metric for quantifying walking intensity. We aimed to evaluate the walking intensity of young adults by measuring walking cadence in two specific situations.

Methods: In a cross-sectional study, we evaluated 261 young adults (39.5% women) with a mean age and BMI of 22.0±4.0 years and 23.8±3.0 kg/m², respectively. Volunteers wore a Digi-Walker® pedometer and were instructed to perform two laps on a 400-meter athletic track at two different self-determined speeds: light walk and brisk walk.

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The lap times and step counts were used to calculate walking cadence (steps/min) and to verify whether the speed instructions were followed. Walking intensity was considered moderate when step cadence ≥ 100 steps/min, and vigorous when ≥ 130 steps/min (Tudor-Locke et al., 2019). Due to non-normal distribution (Shapiro-Wilk test), data are expressed as median (interquartile range-IQR). Wilcoxon and Mann-Whitney tests were used for comparisons at 5%.

Results: The brisk walking lap was statistically faster than the light one: 238s (222-250s) vs 310 (287-334s) ($p < 0.001$), confirming that the speed instructions were followed. Step cadence at brisk pace was higher [125 (118-131) steps/min] than at the light-paced lap [108 (101-115)] steps/min ($p < 0.001$). The same occurred when the speed and cadence comparisons were split by sex ($p < 0.005$). On both laps, the median and IQR of walking pace would be classified as moderate intensity.

Conclusion: Young adults walking at light intensity would have this PA classified as moderate. Despite the equivalence between a cadence of 100 steps/min and an oxygen consumption corresponding to 3 METs, this cadence is reached by young adults at an undeniably light intensity, given that it was predefined by instruction. Our findings support the need to adjust PA intensities to variables well-recognized as influencing PA intensity, such as age and physical fitness.

SO.2.23-08

#whatleatinaday: A Comparative Content Analysis of what I Eat in a Day Videos on Tiktok in Men and Women

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
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Purpose: What I eat in a day videos are popular on social media, especially TikTok. In these videos, men and women showcase food, fitness and lifestyle-related content. Although researchers have examined characteristics of what I eat in a day videos on TikTok, gender has not been accounted for in previous content analyses. Thus, this research has overwhelmingly and disproportionately focused on women despite the popularity of videos among men and women. The purpose of this study was to examine if content in TikTok what I eat in a day videos differ between men and women.

Methods: As part of a larger content analysis, we searched the terms 'what I eat in a day women' and 'what I eat in a day men' using the TikTok explore function and saved the top 110 videos for each gender; a total of 209 videos were analyzed (104 women, 105 men). A codebook was developed, and videos were coded by the research team. Descriptive statistics were calculated, and independent samples t-tests and Pearson chi-square statistics were conducted to examine differences across fitness-related and food-related content between men and women.

Results: Several elements were similar between men and women, including the number of meals and drinks consumed, the inclusion of macronutrient information and engaging in fitness and exercise behaviours ($ps > .05$). However, calorie counting, and mention of calories were more frequent by men ($p = .047$, $p = .003$). Men also more frequently attributed their diet with physical changes ($p = .010$). Although men more frequently showed themselves eating food ($p = .013$), they consumed fewer snacks than women ($p = .020$).

Conclusion: Our findings showcase gendered differences across what I eat in a day videos on TikTok and highlight that videos with men include more diet-related content than women. Researchers should examine how viewing this content impacts physical and mental well-being in men and women.

SO.2.23-09

Physical Literacy Is an Important Predictor of Wellbeing in NZ Adolescents, Independent of Total Physical Activity

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
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Purpose: Many adolescents do not accumulate sufficient physical activity to meet guidelines, even though greater levels of physical activity promote benefits for physical and mental wellbeing. Physical literacy (PL) is an important determinant of physical activity and wellbeing. However the extent to which PL is independently associated with mental wellbeing is unexplored in the NZ adolescent population. This study describes the associations between total, and elements of PL with self-reported mental wellbeing, independent of physical activity, using data from the Active New Zealand survey 2021.

Methods: Overall, 1924 adolescent respondents (12-17 years, 58% female) completed the 6-item PL and single-item wellbeing (out of 10) questionnaires and the International Physical Activity Questionnaire – Adolescents. PL was assessed by each element (motivation, confidence, knowledge, physical competence, support and opportunity; each score out of 5) and as a sum score (out of 30). Logistic regression models were employed to examine associations between PL (low: <24, high: 24-30) and elements of PL (low: 1-4, high=5), and high wellbeing, independent of total physical activity (minutes per week).

Results: Independent of total physical activity (mean 23.8 hours/week SD 18.2), compared to those with low PL, adolescents with high PL had 3.64 greater odds of reporting high wellbeing (95%CI 2.94 to 4.51, $p<0.0001$). This remains true for all elements of PL whereby those with high element-specific PL had greater odds of having high wellbeing, compared to those with low element-specific PL. When PL scores were separated into moderate (total: 24-27; elements=4) and high (total: 28+; elements=5) a dose response association was observed for total PL (moderate PL: OR 2.52, 95%CI 1.99 to 3.19, $p<0.0001$; high PL: OR 6.04, 95%CI 4.66 to 7.82, $p<0.0001$) and all elements of PL with the exception of knowledge (moderate PL: OR 0.69, 95%CI 0.43 to 1.10; high PL: OR 1.51, 95%CI 0.98 to 2.32).

Conclusion: Physical literacy is positively associated with mental wellbeing in adolescents, independent of the amount of physical activity accumulated. Policy level interventions to increase wellbeing in this age group should consider a focus on all elements of PL, acknowledging that knowledge alone may not be sufficient to improve wellbeing.

SO.2.23-10

Longitudinal Associations between Screen Viewing and Mental Health among University Students

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
Room 6, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Dependency on screen viewing (SV) has reached unprecedented levels, and mental health issues are becoming a major public health concern. However, longitudinal evidence on how SV relates to mental health remains limited. This study examined longitudinal associations between SV behaviours and mental health among university students.

Methods: Data were drawn from the Healthy Campus Initiatives cohort, a longitudinal study following first-year undergraduates to graduation (AY2021/22–AY2024/25) at the National University of Singapore. Self-reported questionnaires assessed sociodemographic, SV, physical activity, sleep, and mental well-being (WHO-5 Well-Being Index). Generalized linear mixed models were used to account for repeated measures. Time-varying predictors were decomposed into within-person (deviation from each individual's mean) and between-person (mean SV across timepoints) components to test whether poorer mental health was associated with (a) students who generally used more screens, or (b) periods when a student used more screens than usual. No statistically significant correlation or collinearity was observed between the within- and between-person SV variables in the same model. Models were adjusted for demographics and time-varying health behaviours (physical activity and sleep). The primary analyses included all participants with at least one timepoint, and sensitivity analyses were conducted among students who completed all three timepoints, incorporating random slopes to account for within-person variability.

Results: Among 997 students at baseline (mean age = 20.2 years; 59.6% female), 567 (56.9%) completed all three surveys. From baseline to the second follow-up, poor well-being prevalence ranged from 33.6% to 32.4%, and psychological distress from 13.9% to 9.7%, while mean total daily SV declined slightly (14.1 → 13.3 → 12.7 hours/day).

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In the primary models (997 participants), higher total daily SV was associated with poorer well-being [OR(95%CI): 1.07(1.03, 1.10)], while within-person effects were not significant. Sensitivity analyses (567 participants) using random slopes yielded similar but attenuated results [OR(95%CI): 1.04(1.01, 1.07)].

Conclusion: Consistently high SV levels were associated with poorer mental well-being over time. The weaker within-person effects suggest that SV fluctuations may not substantially affect mental health. Persistent, heavy screen engagement appears more detrimental, underscoring the need to address habitual SV patterns in campus-based digital wellness strategies.

SO.2.23-11

Exploring Students' Preferences, Engagement and Experiences of Sleep and Sedentary Behaviour Interventions whilst at University

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health
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Purpose: As part of a doctoral thesis investigating university-based health interventions, we used a mixed-methods approach to examine students' preference for, engagement with and experience of two health-promoting interventions.

Methods: University students were invited to self-select into either an online sleep education intervention (an education-focused approach) or an at-home standing desk intervention (an environmental modification approach). The interventions spanned 7-weeks, with engagement monitored via online tracking, daily logs, and recall. The perceived benefits of and barriers to the interventions were assessed using exit questionnaires. Outcomes for sleep, sedentary behaviour, physical activity, mental wellbeing, anthropometric and cardiometabolic biomarkers were also investigated alongside a control group as part of the thesis.

Results: Of 257 students, 165 showed a preference for the sleep education intervention, while 92 preferred the standing desk intervention. Fifty-six started the sleep intervention, with 93% completing the 7 weeks, while 25 began the desk intervention, with 84% retention. After completing the sleep education programme, 88% stated they enjoyed it, and 64% would have liked to receive it in their first year of university. Sixty-four per cent described their perceived sleep quality to be 'better', and 62% reported an increase in sleep duration. The main barriers for not implementing the education included an inconsistent schedule (60%), academic workload (44%) and stress (30%). For the desk intervention, 90% stated they would use one if provided by the university, but only 57% would consider purchasing their own. Reported benefits of the desks included improved energy (57%), focus (52%) and productivity (43%), while barriers included lack of motivation (33%), space (24%) and limited time spent working at home (24%).

Conclusion: University students demonstrated greater interest and engagement with the sleep-focused intervention, highlighting improved sleep as a key health priority for students. Students who used the standing desk, however, reported positive experiences; therefore, such interventions could still be effective if logistical barriers are addressed, and the intervention remains accessible and sustainable over time. Overall, both interventions achieved strong student engagement, indicating that aligning intervention focus with students' health priorities and allowing choice may maximise both engagement and impact in university settings.

SO.2.23-12

Individualized Effects of a Digital Lifestyle Intervention and their Associations with High School Students' Characteristics, Health Behaviors, and Psychosocial Factors

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health

Room 6, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Although the most frequent focus in effectiveness studies is the conditional average intervention effect, dismantling individualized effects would provide a foundation for creating tailored interventions. The aim of this study was to estimate individualized effects of a digital health behavior intervention, LIFE4YOUth, among high-school students in Sweden.

Methods: Data from a randomized controlled trial was used, year 2020–2023, including 756 high school students with at least one risk health behavior regarding low physical activity, unhealthy diet, alcohol intake, or smoking. The intervention included content and strategies for establishing health behaviors together with weekly monitoring and feedback. Outcomes, followed up at 2 and 4 months, were weekly moderate-to-vigorous physical activity (MVPA), daily fruit and vegetable intake (FV), total weekly alcohol consumption, and monthly heavy episodic drinking (HED). Individualized intervention effects at 4 months were modelled using individual characteristics, baseline measures of health behaviors, and psychosocial factors.

Results: The individualized intervention effects were smaller at 2- than at 4- months for MVPA, mean (SD) increase 38.8 (18.6) vs 62.7 (37.4) minutes, and for HED, -0.1 (0.2) vs -0.2 (0.2) monthly episodes. Greater effects were seen at 2- than 4- months for FV intake, 0.4 (0.1) vs 0.2 (0.2) portions, and weekly alcohol consumption, -0.7 (0.1) vs -0.2 (0.2) units. Heterogeneity of individualized effects were larger at 4 months where standardized baseline MVPA, i.e., 1 SD from the mean, showed the strongest associations with favorable intervention effects: MVPA, 33.5 minutes (95% Col = 32.3; 34.7), FV, 0.18 portions (95% Col = 0.17; 0.18), HED, -0.2 episodes (95% Col = -0.2; -0.2), and weekly alcohol intake, -0.15 units (95% Col = -0.15; -0.14). Further, heterogeneity was related to baseline alcohol intake, male sex, university educated parents, family economy, higher life satisfaction, confidence, and knowledge of changing behaviors.

Conclusion: The findings emphasize that different individuals experienced varied effects from a digital intervention, and that factors including sex, socioeconomic status, and baseline physical activity explained this heterogeneity. The results can be used to identify groups of individuals for whom current interventions are not effective and to tailor health promoting interventions to individual needs.

SO.2.23-13

Sociodemographic Profile and Lifestyle Habits of Women with Obesity Seeking Fertility Treatment in the Fit-for-Fertility Trial

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SO.2.23 Young adult: From Measurement to Management: Multidisciplinary Approaches to Lifestyle Health

Room 6, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: The primary purpose of this study was to compare the sociodemographic profile and lifestyle behaviours of women with obesity and infertility from the Fit-for-Fertility (FFF) trial with those of a representative sample of Canadian women (PREDIS study). We hypothesized that women with obesity and infertility would display less favorable lifestyle profiles. This study is innovative as it provides a direct comparison using harmonized assessment tools.

Methods: This cross-sectional analysis included baseline data from 136 women aged 18–40 years with infertility and obesity (BMI ≥ 30 kg/m²) or overweight (BMI ≥ 27 kg/m²) with polycystic ovary syndrome, recruited from five fertility clinics. Comparisons were made with 245 women from Quebec in the PREDIS study. Both samples were assessed using validated tools for dietary intake (web-based FFQ) and physical activity (IPAQ), and comparable sociodemographic and sleep data were collected. Diet quality was derived using the HEFI-2019, while dietary intakes and movement behaviours were compared with Dietary Reference Intakes (Estimated Average Requirements (EAR) and Acceptable Macronutrient Distribution Ranges (AMDR)), and with the Canadian 24-Hour Movement Guidelines. Group differences were tested using t-tests, Mann–Whitney U, or chi-square tests.

Results: By design, FFF participants had higher BMI and waist circumference and were less likely to identify as white

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or hold a university degree compared with PREDISE participants. Energy intake was similar between groups, but FFF women consumed a greater proportion of energy from fat (39.4% vs. 35.9%, $p<0.001$) and protein (17.5% vs. 16.5%, $p=0.003$), and a lower proportion from carbohydrate (44.4% vs. 47.6%, $p<0.001$). Fewer met adequacy thresholds for protein ($\text{EAR} \geq 0.66 \text{ g/kg}$), fat ($\text{AMDR } 20\text{--}35\%$), and carbohydrates ($\text{EAR} \geq 100 \text{ g/d}$) (all $p \leq 0.002$). Diet quality was poorer among FFF participants (46.4 vs. 50.3, $p<0.001$). They also reported less moderate-to-vigorous physical activity (128 vs. 210 min/week, $p<0.001$), more sedentary time (8.0 vs. 6.0 h/day, $p=0.01$), and fewer met sleep recommendations (67.9% vs. 80.0%, $p=0.04$) compared with PREDISE women.

Conclusion: This study advances behavioral nutrition and physical activity research by identifying lifestyle disparities between women with obesity and infertility and the general population. Findings underscore the need for tailored preconception interventions integrating lifestyle support within fertility care.

SO.2.24-02

Test-retest Reliability of a Performance-based Test Battery in Patients with Fibromyalgia According to Socio-occupational Status

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

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Purpose: Performance-based tests (PBTs) objectively assess functional capacity and are increasingly applied in fibromyalgia (FM) to complement patient-reported outcomes (PROMs). However, evidence regarding their reliability, especially considering patients socio-occupational status, is limited. This study examines how employment and disability status—socioeconomic determinants closely linked to physical activity and health—modulate the reliability and interpretation of objective functional tests in women with FM. It highlights how psychosocial and medicolegal contexts may introduce inequalities in physical performance and measurement reproducibility.

Methods: Eighty-seven women with FM were assessed twice, ten days apart. The battery included the 6-Minute walking test (6MWT), handgrip strength test, and 8 feet up and go test (8FUG). Test-retest reliability was examined using the intraclass correlation coefficient (ICC, model 3.1), standard error of measurement (SEM), and smallest real difference (SRD) according to Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) recommendations. Analyses were conducted for the total FM group and for three socio-occupational subgroups (actively working, claiming disability, and permanent disability).

Results: All PBTs demonstrated excellent test-retest reliability ($\text{ICC} \geq 0.90$). Absolute reliability indices ($\text{SEM}\% < 10\%$; $\text{SRD} < 30\%$) confirmed acceptable measurement stability. However, the claiming disability group showed markedly higher $\text{SEM}\%$ and $\text{SRD}\%$ for handgrip strength ($\geq 14\%$ and $\geq 38\%$ respectively), suggesting reduced reproducibility. The 6MWT and 8FUG maintained excellent reliability and stability across all groups. PROMs (FIQ-R, HADS and SF36) showed good-to-excellent reliability, though actively working patients presented slightly lower stability.

Conclusion: The selected PBTs provide reliable, objective measures of physical performance in women with FM. Nevertheless, handgrip strength should be interpreted cautiously in patients claiming disability, as psychosocial and medicolegal factors may affect measurement consistency.

SO.2.24-03

Cardiorespiratory Fitness Levels in French Adults

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

Room 7, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: To date, there has been no exploration of cardiorespiratory fitness (CRF) monitoring in adults in France. The aim of this study was to evaluate CRF levels and their determinants in France.

Methods: A total of 15,089 French adults (3,087 men, 12,002 women) aged 18-69 years from the French NutriNet-Santé prospective web-cohort was included in the present analysis. Participants completed the Huet web-based questionnaire to assess CRF. Maximal oxygen uptake as indicator of CRF was estimated using validated age-specific equations. Statistical calibration to the French population was applied to the data. A healthy lifestyle score was constructed, including smoking status, physical activity, sedentary behavior, and diet, ranging from 0 to 4, with higher scores indicating healthier lifestyle. Weighted means of the estimated CRF were compared across categories of socio-demographic characteristics, anthropometric data, and categories of lifestyle score. Tukey's honest significant difference test was used for multiple comparisons.

Results: Significant differences were found in mean estimated CRF regarding of lifestyle habits, socio-demographic and anthropometric characteristics ($p < 0.01$). Estimated CRF values decreased with age, with higher estimated CRF level in younger and lower level in older. Estimated CRF was highest in blue-collar workers ($41.8 \pm 9.6 \text{ mL.kg}^{-1}.\text{min}^{-1}$) and lowest in retired people ($25.0 \pm 5.6 \text{ mL.kg}^{-1}.\text{min}^{-1}$; $p < 0.01$). Participants within the highest lifestyle score category had higher estimated CRF ($37.2 \pm 11.1 \text{ mL.kg}^{-1}.\text{min}^{-1}$), compared to those in the lowest category ($33.8 \pm 8.8 \text{ mL.kg}^{-1}.\text{min}^{-1}$) ($p < 0.0001$). The same was observed for participants in the intermediate category ($37.0 \pm 10.6 \text{ mL.kg}^{-1}.\text{min}^{-1}$), who had higher estimated CRF compared to those in the lowest category ($p < 0.0001$). These trends were generally consistent for both sexes. Finally, the proportion of participants with a low estimated CRF was 45.3% in total and higher in women (63.1%) vs. men (26.9%; $p < 0.01$).

Conclusion: Results from this study showed marked variations in estimated CRF levels by sociodemographic and lifestyle factors. About two thirds of women and one third of men, had a low CRF level. These results support the need to include CRF, preferably with objective measures, in health surveillance and as basis for preventive strategies at population level.

SO.2.24-04

Accumulation of Socioeconomic Vulnerabilities and Cardiovascular Health in Adolescents: Longitudinal Differences Detected with the Life's Essential 8 Score

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

Room 7, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: The cumulative impact of socioeconomic (SE) vulnerabilities on adolescents' cardiovascular health (CVH) remains underexplored. This study evaluated the association between accumulated SE vulnerabilities and longitudinal changes in CVH during adolescence, using the Life's Essential 8 (LE8) score.

Methods: The study included 1299 adolescents (48.3% girls; mean age at baseline 12.5 years [SD=0.4]) from 24 secondary schools in the metropolitan areas of Madrid and Barcelona. SE vulnerability was classified as low (0-1), intermediate (2-3), or high (4-6) based on parental education, household income, and parental occupation status. LE8 scores were assessed when participants were ~12, ~14, and ~16 years old. Adjusted associations were analyzed

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using multilevel mixed-effects models.

Results: At baseline, LE8 scores showed an inverse gradient across SE vulnerability groups (high: 75.8 [95% CI, 74.6–77.0]; intermediate: 76.3 [75.5–77.0]; low: 79.1 [78.5–79.7]), with similar trends at follow-up. LE8 scores declined over time, with a mean change from baseline of -1.2 (95% CI, -1.7 to -0.8) at 2-year FU and -3.3 (95% CI, -3.8 to -2.8) at 4-years FU, and with greater impairment in adolescents with higher SE vulnerability (2-year p for trend = 0.009, 4-year p for trend = 0.033). The largest differences were observed in nicotine exposure: compared with adolescents in the low vulnerability group, the intermediate and high SE vulnerability groups showed significantly larger declines in the nicotine exposure metric after 4 years [low: -18.3 (95% CI, -21.9 to -14.7), intermediate: -24.8 (95% CI, -28.4 to -21.2), high: -29.2 (95% CI, -34.6 to -23.9); p for trend <0.001]. Among individual SE indicators, household income showed the strongest association with LE8 score (p for trend < 0.001).

Conclusion: Accumulated SE vulnerabilities were associated with lower CVH and steeper decline over the course of adolescence. Household income emerged as the main driver of this association, with nicotine exposure showing the greatest sensitivity to the SE gradient. Health promotion strategies during adolescence should account for SE vulnerabilities to reduce CVH inequalities.

SO.2.24-05

Expanding Healthy Food Access through Pay-what-You-can Restaurants: Perspectives and Menu Evidence from US Community Cafes

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

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Purpose: U.S. community cafes (hereafter cafes) are pay-what-you-can restaurants that often emphasize nutrient-dense meals with potential to enhance healthy food access for food-insecure individuals, who often have lower diet quality than food-secure individuals. The study purpose was to characterize cafes' role in improving healthy food access via perceptions of executive directors and managers (EDMs) and assessing healthy food menu offerings among U.S.-based cafes.

Methods: A mixed-methods exploratory sequential design began with semi-structured online interviews with EDMs ($n=13$). Next, descriptive analysis of café menus ($n=10$) determined inclusion of Dietary Guidelines for Americans (DGA) recommended food groups (e.g., fruit, vegetables, whole grains) and other menu elements (e.g., designating meals meeting dietary needs, like gluten-free). Interview analysis used a directed approach with initial codes based on five healthy food access dimensions, supplemented with descriptive menu statistics.

Results: EDM participants ($n=13$) from 10 cafes were predominantly white (85%), female (69%), with >3 years in their role (85%). Four themes were constructed: (1) Cafes aimed to provide appetizing and "produce-forward" meals; this is reflected in menus where vegetables appeared in 52.8±20.2% and fruit in 17.8±20.0% of menu items. (2) EDMs wanted to nourish guests through hearty, nutrient-dense foods; the DGA components protein appeared in 50.4±16.1% of menu items, followed by dairy in 23.0±15.8%; greens or beans in 22.5±15.4%; fish, seafood, or plant protein in 21.0±12.4%; and whole grains in 11.0±11.0%. (3) Cafe staff encouraged healthier eating through fostering trust with guests, offering familiar "comfort" foods as a bridge to healthier options, and creating a dignified, choice-based dining experience. (4) EDMs aimed to accommodate dietary needs and preferences; 70% of menus included at least one dietary designation, with most labeling vegan/vegetarian (70.0%) and gluten-free (70.0%) dishes.

Conclusion: Cafes may increase healthy food access among food-insecure guests by offering meals including DGA components, while accommodating dietary needs and preferences and encouraging shifts towards healthier eating. Including some food groups (e.g., fruit, whole grains) more often could improve nutritional quality of meals. More research is needed to assess availability versus consumption of DGA components as well as the impact of cafe patronage on diet quality among food-insecure guests.

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SO.2.24-06

Inequities in Organised Physical Activity Participation by Different Axes of Inequality among Children in Madrid, Spain

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

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Purpose: Inequalities in children's physical activity are well-documented, but further exploration is needed, particularly in organized physical activity (OPA), which offers greater health benefits, across various dimensions of inequality. This study aims to explore the effect of family socioeconomic status (SES), sex, and availability of public sport facilities (APSF) on OPA participation of children from Madrid, Spain.

Methods: This cross-sectional multilevel study analysed data from 5,961 children aged 3–12 years, drawn from a 2017 representative survey in Madrid, Spain. SES was measured using the Family Affluence Scale, categorized into tertiles. OPA data came from the survey. APSF was assessed using Geographic Information Systems, counting facilities within 1,000m street-network buffers around schools operationalized into tertiles. Multilevel Poisson regression models with random intercepts for schools were used to examine the association between SES and OPA, using the highest SES tertile as reference. Analyses were stratified by sex and APSF tertiles, with the highest as reference, adjusted by age, sex, and population density.

Results: The findings showed that those children from the lowest SES presented a 43% lower Prevalence Ratio (PR) than those from higher SES (PR=0.57 IC95% 0.50-0.65). Gender differences in the association between SES and OPA were also observed, with a higher PR decrease for girls from low SES families (PR=0.54 IC95% 0.45-0.65) than for boys (PR=0.58 IC95% 0.49-0.68). Furthermore, the APSF has been shown to influence the distribution of inequalities in OPA, amplifying the effect of household socio-economic status on OPA in areas with limited access to such facilities. Areas with lower APSF showed the stronger association between SES and OPA (PR-lowSESvsHighSES = 0.49 IC95%0.39-0.62), compared to other low socio-economic populations with medium (PR-lowSESvsHighSES = 0.57 IC95%0.45-0.69) and higher (PR-lowSESvsHighSES = 0.68 IC95% 0.54-0.84) APSF.

Conclusion: Our results reveal significant inequalities in children's participation in organized physical activity in Madrid, influenced by family SES level, sex, and access to sports facilities. These findings underscore the importance of developing public policies aimed at cushioning these inequalities to improve the health of the school-age population.

SO.2.24-08

Bridging the Gap in Early Childhood Motor Development: Preliminary Evidence from a Public Preschool Program in Recife, Brazil

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

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Purpose: Early childhood movement is positively associated with motor, cognitive, and social development. However, significant gaps remain in equitable access to early movement programs in low- and middle-income countries. This study describes motor competence and evaluates whether a universally accessible public program is associated with reduced motor development disparities in children from low-income communities in Brazil.

Methods: We conducted a population-based cross-sectional study among 1,497 children aged 3–6 years enrolled in public day-care centers in Recife, Brazil. Children were randomly and proportionally sampled across six Political-Administrative Regions (PARs). PARs were categorized into low, medium, and high social vulnerability using the Social

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Vulnerability Index. Trained educators assessed motor competence using the Test of Gross Motor Development-2. Group differences in locomotor, object-control, and global motor scores were examined using ANOVA with Tukey post-hoc comparisons. Within-region inequality in motor performance was measured using the coefficient of variation. Crude and adjusted linear regressions estimated associations (β , 95%CI) of vulnerability category, age, and sex with motor outcomes.

Results: Mean global motor scores varied across regions, ranging from 59.45±18.93 in PAR 4 to 72.88±21.16 in PAR 6, with the greatest dispersion observed in PARs 3 and 4. Motor competence increased significantly with age across all domains ($p < 0.001$). Boys demonstrated higher object-control scores ($\beta = -1.46$; 95%CI: -2.20, -0.67), while girls performed slightly better in locomotor skills ($\beta = 1.05$; 95%CI: 0.06, 2.04). After adjustment for age and sex, children in high-vulnerability regions had significantly lower scores than those in low-vulnerability regions for both object-control ($\beta = -6.38$; 95%CI: -7.50, -5.26) and global motor competence ($\beta = -7.26$; 95%CI: -9.56, -4.97), with moderate-to-large regional effects ($\eta^2 = 0.08-0.10$).

Conclusion: This public program represents one of the first large-scale initiatives to promote and expand access to structured movement in early childhood in Brazil. While universal program availability may have contributed to some reduction in within- and between-region disparities, substantial performance gaps persisted, particularly in high-vulnerability areas. As recently implemented initiative, longer follow-up may be needed to detect its impact. Program expansion remains critical, alongside targeted investments in professional development, and adequate facilities in high-vulnerability regions to prevent early widening of developmental inequities.

SO.2.24-09

Exploring Inequalities in Referral, Uptake and Outcomes of the Lifestyle Hub, a Referral Pathway for Physical Activity and Weight Management in Pennine Lancashire, UK

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

Room 7, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: This study assessed the effectiveness and equity of the Lifestyle Hub (LH) referral pathway to health and wellbeing services for inactive adults with long-term health conditions across six local authorities in Pennine Lancashire, UK. The LH footprint has a population of 560,000, a high proportion of South Asian residents and high levels of deprivation. The LH forms part of a Sport England funded approach to tackling inequalities as part of a wider ecosystem of place-based approaches. We examined referral patterns, assessment uptake, and achievement of weight management and physical activity programme goals, applying an equity lens to identify drivers of engagement disparities and inform scalable, inclusive interventions.

Methods: This study analysed routine quantitative programme monitoring data, collected between October 2024 and September 2025, including demographic variables, referrals, initial assessments and practitioner-recorded outcomes for physical activity and weight management. Pearson chi-squared tests assessed differences in programme outcome achievement by gender, age and ethnicity. An ongoing complementary qualitative study involving interviews with stakeholders and focus groups with participants in one of six localities is exploring contextual factors underlying engagement inequalities.

Results: Preliminary analysis found 15,916 referrals to wellbeing services, with 7644 (48%) completing an initial assessment. There were 7,801 referrals for physical activity and weight management, 6,612 (85%) of these included a programme outcome measurement, and 1,732 (22%) were considered to have successfully completed the programme. Programme outcome achievement was significantly different by ethnicity ($p < 0.001$) and age ($p < 0.001$) but not gender ($p = 0.702$). Lower programme achievement was observed among Black (13%) and Asian (19%) ethnicities compared with White participants (39%) and among those of younger age (25% <60 vs. 44% ≥60).

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Conclusion: The LH achieved high referral and assessment uptake, but only 22% of participants successfully completed physical activity or weight management programmes. Significant disparities in programme achievement were observed by ethnicity and age, with lower success among Black and Asian participants and younger age groups, while gender showed no effect. These findings highlight persistent inequalities in engagement and outcomes within real-world referral systems. Ongoing qualitative work will explore contextual and structural factors to inform strategies for more equitable implementation.

SO.2.24-11

Predicting Future Risk of Type 2 Diabetes by Socioeconomic Inequality and Physical Activity in Ontario, Canada: A Population-based Analysis

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

Room 7, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Risk prediction tools provide critical opportunities to implement diabetes prevention strategies. The purpose of this study is to predict the future risk of diabetes by sociodemographic and health behaviours such as physical activity in an urban population.

Methods: We used population data from the 2017/18 Canadian Community Health Survey, a national cross-sectional survey questionnaire, to predict the 10-year risk of diabetes among adults (aged ≥ 20 years) living in Ontario, Canada. We applied a validated Diabetes Population Risk Tool (DPoRT) to risk factor information to predict the distribution of 10-year type 2 diabetes incidence and the number of new diabetes cases in the subsequent ten years both overall and across important subgroups.

Results: Overall, there were 33,474 survey respondents included in this study, of whom 3,249 (9.7%) were living with a diagnosis of diabetes and 30,225 (90.3%) without diabetes. Between 2017/18 to 2027/28, DPoRT predicted a 10-year diabetes risk of 10.2% (95% confidence interval [CI] 9.9-10.4) and 919,702 new cases. The greatest predicted 10-year risk of diabetes will be among immigrant populations (12.2% and 398,425 new cases), lowest- household quintile (<20,000 per year (26.1% risk and 191,750 new cases), those who reported living with obesity (21.3% risk and 326,517 new cases), and those who were sedentary (sitting more than 8 hours/day) (10.9% risk and 37,594 cases) and least physically active (12.8% risk and 238,649 cases). Similar patterns were observed for food insecure households.

Conclusion: The projected incidence of diabetes is attributed to socioeconomic inequalities and modifiable risk factors such as physical inactivity and sedentary behaviours. This research calls for a combination of targeted and population-wide strategies that will address the risk factors of diabetes and reduce its future burden among those affected the most.

SO.2.24-12

Wearable Measured Work and Leisure-time Physical Behavior Clusters and Associations with Socioeconomics, Perceived Health and Health Behaviors

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

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Purpose: Physical behaviors, including sedentary time (ST) and physical activity (PA), have domain-specific health associations; heavy occupational PA associating with adverse health and lower leisure-time PA. We aimed to identify movement profiles that integrate both work-related and leisure-time physical behaviors, and to investigate whether these profiles differ in socioeconomics, perceived health, and health behaviors.

Methods: Data used comes from Northern Finland Birth Cohort 1966 46-year follow-up ($n=3,117$). All participants providing valid accelerometry data (≥ 2 days ≥ 4 hours wear time at work, ≥ 2 days off from work, wear time ≥ 10 hours/day), self-reported work schedule, health and lifestyle information (perceived health, work ability, smoking, and drinking) were included. Information on education and salary was obtained from national registers.

Physical behaviors were calculated as mean duration of ST, light and moderate-to-vigorous PA separately for work and leisure time. For clustering, relative proportion of different components of total time in each domain was calculated. The relative share of each activity was set 0–1 (1=largest share in the population, 0=no activity). Clustering was performed with K-means. Elbow method, gap statistic, and within sum of squares were used to determine the number of clusters. Differences between clusters in frequencies were assessed using Pearson Chi-squared test and in continuous variables using ANOVA.

Results: Five clusters were identified: Work movers (sedentary leisure time, $n=641$), All-day movers ($n=432$), All-day sedentary ($n=874$), Leisure light movers (sedentary work, $n=759$), and Leisure movers (sedentary work, $n=411$).

High education was least prevalent (23–25% vs. 69–73%) and annual salary lowest (27k€–29k€ vs. 40–45k€) in All-day movers and Work movers. Work movers had less often good perceived health (61% vs. 70–85%) and work ability (81% vs. 83–92%) than others. They also had the most smokers (25% vs. 15–19%) and the highest alcohol consumption (71 g/week vs 50–61 g/week). The highest prevalence in good perceived health and work ability was seen in Leisure movers. All comparisons were significant ($p \leq 0.001$).

Conclusion: Five different clusters were identified, showing different patterns in work and leisure-time physical behaviors and in sociodemographic and health behavior outcomes. Overall, Work movers presented the poorest outcomes.

SO.2.24-13

The Long-term Effects of a Combined Physical Activity and Health Education Programme on Well-being for Socially Vulnerable Children and Adolescents

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SO.2.24 Socio-economic inequalities: Context Matters: The Impact of Environment, Privilege, and Social Vulnerability on Health Behaviors

Room 7, May 29, 2026, 3:00 PM - 5:00 PM

Purpose: Childhood and adolescence are critical periods for the development of well-being, yet declines are commonly observed, particularly among youth from low socioeconomic backgrounds. This study examined the short- (3.5 months) and long-term effects (16 months) on well-being of a residential multicomponent health promotion intervention at the Danish Christmas Seal Homes (DCSH), with and without the addition of the 11 for Health (11fH) programme.

Methods: A randomised crossover design compared a Standard group (DCSH, $n=237$) to a Standard+ group receiving the same programme plus 11fH (combined football and health education sessions, $n=244$). Well-being was assessed using the Pediatric Quality of Life Inventory (PedsQL 4.0 Generic) and KIDSCREEN-27. Multilevel modelling evaluated changes in well-being outcomes over time, accounting for repeated measurements nested within individuals.

Results: Participants in both groups reported well-being scores at or above normative values post-intervention, with these largely maintained at short- and long-term follow-ups. No significant group differences emerged through time. Physical Well-being declined over time, while Physical Functioning improved at short-term follow-up, but the increase was not sustained at the long-term follow-up. Females reported lower scores than males across several domains, including Physical Functioning, Emotional Functioning, Physical Well-being, and Psychological Well-being. Older age and higher pre-intervention scores were associated with lower well-being improvements

Conclusion: The results suggest that health-promoting interventions delivered in residential settings can help sustain well-being for socially vulnerable children. Moreover, consistent gender differences point to the need for ongoing support and tailored approaches for females.

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SO.3.25-01

Observing Dimensions of Food Literacy among Children and Parents Participating in a Dutch Cooking Course

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Food literacy is an important prerequisite for healthy eating. It encompasses the knowledge, skills and abilities needed to interact with the food environment in a way that encourages the development of healthy, sustainable eating habits. Up for Cooking (UfC) aims to improve the food literacy of children and parents. Participants cook and eat together and complete short assignments. This study aims to gain insight into the presence and absence of the relational, functional and critical dimensions of food literacy among participants, as defined by the conceptual framework of Ares and colleagues.

Methods: Between November 2020 and June 2024 researchers observed 55 cooking sessions across 18 courses. Observations focused on the implementation of food literacy-related activities and participant engagement. For the analysis, situation sketches and text fragments that could be linked to the three dimensions of food literacy, were summarised. These fragments were coded as either 'present' or 'absent' using Atlas.ti, with sub-codes for each food literacy dimension and assigned to either the parent, the child, or a parent-child pair.

Results: Relational dimensions, particularly the enjoyment of preparing meals together, were frequently observed (76 times) in children and parents. The enjoyment of trying new food was also frequently observed. The absence of relational dimensions was observed 30 times, mostly due to unfamiliarity with different types of food. Functional dimensions were observed 47 times, primarily in relation to hygiene and food safety, but also to insufficient motor and food preparation skills. The absence of functional dimensions was observed 28 times, primarily relating to fine and gross motor skills (e.g. knife use) and knowledge of nutrition and hygiene. Finally, critical dimensions were not observed.

Conclusion: Although relational and functional dimensions of food literacy were frequently observed, critical dimensions were not. The absence of certain aspects, such as familiarity with different types of food and fine and gross motor skills, among at least some participants could be addressed in future courses. While not all dimensions of food literacy were observable in this context, we conclude that participants vary in their level of food literacy and that this needs to be improved to promote healthy eating.

SO.3.25-02

Sociodemographic Factors but Not Food Pouch Usage Associated with Early Childhood Caries in New Zealand Children: Young Foods New Zealand Study

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Feeding and nutrition impact childhood dental health, including tooth formation and the development of health-promoting or cariogenic habits. Most research on dietary risk factors of tooth decay in the primary teeth of children aged under six years (early childhood caries, ECC) focus on individual foods (e.g. fruit juice) or dietary patterns, but not individual nutrients. There is minimal research on new forms of complementary foods, such as

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pouch foods with nozzles, on dental health – however, there are concerns of exposure to high-sugar purees, excessive intake of free sugar, and repeated exposure to sweets foods that may affect taste preferences. This study aims to describe predictors of ECC in toddlers and preschoolers.

Methods: The Young Foods New Zealand study was a cross-sectional observational study with children aged 1-3.9 years, involving anthropometric measurement, nutrient intake from two 24-hour dietary recalls, and ECC status from dental photographs. Differences between caries-free and caries-positive children were estimated using regression analysis, adjusted for age.

Results: 259 children were analysed, of which 13.9% had ECC. Having ECC was associated with child and carer ethnicity, carer education, childcare use, and current breastfeeding status. Food pouch use, direct feeding from a food pouch nozzle, and weight status were not significantly associated with ECC status. Nutrient intakes were similar in those with and without ECC, including sugars intake. Caries-positive children had lower mean vitamin A (432 vs 526 µg, $p=0.004$) and marginally lower calcium (634 vs 715 mg, $p=0.072$) intake, compared to caries-free children, but were at no greater risk of inadequate intake.

Conclusion: ECC status was associated with demographic characteristics but not current use of food pouches, in contrast to expectations that pouch use may adversely impact child dental health through exposure to sugary foods. Children with ECC largely met nutritional requirements but had lower vitamin A and calcium intakes. Product audits have highlighted the increasing presence and availability of pouch foods – further empirical research on the long-term impact of frequent food pouch use on dental health is required.

SO.3.25-03

Breastfeeding Duration and Early Feeding Practices Are Associated with Ultra-processed Food Intake in Youth 12-14 Years Exposed to Gestational Diabetes

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Ultra-processed foods (UPFs) are linked to adverse metabolic profiles. Children exposed to gestational diabetes (GDM) are at elevated metabolic risk, making diet a priority. We evaluated breastfeeding and complementary feeding in the first year predicted UPF intake at age 12-14 in a GDM-exposed cohort.

Methods: SWIFT is a prospective, multi-ethnic cohort of women with GDM and their children. GDM diagnosis and perinatal outcomes were obtained from electronic health records. Research surveys collected infant feeding parameters from birth to 12 months; breastfeeding duration (months; <6 vs ≥6), intake of sugary beverages (<12 months), and introduction to complementary foods (months; <4 or ≥4 vs later). At 12–14-years, dyads completed three 24-hour dietary recalls and other assessments. UPF was quantified as %grams and %kcal using NOVA classification. Analyses included dyads with ≥2 recalls. Linear regression models were sequentially adjusted for race/ethnicity, maternal education, maternal nativity, pre-pregnancy BMI, and concurrent maternal UPF intake.

Results: Youth participants ($n=229$; mean age 13.4 ± 0.9 y; 50% female; 39% Asian, 39% Hispanic) derived $32.4 \pm 17.0\%$ of grams and $54.7 \pm 17.3\%$ of energy (kcal) from UPFs. In fully adjusted models, breastfeeding less than 6 months was associated with higher UPF %grams in offspring ($\beta = 5.0$, $p = 0.029$). Early complementary feeding (<6 months) predicted higher UPF %grams ($\beta = 5.5$, $p = 0.03$), with each month delay in introduction corresponding to 1.87 percentage points fewer UPF %grams ($p=0.009$). Breastfeeding less than 6 months combined with either introduction of juice/sugar-sweetened beverages in the first year or early complementary feeding (< 6 months) were each associated with higher UPF %grams ($\beta = 8.9$, $p = 0.009$; $\beta = 10.0$, $p=0.003$). UPF %kcal was positively associated with breastfeeding less than 6 months plus early complementary feeding in unadjusted models, however findings were not significant after adjustment.

Conclusion: Adolescents who were breastfed less than 6 months and began complementary feeding early or consumed juice/sugar-sweetened beverage in their first year of life consumed an additional 9-10% grams from UPF than adolescents who were breastfed > 6 months and introduced complementary foods or sweet beverages at the appropriate age.

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SO.3.25-04

Assessing the Cross-cultural Equivalence of the Children's Eating Behaviour Questionnaire in Spain and the United Kingdom

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: This study aimed to examine the measurement invariance of the Children's Eating Behaviour Questionnaire (CEBQ) between parents from Spain and the United Kingdom.

Methods: A total of 197 participants (142 mothers and 49 fathers) from the Spanish sample, aged 44.07 years (SD=5.98), and 300 participants (252 mothers and 48 fathers) from the UK sample, aged 35.29 years (SD=5.60), took part in the study. The UK sample included parents of children aged between 4 and 6 years (M=4.89; SD=0.74), whereas the Spanish sample included parents of children aged between 7 and 10 years (M=8.90; SD=0.84). Measurement invariance across countries was evaluated following the method proposed by Wu and Estabrook (2016). Four levels of invariance were assessed: configural (factor structure), metric (item factor loadings), scalar (item thresholds for categorical responses), and strict (item uniqueness). According to Chen (2007), invariance is supported when the change in fit indices between consecutive models meets the following criteria: $\Delta CFI \leq 0.01$, $\Delta SRMR \leq 0.03$ for metric invariance or ≤ 0.01 for scalar invariance, and $\Delta RMSEA \leq 0.015$.

Results: Multigroup factorial invariance was evaluated through configural, metric, scalar, and strict models using robust estimators. The configural model ($\chi^2=3082.36$, $df=1130$, $CFI=0.916$, $TLI=0.911$, $RMSEA=0.084$, $SRMR=0.097$) showed fit indices slightly above acceptable thresholds for RMSEA and SRMR, which are indices sensitive to small misfits in the functioning of any item. In the UK validation, a slightly different structure was observed, with items 3 and 27 loading on different factors and item 35 being removed. Therefore, the original factorial model may be somewhat rigid across countries. However, when progressively imposing equality constraints, changes in fit indices were minimal ($\Delta CFI \leq 0.01$; $\Delta RMSEA \leq 0.015$; $\Delta SRMR \leq 0.03$ for metric and ≤ 0.01 for scalar), meeting Chen's (2007) recommended thresholds and supporting construct equivalence across countries.

Conclusion: This study provides robust evidence that the 35-item CEBQ is a valid tool for assessing children's eating behaviours in both Spain and the UK, supporting its use in cross-cultural comparisons and interventions. Researchers and practitioners can use the CEBQ to compare children's eating behaviours across European contexts, contributing to the early identification of behavioural patterns related to societal issues (e.g. childhood obesity).

SO.3.25-05

Mechanisms Driving Physical Activity Behavior in Adolescents: A Systematic Review of Mediators

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

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Purpose: Physical activity behavior in adolescents is complex and cannot be fully explained by examining associations or causal links between influencing factors and activity levels. There is a need for insight into underlying mechanisms driving behavior, which can be achieved with mediation analyses. This review aims to summarize the current evidence on the mediating pathways that shape adolescents' physical activity behaviors.

Methods: Three core concepts – adolescents, physical activity, and mediation – were used to develop a search strategy. MEDLINE, Embase, Scopus, and SPORTDiscus were searched for relevant articles. After deduplication, titles and abstracts were screened with support of ASReview. Data extraction was done by 2 reviewers for each manuscript. The SAFE procedure was applied as a conservative approach to ensure the inclusion of all relevant articles.

Results: In total, 10,696 articles were screened by title and abstract, resulting in 369 articles for full-text screening; 183 met the eligibility criteria. The studies were conducted in Europe (n=59), North America (n=54), Asia (n=47), South America (n=9), and Oceania (n=8). In addition, six studies were conducted in multiple countries. Physical activity behaviors were mostly measured with questionnaires (n=142) and a smaller number using objective methods (n=32). Some studies used both (n=9). In total, 212 unique factors were examined as potential mediators. The most frequently studied mediators were psychosocial constructs such as self-efficacy, autonomous motivation, intention, and enjoyment. Across the included studies, 35 different theories and conceptual frameworks were applied, while 40 studies did not use any theoretical basis. The most commonly used theories/frameworks were Social Cognitive Theory, Self-Determination Theory, the Trans-Contextual Model, and Theory of Planned Behavior.

Conclusion: The included studies provide deeper insight into the interactions between psychosocial factors, the social and physical environment, and physical activity behavior, as well as into the interrelations among psychosocial factors in adolescents. Nevertheless, the findings largely reflect the emphasis of research on psychosocial factors as mediators. Broadening the analytical focus to encompass alternative mechanisms may help us better understand the complexity of physical activity behaviors. In particular, considering environmental factors as potential mediators could yield additional insights into the influence of contextual factors on physical activity behavior.

SO.3.25-06

Multi-trajectories of Lifestyle Patterns and BMI z-Scores in Early Childhood and Hierarchical Determinants: The Healthy Beginnings Trial

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: The co-development of lifestyle patterns (LPs) and body mass index z-score (BMIz) in early childhood remains unclear. This study aimed to identify multi-trajectories of LPs and BMIz in early childhood, and assess associations with family-, maternal- and child-level factors.

Methods: Data at ages 2, 3.5 and 5 years from the Healthy Beginning Trial (n=387) were used. Two consistent LPs were identified at all ages using principal component analysis: unhealthy "Discretionary foods-screen" pattern and a healthy "Fruits-vegetables-outdoor-sleep" pattern. LPs and BMIz scores were used in multi-trajectory modelling to identify groups of children following similar concurrent trajectories of LPs and BMIz from ages 2 to 5 years. Hierarchical regression explored factors associated with the identified multi-trajectory groups.

Results: Children were classified into four distinct multi-trajectory groups. Over one-third (36.4%) followed the 'Less-healthy LP, Low-BMI' trajectory, showing low adherence to the healthy LP, average adherence to the unhealthy LP, and a low BMIz trajectory. A further 33.1% displayed average adherence to both unhealthy and healthy LPs but a high BMIz trajectory, referring as the 'Mixed LP, High-BMI' group. The other two groups were 'Healthy LP, Mid-BMI' (20.8%) and 'Unhealthy LP, Mid-BMI' (9.8%). Both followed a mid BMIz trajectory, with the former showing higher adherence to healthy LP and lower adherence to unhealthy LP, and the latter showing reverse LP adherence. Children with higher household income, whose mother had higher diet quality and physical activity during pregnancy, higher

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pre-pregnancy BMI, or were Australian-born (vs. overseas-born), were more likely to follow the 'Healthy LP, Mid-BMI' trajectory than the 'Unhealthy LP, Mid-BMI' trajectory. In contrast, children from families with two parents and other members (vs. single parent families) were less likely to belong to this group. Children born to women with higher pre-pregnancy BMI or lower education were more likely to belong to the 'Mixed LP, High-BMI' group.

Conclusion: Findings highlight the need to promote healthy lifestyle behaviours early in life regardless of body weight status. Interventions should prioritise families with lower income or larger household size, and those with Australian-born mothers with higher pre-pregnancy BMI, lower education, poor diet quality, or low physical activity.

SO.3.25-07

Avid Appetite, Surgency, Inhibitory Control and Adiposity in 3-5-year-Olds: A Laboratory Study

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: An 'avid eating' behaviour profile in preschoolers is associated with parent report of temperament, including greater surgency (positive affect, high activity levels, tendency to approach rewards and novelty) and impulsivity (a tendency to act/react rapidly, without forethought), but these relationships have not been examined observationally. This laboratory-based study investigated relationships between parent reports of children's avid eating and temperament, with observed measures of impulsivity/inhibitory control and objective BMI. We hypothesised that children reported to have a higher probability of avid eating will

i) be rated as more surgent and impulsive,

ii) have higher BMI,

iii) show poorer performance on laboratory measures of impulsivity/inhibitory control.

We also explored relationships between parent report and laboratory measures of surgency/impulsivity, inhibitory control and BMI.

Methods: Parents (N=129, 6M, 123F) and children (3-5 years; 54M, 75F) attended our laboratory. Parents completed questionnaires about their child: Children's Eating Behaviour Questionnaire (Wardle et al., 2001), Children's Behaviour Questionnaire-Very Short Form; (Putnam & Rothbart, 2006) and Conners' 9-item hyperactivity-impulsivity subscale (Conners et al., 1998). Children completed tasks measuring delay of gratification, inhibitory control (Bear-Dragon task; fish flanker task) and motor impulsivity (Circle drawing task: CDT). Children were weighed and measured; age and sex-adjusted BMIz was calculated. Partial correlation analyses were conducted, adjusted for covariates.

Results: Children with a higher probability of avid eating were rated as significantly more surgent and impulsive by their parents, but did not have higher BMIz. Neither did they show poorer performance on behavioural measures of inhibitory control/impulsivity.

Children who were rated as more surgent or impulsive by their parents showed poorer CDT performance. Parent reports of surgency were also related to higher BMIz. BMIz was associated with children's poorer CDT performance.

Conclusion: Parents who report greater avid eating in their 3-5-year-olds report more impulsivity and surgency, but avid eating was not related to observed inhibitory control or adiposity at 3-5-years. Parent-reported surgency and impulsivity specifically reflect motor inhibition. Surgency was associated with greater adiposity, suggesting an important focus for further work. Understanding surgency (e.g., sociability, novelty-seeking) may help to identify useful intervention strategies to manage children's avid eating.

SHORT ORALS

SO.3.25-08

Food Is Medicine Clinical Community Intervention to Improve Dietary Intake, Mental Health, and Clinical Outcomes among Families

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Primary purpose of the clinic-community linked intervention was to examine the effect of a two-by-two randomized controlled trial utilizing a food is medicine program including nutrition and mental health counseling among caregivers and their children.

Methods: A pragmatic randomized control trial (pRCT) using a 2X2 factorial design among Medicaid families, adults with children ages 6-18, with an adult diagnosed with hypertension or T2DM, child has a BMI categorized as obese or overweight, and report being food insecure. The pRCT will take place in Louisville, KY with UofL Health as the clinic provider, in an urban setting with a high percentage of adults reporting race/ethnicity as Black or African American. Participants were recruited from two clinic sites by their healthcare provider. After referral patients completed consent and were randomized to one of four arms: 1) Medically tailored meals (MTM) only for adult and up to 2 children; 2) MTM for caregiver and up to \$100 in a grocery prescription (Grocery Rx) card for children in the household; 3) Grocery Rx for up to \$150 for the household; 4) Delayed comparison. Each arm received their intervention program for 3 months. *Primary outcomes of interest* include child BMI percentile, blood pressure, hemoglobin A1c, and lipid panels.

Descriptive statistics, including means, standard deviations, frequency, and percentages, will be calculated at baseline and post-intervention to describe the participants in each group. *t*-test and ANOVA will be used to further assess differences in the primary outcomes between the four study arms.

Results: Among adults in the MTM program only and in the MTM + Grocery arm there was a reduction in systolic blood pressure (-8.33mmHg) and LDL (-2 mg/dL) and (-6.75mmHg) and LDL (-3mg/dL) between baseline and post intervention. Among children in the MTM+Grocery arm there was a reduction in systolic blood pressure (-5mmHg) and in Grocery only arm a reduction of (-3mmHg). Relative to delayed controls there were significant improvements in LDL, blood pressure, dietary intake, and general health.

Conclusion: A food is medicine program providing healthy tailored food for both the adult and children in the household has the potential to improve clinical outcomes.

SO.3.25-12

Advancing Diet and Health among Produce Prescription Program Participants in Rural Eastern North Carolina: The Phytorex Families Pilot Study

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: This pilot study aimed to assess the effectiveness of a produce prescription program to improve health and nutrition-related outcomes among rural adult-child dyad participants in North Carolina (NC).

Methods: Adult-child dyads (adults/caregivers and their child, 8 to 14 years old) were referred by pediatricians from one rural NC health clinic to participate in a produce prescription program, consisting of receiving a weekly box of ~15 lbs of fresh produce, and attending a bi-weekly nutrition education class. Trained researchers collected participant data at baseline (T1) and at post-intervention (16 weeks, T2) on cardiovascular health-related outcomes (blood pressure (BP), glycated hemoglobin (HbA1C), height, weight (body mass index (BMI) calculated)) and nutrition-related outcomes, including fruit and vegetable intake (measured via self-report and the Veggie Meter (objective measure assessing skin carotenoids)), nutrition security, and child involvement in meal planning and preparation. One-sided paired *t*-tests were used to evaluate program effectiveness.

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Results: A total of 7 adult-child dyads were enrolled, with 6 completing the program (85.7% retention). Adults were female (100.0%), with a mean age of 47.3 years (SD 14.8), majority non-Hispanic White (50.0%), non-Hispanic Black (33.3%), and Hispanic-White (16.7%). Youth were majority male (66.7%), with a mean age of 10.8 years (SD 1.2). Adults unanimously agreed (100.0%) that receiving a produce box helped their family eat healthier. Nutrition security status ($p<0.01$) and child involvement in meal planning ($p<0.01$) significantly improved. Child BMI-for-age percentile did not change. Adult BMI decreased by -6.9 (T1= 38.4 (SD 14.0); T2=31.5 (SD 11.7), $p=0.079$), systolic BP decreased by -5.6 (T1= 115.2 (SD 11.7); T2=109.6 (SD 15.9), $p=0.079$), diastolic BP decreased by -1.5 (T1= 70.5 (SD 10.7); T2=69.0 (SD 10.3), $p=0.248$), and skin carotenoid scores decreased by -35.7 (T1= 247.0 (SD 46.2); T2=211.3 (SD 42.9), $p=0.496$), but not significantly. HbA1C levels (all participants) increased by 0.1 (T1= 5.5 (SD 0.3); T2=5.6 (SD 0.4), $p=0.253$), but not significantly.

Conclusion: These findings support the scalability of the PhytoRx Families produce prescription program in potentially improving health and diet among rural, underserved families in eastern NC.

SO.3.25-13

Co-creating Adolescent Nutrition and Physical Activity Solutions in the Galapagos Islands of Ecuador through a Human-centered Approach

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SO.3.25 Children and families: Nurturing Growth: Early Determinants, Family Interventions, and Youth Lifestyle Patterns

Auditorium, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Adolescence is a critical period for shaping lifelong nutrition and physical activity behaviors and later health outcomes. In the Galapagos, adolescents face multiple barriers to healthy eating and physical activity, and nearly 40% are overweight or obese. This study applied a human-centered design (HCD) approach to engage adolescents and their parents as co-designers in developing feasible, contextually appropriate strategies to promote healthier diets and physical activity.

Methods: We conducted formative qualitative research using an HCD approach in San Cristóbal, Galapagos. Key informant interviews with teachers, school administrators, health workers, and community stakeholders explored challenges adolescents face in maintaining healthy diets and physical activity and identified existing programs and opportunities for intervention. Findings informed a participatory HCD workshop with adolescents and their parents. Parallel adolescent and parent sessions used activities such as “vote with your feet,” journey mapping, and a design challenge to generate ideas for interventions, followed by a joint session for intervention prioritization. A subset of adolescents participated in a photovoice activity to document their diets and food environments. Data from interviews, workshops, and photovoice were analyzed thematically to synthesize participants’ proposed and prioritized intervention ideas.

Results: We conducted seven key informant interviews and facilitated a participatory workshop with 12 adolescents (6 boys, 6 girls; mean age 14.7 years) and 11 mothers. Participants identified opportunities for intervention at schools and within families. At the school level, suggestions included enforcing policies on foods sold at school, training snack bar staff in nutrition, enhancing nutrition education, creating student-led nutrition clubs, and increasing after-school sports programs. Within families, participants proposed workshops to help adolescents prepare healthy meals with their parents and recommended support groups for parents to support adolescent health and nutrition at home. Participants also emphasized the potential of social media and digital tools to share recipes and create short videos featuring simple, affordable dishes using foods available in the Galapagos.

Conclusion: This study demonstrates the value of HCD approaches for advancing behavioral nutrition research and practice. By centering adolescents’ and families’ priorities, participatory methods can generate practical, community-grounded strategies for promoting healthy behaviors in small island settings.

SHORT ORALS

SO.3.26-01

Prevention of Obesity among Adults: Evidence- and Consensus-based Guideline

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: The global prevalence of obesity continues to rise, highlighting the need for evidence-based guidance on prevention. However, most existing obesity guidelines primarily address treatment rather than prevention. We therefore aimed to develop an evidence- and consensus-based guideline for the prevention of obesity among adults.

Methods: We followed international best-practice standards for guideline development as recommended by the AGREE II tool and the Guidelines International Network (GIN) McMaster Guideline Development Checklist. We systematically searched for relevant systematic reviews and existing guidelines up to March 2024, and conducted a structured consensus process involving 34 experts, including 5 patient representatives. We used GRADE to assess the certainty of evidence, and to grade the strength of recommendations. The guideline was developed under the auspices of the German Obesity Society as its official guideline, and primarily targets the adult population in Germany, but many recommendations are likely to be relevant internationally.

Results: The guideline comprises 24 recommendations addressing the general public, healthcare professionals, and policymakers. The certainty of evidence ranged from very low to high, and was rated to be moderate or high for most key recommendations. The degree of consensus was above 90% for all except one recommendation. Key recommendations include adherence to a healthy diet consistent with existing food-based dietary guidelines, regular physical activity, and adequate sleep and stress management. Smoking cessation is recommended even if accompanied by weight gain. The guideline suggests offering qualified dietary and physical activity counselling in primary care and considering potential weight effects when prescribing medications. Moreover, it recommends implementing evidence-informed policies to create supportive food and physical activity environments. Further, specific recommendations address plant-based diets, extremely restricted diets, ultra-processed foods, non-nutritive sweeteners, alcoholic beverages, the use of dietary supplements and other non-evidence-based weight management methods, macronutrient intake shares, patterns of food intake over the day, self-monitoring, and sedentary behaviour, among others.

Conclusion: Evidence-based strategies for preventing obesity at both individual and societal levels are available and should be implemented more systematically to curb the growing obesity epidemic.

SO.3.26-02

Politics a Roadblock for Public Transport: Policy Barriers to Creating Environments that Support Active Living

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

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Purpose: Public transport is a potential ‘stealth’ strategy for increasing physical activity, with users more active than non-users. Yet in countries like Australia, less than 5% of work commuters use public transport. Smaller and regional Australian states like Tasmania have even lower usage, and the lowest investment per capita in Australia. Subnational government policy plays a critical role in shaping public transport, but little is known about barriers to supportive policy. Given the health, environmental, and economic benefits, this study aimed to identify policy barriers to public transport in Tasmania, Australia.

Methods: Semi-structured interviews were conducted (2024-25) with experienced policymakers from Tasmanian government and non-government sectors. Questions focused on policy experience, enablers and barriers, and perspectives on Tasmanian policy related to public and active transport. Verbatim transcriptions were thematically analysed, underpinned by the Comprehensive Analysis of Policy on Physical Activity framework, and using a constant comparative approach.

Results: Participants (n=16) were age >40 years, 50% women, and had an average of 22 years’ experience. There was clear recognition of the importance of public transport for multiple reasons: *‘Affordable public transport, less traffic, cleaner air, healthier lives – what’s not to love?’*. Despite this, ‘politics’ was articulated as a key barrier to better public transport: *‘Tasmania could have it all, but political games are blocking the journey’*, *‘...Tasmania deserves better, not more political detours’*, *‘Want less traffic, cheaper commutes, fresher air, and fitter communities? Tasmania could, if politicians stopped spinning their wheels’*; and *‘Public transport shouldn’t be a political tug-of-war’*. Evidence was seen as important but was often devalued: *‘...it’s much more about people outside the system and their ability to persuade governments that something will be popular, than it is people within the system with a comprehensive evidence base trying to persuade governments this is the right thing to do’*.

Conclusion: Despite recognition of the health and environmental benefits of public transport, political barriers are seen as key obstructions to supportive policy. Presenting evidence of benefits of public transport alone is unlikely to be sufficient to change policy, without a dedicated focus on collective advocacy to counteract opposing voices.

SO.3.26-03

Commercial Determinants of Active Travel: A Crucial but Overlooked Barrier to Health and Sustainability

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Active travel is a key contributor to both health and sustainability. It improves physical and mental health, reduces greenhouse gas emissions and air pollution, and offers social and economic benefits. However, active travel remains considerably underutilised in many countries. Understanding its determinants is important to guide effective interventions. Commercial determinants are important yet overlooked. While growing evidence suggests the role of commercial actors in shaping health behaviours, their impact on active travel has rarely been considered. We aim to advance the discourse on the commercial determinants of active travel by outlining positive and negative examples and actions to researchers, decision makers and planners to counteract commercial determinants of active travel.

Methods: Commercial determinants of active travel describe the influence of economic interests on encouraging and discouraging active mobility choices. Commercial determinants of active travel operate through systemic influences on urban and community planning, transportation planning, corporate interests, public discourse and policy making. Through strategic scanning of recent relevant literature, we developed a framework of key commercial strategies and approaches.

Results: We will present a range of counter-marketing strategies (e.g., political lobbying, promotion, advocacy and advertising, suppression of alternatives) to influence active travel and give positive (e.g. bicycle or walking coalitions lobbying) and negative examples (e.g. car industry lobbying for road expansion or reduced fuel taxes) for each strategy. We will also present case studies to illustrate key strategies.

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Conclusion: Recognizing, disseminating and addressing commercial determinants of active travel is essential for improving population and planetary health. Future work should include accountability frameworks, honing of more forceful advocacy, and allocation of considerable funding for policy-oriented research to better understand and effectively engage decision-makers and practitioners in promoting active travel.

SO.3.26-04

Prevalence of Ultra-processed Foods without Front-of-Pack Nutrition Labeling in Brazil: Implications for Informed Food Choices

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: To investigate the prevalence of ultra-processed foods in Brazil without front-of-pack nutrition labeling (FOPNL), emphasizing how missing information may hinder informed food choices and nutrition awareness.

Methods: A cross-sectional study was conducted using data from Mintel-GNPD, a commercial secondary database that compiles information on newly launched food products marketed in Brazil. A total of 23,587 products launched between October 2022 and September 2025 were analyzed. Of these, 22,238 met the criteria for inclusion in front-of-pack nutrition labeling (FOPNL) food groups. The regulatory nutrient thresholds for FOPNL were applied to these products (n = 15,453) for each nutrient. Subsequently, products displaying FOPNL were identified through the variable “product description”, by searching for the textual terms “HIGH IN SODIUM,” “HIGH IN SATURATED FATS,” and “HIGH IN ADDED SUGARS,” including their variations and combinations, using regular expression commands. Unprocessed and minimally processed foods were excluded because they are not allowed to receive front-of-pack nutrition labeling. All analyses were performed using Stata/SE version 16.1.

Results: Products that fell within the established thresholds for each critical nutrient were evaluated. Among the products not exceeding the sodium threshold, 80% were ultra-processed, 17.5% were processed, and 2% were culinary ingredients. For products not exceeding the added sugar threshold, 75.7% were ultra-processed, 21.5% were processed, and 2.7% were culinary ingredients. Among products not exceeding the saturated fat threshold, 75.9% were ultra-processed, 22% were processed, and 2% were culinary ingredients.

Conclusion:

Considering the results, the prevalence of ultra-processed foods that do not meet the thresholds to receive FOPNL is higher than that of processed foods and culinary ingredients, which is concerning since these products are associated with negative health effects. The absence of FOPNL on the majority of ultra-processed products available in Brazil may limit consumers’ access to clear and objective information about their nutritional profiles. This scenario may hinder individuals’ ability to make autonomous and informed food choices, reinforcing the importance of strengthening labeling regulations as a tool to promote healthier eating practices.

SO.3.26-05

Emerging Behavioural Insights on Dietary Sodium Reduction from a National Survey of Canadians Adults

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: High sodium intake remains a major contributor to hypertension and cardiovascular disease in Canada. Yet, it has been over a decade since the cognitive, behavioural, and environmental determinants of sodium intake were last assessed. The objective of this study was to examine the behavioural determinants of sodium intake in a national cohort of Canadians.

Methods: A cross-sectional online survey of adults aged ≥18 years (n=3,236) was conducted in 2024 using the

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Behavioural Assessment Instrument for dietary Sodium. Participants were recruited by Leger Marketing. The survey assessed sodium-related determinants including social and environmental influences, perceptions, knowledge and behaviours using 5-point Likert-scale questions. Responses were regrouped as “agree/strongly agree,” “neutral,” “disagree/strongly disagree,” or as “yes/no” where applicable. Weighted analyses were aligned with the 2021 Canadian Census. Associations between categorical variables were examined using Rao–Scott χ^2 statistics; two-sided $p < 0.05$ considered statistically significant.

Results: Overall, 42% of participants reported actively limiting sodium, with no sex difference but lower rates among younger groups ($p < 0.001$). Most participants (78%) reported taking steps to reduce sodium, increasing with age. Concern about sodium was expressed by 64%, and half viewed reduction as personally important. Packaged foods (35%) and salt added during cooking (20%) were identified as the main perceived dietary sodium sources. Hedonic influences remained strong: 59% agreed sodium enhances taste, 44% reported salty-food cravings, and 32% used salty foods for comfort; all declining with age ($p < 0.001$). Only 22% received encouragement from family/friends, while 57% ignored sodium content when dining socially. Environmental barriers were prevalent, with 73% citing limited low-sodium options in fast-food settings. Interestingly, front-of-package nutrition labels influenced purchase intentions: 54% were unlikely to buy products “high in fat and sugar,” 46% “high in sodium,” and 43% “high in fat and sodium,” with females and older adults more responsive ($p < 0.05$). When comparing nutrition labels, 34% selected the lower-sodium product and 30% chose the perceived healthier option.

Conclusion: These findings highlight emerging behavioural, environmental and social influences on sodium intake in Canada. Translating these insights into targeted, equity-oriented policies will be key to advancing progress toward national sodium-reduction goals within today’s changing food environments.

SO.3.26-06

Association between a State-mandated Policy on Recess Trends, and Recess Impact on Obesity Prevalence in Elementary Schools: Does School Physical Activity Environment Moderate These Relationships?

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Only 20% of youth aged 6-17 years achieve the recommended 60 minutes of daily physical activity (PA). Schools are a crucial setting for increasing PA opportunities among children. In school year (SY) 2018-19, New Jersey implemented a statewide policy mandating at least 20 minutes of daily recess in elementary schools. This study examined (1) school compliance with recess policy, (2) the association between recess frequency and school-level obesity prevalence, and (3) whether school PA facilities (e.g., playgrounds, gymnasiums) moderated this association.

Methods: Data on recess frequency (SYs 2010-11 to 2023-24) and school PA facilities were collected from elementary schools (total 827 observations) in New Jersey. Nurse-measured heights and weights were used to estimate school-level obesity prevalence. Trends in recess provision were analyzed using an interrupted time series approach, comparing pre-policy (SY 2010-11 to SY 2017-18) to post-policy years (SY 2018-19 to SY 2023-24). Mixed-effects logistic regression models examined the association between recess frequency and obesity. Interaction term with school PA facilities was added to both models to assess if school PA facilities modified these associations. All models controlled for key school-level factors and adjusted for repeated observations of schools over time.

Results: A significant upward shift in recess provision occurred immediately following the policy implementation. Assuming the significant negative pre-policy trend ($\beta = -0.097$, $p = 0.006$), we would have expected the average number of weekly recess days in 2018 to be 3.4 days; instead, it was significantly higher, at 4.3 days ($p = 0.001$). The post-policy trend was approximately flat ($\beta = 0.016$, $p = 0.746$). The moderating effect of the number of PA facilities was marginally significant post-policy suggesting that schools with higher number of PA facilities offered recess on more days compared to those having fewer facilities (3.9 vs 4.4 days). No significant association was observed between daily recess frequency and school-level obesity prevalence, regardless of the total number of school PA facilities.

Conclusion: The 2018 NJ recess policy was associated with increased recess frequency. Schools with more PA facilities were more likely to be compliant, highlighting the importance of supportive physical environments in implementing school-based PA policies.

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SO.3.26-07

Dietary Diversity, Food Insecurity and Self-efficacy for Meal Management during the COVID-19 Pandemic in Mauritius

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Globally the COVID-19 pandemic affected food security and food access. This is the first exploration of impacts on diet by COVID-19 lockdowns Mauritius and the first to explore self-efficacy for meal management (SEMM) with respect to lockdown dietary behaviours. This study also aimed collect other insights for dietary interventions using novel attitude statements.**Methods:** 312 Mauritian adults completed a cross-sectional retrospective questionnaire after COVID-safe (CS) and COVID lockdown (CL) periods. Demographics and measures of Household Food Insecurity Access Scale v3 (FI), Dietary Diversity Score Questionnaire (DD), and SEMM were collected, each twice to compare periods. Dietary practice, attitude, and consumption (DPAC) statements on food topics were collected with Likert scales. All analyses were run in IBM SPSS v29.0. There were 291 cases post cleaning. Chi square tests were run between demographics and categorical DD and FI for both periods. DD, FI and SEMM were not normally distributed using Kolmogorov-Smirnov tests. Wilcoxon Signed-Rank Tests were run between DD, FI and SEMM to compare periods. Spearman correlations assessed relationships between the different variables. DPAC scores were categorised into topics and multiple linear regression analyses (set to $p < .001$) and analysed with DD and FI scores for both periods.**Results:** FI during CL was significantly higher ($z = -3.737$, $p < .001$) and DD was significantly higher in CS ($z = -4.342$, $p < .001$). During CS periods a significant negative association was identified between DD and FI ($r_s(242) = -.291$, $p < .001$), not observed during CL ($r_s(242) = -1.03$, $p = 0.10$) indicating disruption. A higher SEMM was associated with lower FI during CL periods ($r_s(267) = -.254$, $p < .001$). DPAC categories found positive attitudes towards locally grown food, growing own crops, cooking confidence and food variety.**Conclusion:** Mauritian consumers' food insecurity and dietary diversity was impacted by lockdowns and usual patterns appeared disrupted. The observed relationship between SEMM and food security needs further substantiation as this could be modifiable factor for health improvement. Attitude statements identified elements that may be useful for food security interventions and warrant further investigation. This study gives insights that may benefit health promotion efforts for future food crises.

SO.3.26-09

Healthcare Costs Attributable to Physical Inactivity and Unhealthy Diets in Thailand's Universal Coverage Scheme

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: To quantify healthcare costs attributable to physical inactivity and key dietary-related risk factors among beneficiaries of Thailand's Universal Coverage Scheme, using harmonized exposure, relative risk, and routine claims data. Specifically, we estimate cause-specific and joint-attributable costs across multiple Non-Communicable Diseases and population subgroups to inform fiscal, regulatory, and prevention policies.**Methods:** We calculated population attributable fractions (PAFs) using exposure prevalence from the National Statistical Office health survey (2021) for three modifiable risks: physical inactivity (<750 MET-min/week), high processed meat intake (50 g/day), and sugar-sweetened beverage consumption (≥ 1 serving/day). Relative risks of

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risk-outcome pairs were derived from meta-analyses of prospective cohort studies and cross-checked with Global Burden of Disease estimates. Cause-specific PAFs were applied to individual-level inpatient expenditure data from the National Health Security Office database (2024) to estimate attributable healthcare costs.

Results: From the National Statistical Office survey, an estimated 46-48% of Thai population had low physical activity, ~20% reported high processed meat intake, and 74-81% consumed at least one serving of sugar-sweetened beverages per day. In 2024, inpatient costs attributable to low physical activity across coronary heart disease, stroke, type-2 diabetes, hypertension, breast and colon cancer, renal cancer, dementia, and depression were \$22.7 million (95%UI 12.0-32.5), accounting for 7.2% of Universal Coverage Scheme spending on these conditions. High processed meat intake contributed \$11.6 million (95%UI 6.28-17.3), or 3.6% of relevant expenditures, via type-2 diabetes, chronic kidney disease, colorectal cancer, ischemic heart disease, and stroke. Daily sugar-sweetened beverage consumption accounted for \$26.2 million (95%UI 12.3-38.7), representing 15.4% of costs for type-2 diabetes, ischemic heart disease, stroke, gout, and prostate cancer. Attributable costs showed clear variation across provinces, highlighting geographic inequities and opportunities for more targeted, context-specific Non-Communicable Diseases prevention policies.

Conclusion: Physical inactivity and unhealthy diets generate a measurable and preventable inpatient cost burden within Thailand's Universal Coverage Scheme, with impacts unevenly distributed across population groups and provinces. By integrating national exposure data, meta-analytic effect estimates, and routine claims data, this analysis provides policy-ready estimates to guide targeted NCD prevention, fiscal and regulatory action, and more efficient resource allocation. Future work should extend to outpatient care and other financing schemes.

SO.3.26-10

Exploring Physical Activity Context of Rural Primary Care Clinic Communities in the PA Moves Trial

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Approximately 20% of the U.S. population resides in rural communities. Although increased physical activity (PA) is associated with reduced risk of multiple chronic diseases, including cancer, rural populations consistently report lower levels of PA compared to their urban counterparts. PA Moves is a NIH-supported cluster randomized controlled trial designed to address health disparities for patients of rural primary care providers (PCP) by promoting PA as a strategy to reduce cancer risk. Given the importance of environment, policy, and programming contexts for PA behavior, PCP clinic communities' PA opportunities and supports were assessed and will be described during this presentation.

Methods: The Rural Active Living Assessment (RALA) tools were used to assess PA contextual factors of the nine PA Moves intervention clinic communities; all located in rural Pennsylvania. Google Maps was used to identify town centers, PA resources and amenities (e.g., parks, trails, courts), and street segments. RALA townwide and segment assessments were completed using ground-truthing by trained research staff. Structured phone interviews were conducted with community leaders to describe PA policies, programs, and opportunities.

Results: Clinic communities represent rural variability, ranging in rural designation (RUCA-2020: 4.0-10.0) and tract level population density (48.5-2,580 people/tract). Street segments were assessed for town center, thoroughfare, school, and residential areas for each community (average=15/community). PA resources and amenities within 5-miles of town centers were identified and assessed, including parks, trails, courts/fields, community centers, other recreational amenities (e.g., hockey rinks, swimming pools), private fitness facilities, and school amenities. PA resources were present in all nine clinic communities, although the quantity and quality of available PA resources varied. PA supports and opportunities for clinic communities will be described during this presentation using RALA scores.

Conclusion: While PA resource context varies by rurality, with more rural areas often having fewer resources, high quality PA resources are available within 5-miles of these clinic communities. Future research should combine ground-truthed assessments of PA context and community members' perceptions to better understand accessibility. Health promotion efforts should increase awareness and utilization of existing high quality community resources,

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while advocating for maintenance of existing resources and solutions for PA resource deserts.

SO.3.26-11

Heat and Air Pollution Exposures during the School Day: Temporal and Seasonal Patterns across 19 Schools in Hot, Semi-arid Climates

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental Room 1, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Children are particularly vulnerable to environmental stressors like heat and air pollution due to their developmental stage, higher ventilation rates, frequent outdoor activity, and often limited adaptive capacity. Particulate matter (PM), especially PM_{2.5}, poses significant health concerns, yet few studies have examined exposure to heat and PM during school hours. We aimed to (1) characterize temporal and seasonal patterns of heat and PM across K-12 schools in Southern Arizona, USA (hot desert, semi-arid climates), and (2) examine differences based on sociodemographic factors.

Methods: We conducted a longitudinal observational study using data from 19 schools (2023-2025). Temperature, PM_{2.5}, and PM₁₀ were measured via rooftop QUANTAQ (MODULAIR) sensors. Hourly data were aggregated into school-relevant intervals: Early Morning (5-7AM), Morning (7-10AM), Mid-Morning (10AM-12PM), Afternoon (12-3PM), Mid-Afternoon (3-5PM), Evening (5-7PM), and Overnight (7PM-5AM). Seasons were defined meteorologically, and proportions of hourly observations above thresholds were calculated relative to >32.2°C for heat, PM_{2.5} >15µg/m³, and PM₁₀ >150µg/m³. Sociodemographic factors included school-level income (binary), asthma prevalence, household income, diesel PM exposure, toxic releases to air, and traffic proximity. Mean above-threshold proportions from 7AM-5PM were compared across sociodemographic factors using *t*-tests (binary) or ANOVAs (categorical).

Results: On average across schools, the above-threshold proportion of observations for PM₁₀ were highest in the morning and mid-morning periods (~1-2%), especially in fall and winter. PM_{2.5} above-threshold proportions were generally low, though winter mornings reached ~4-10%. Extreme heat was most pronounced in summer, beginning mid-morning and persisting through afternoon, with up to 98% of average hourly observations >32.2°C; above-threshold proportions were moderate in spring (~50% mid-afternoon) and minimal in fall and winter. Lower-income schools experienced higher mean above-threshold proportions for PM_{2.5} compared to more affluent schools (3.1±3.7% vs. 1.2±1.0%; *p*=0.002). No significant differences were observed for PM₁₀ or heat proportions, and other sociodemographic factors were not consistently associated with the proportion of observations above thresholds.

Conclusion: Generally, mornings and early afternoons represent the highest-risk periods for PM and heat exposure. Greater PM_{2.5} exposures in lower-income schools suggest environmental disparities. Understanding these patterns can guide safe outdoor activity and interventions to mitigate exposure risks while keeping children safe during play.

SO.3.26-12

Improving Walkability in Rural Australian Towns: Citizen Scientists Identify Investment in Pedestrian Infrastructure as Key to Enhancing Safety and Connectivity

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental
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Purpose: There is strong evidence that demonstrates that the physical environment can hinder or support walking. However, research has been urban-oriented, with little attention paid to rural and regional areas, where residents are at high risk for chronic disease and inactivity. This study aimed to identify built and physical environmental and spatial characteristics of small rural towns that influence walkability to identify community priorities for improving walkability.

Methods: This study used a mixed methods approach combining citizen science and spatial assessments of walkability for 92 rural Australian towns in the state of Tasmania with populations less than 6,000. Towns were ranked by geospatially assessed walkability scores and citizen scientists completed walkability audits in each of ten selected towns. Once audits were completed, a community workshop was held to identify priorities for action. Audit data were compiled and analysed descriptively; workshop data and open-ended responses were analysed thematically.

Results: Towns were grouped into low (N = 4), medium (N = 3) and high geospatially assessed walkability (N = 3). A total of 87 citizen scientists across 10 towns participated in the project. Most towns (n=8) had at least 10 of a possible 12 recreational amenities. There was no obvious relationship between geospatially assessed walkability and the number or quality of amenities. Two major attributes were identified using audit and workshop data that negatively impacted actual and perceived walkability: traffic safety and connectivity. These concerns were partly attributable to limited and poorly maintained pedestrian infrastructure. This was reflected in strategies identified by citizen scientists to improve walkability such as lighting, signage, seating, maintenance of existing footpaths and trails, and the creation of new footpaths.

Conclusion: While geospatial data enabled macro-assessment of the built environment it was the micro-scale features that impacted walkability in these rural towns. Maintenance of existing infrastructure and investment in new pedestrian infrastructure is needed to address many of the traffic safety concerns and connectivity challenges in these rural towns. Citizen scientists had a range of practical solutions to strengthen pedestrian infrastructure that would enhance walkability, demonstrating the value of citizen-led approaches to inform planning and rural health promotion.

SO.3.26-13

Prospective Associations of Objective Neighborhood Environment with Long-term Changes in Physical Activity among Children, Adolescents, Adults, and Older Adults

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SO.3.26 Policies and environments: Shaping Healthy Choices: Nutrition, Physical Activity, and Health Environmental
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Purpose: The health benefits of physical activity (PA) in all age groups are well established. Cross-sectional studies show positive associations between macro-scale “activity-supportive” neighborhood environmental features (i.e., ‘walkability’, ‘playability’, transit accessibility) and PA. Although evidence from prospective studies supports cross-sectional findings, critical limitations exist. Many prospective studies used short follow-up periods focusing on single age groups, precluding examination of longer-term impacts of neighborhood environments and generalizability across age groups. The present study examines how objective “activity-supportive” neighborhood environmental features are associated with long-term (5.1- to 15-year) changes in accelerometer-measured moderate-to-vigorous PA (MVPA) and self-reported transport-PA across four age groups. Our hypothesis is that higher objective “activity-supportiveness” of neighborhood environment is associated with less decline in total MVPA and transport-PA across all age groups.

Methods: This secondary analysis leverages data from four age-group-specific studies (NIK (children), TEAN (adolescents), NQLS (adults), and SNQLS (seniors) conducted in the San Diego, Seattle, and Baltimore regions of the US. A 5th study (SAFE) provided long-term follow-up assessments by re-recruiting 1067 participants (NIK=262, TEAN=163, NQLS=430, SNQLS=212). All studies, except NIK, used a 2 (high/low walkability) x 2 (high/low income)

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sampling design to balance variability in built environments and neighborhood income. Participants wore ActiGraph accelerometers for seven consecutive days to measure MVPA. Transport-PA was self-reported. GIS measures (1-km buffer around participants' residential address) included: 'walkability index' calculated as area-normalized z-scores of four objective environmental features (residential density, land use mix, street connectivity, and retail floor area ratio), counts of parks, and transit stop density (stops/km²). Longitudinal structural equation path models (SEMs) adjusting for covariates (age, sex, education, race/ethnicity, mover status, etc.) are being used to examine the prospective associations of objective neighborhood "activity-supportiveness" (exposures) at baseline with 5-15 year changes in MVPA and transport-PA. Moderating effects of age group on associations of exposures with change in MVPA and transport-PA are being tested using a multigroup SEM framework.

Results: We are finalizing data analysis and will have all study results by January/February 2026.

Conclusion: The findings will provide evidence crucial for understanding how objective "activity-supportive" neighborhood environment features may explain long-term changes in PA at different points across the lifespan.

SO.3.27-01

Understanding Adult's Experiences and Perceptions of How to Maintain Physical Activity: A Systematic Review and Qualitative Synthesis Using Thematic Analysis

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Most research focuses on initiating physical activity. However, helping and encouraging people to maintain this physical activity in the long-term (i.e., physical activity maintenance) is equally as important to sustain improvement in health. There are very few intervention studies that have tested physical activity maintenance interventions. Thus the aim of this research was to synthesise data about qualitative findings to identify factors that could be targeted in future interventions.

Methods: A systematic review and qualitative synthesis using thematic analysis was conducted. Four databases (Medline, SPORT Discus, APA, and Web of Science) were systematically searched for studies published from inception to February 2023 that included qualitative data about people's experiences of maintaining physical activity. Qualitative studies with adult participants (≥18 years) that reported data about people's experience of maintaining physical activity were included. Individual quotes were taken from the data and thematically analysed using Nvivo.

Results: A total of 9,337 abstracts were screened and 68 studies from 14 countries were included. Six main themes were identified: 1. Influence of others (e.g., four forms of social support, accountability) 2. Contextual and Environmental influences (e.g., cost and access of physical activity, weather) 3. Health related influences (e.g., reflexivity about how physical activity improves health conditions, weight control) 4. Making it work (e.g., flexibility, prioritising exercise), 5. Habits and 6. Psychological processes (e.g., enjoyment, identifying as a physically active person).

Conclusion: Our findings suggest that some of the common variables reported for physical activity initiation continue to be important for maintenance. These include social support, particularly in the form of companionship, and activities that are enjoyable to people. However, to promote maintenance, interventions may need to focus on unique factors such as reflexivity of the health benefits, flexibility, prioritisation and helping people identify as a physically active person. When people recognise the multiple benefits to their health that physical activity offers, they are motivated to continue to experience these and consequently strive to maintain a physically active lifestyle. These components should be included and tested in interventions.

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SO.3.27-02

Using Ambulatory Measures to Identify Modifiable Predictors of Cognition in Systemic Lupus Erythematosus

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease characterized by fatigue, pain, sleep disturbance, and depressed mood, which can affect cognitive function. However, it remains unclear which symptoms have the greatest impact on cognitive function. To address this gap, we utilized ecological momentary assessments (EMA) to capture real-time data on somatic (fatigue, pain), mood (depression) symptoms, sleep (quality and duration), and cognitive function. Our goal was to identify modifiable symptoms that predict same-day changes in cognitive function.

Methods: Participants with SLE attended a lab visit for self-report measures, cognitive testing, and performance-based physical functioning measures. A two-week home monitoring period followed, where participants were given a study-specific smartphone (with a data collection app) for collection of ambulatory data. Participants reported sleep duration and sleep quality each morning and completed EMA measures of fatigue, pain intensity, depressed mood, perceived and objective cognitive function at 4 daily intervals (wake, midday, afternoon/evening, bedtime) via smartphone app. Multilevel random-effects models examined within-person associations between symptoms/sleep and cognitive function, controlling for demographic and between-person effects of the same time-varying variable.

Results: Seventeen women diagnosed with SLE (mean age: 49.5±7.2 years; 7 Black/10 White; disease duration: 15.3±9.1 years; Systemic Lupus Activity Measure: 16.4±8.5; BMI: 31.5±7.1 kg/m²) were included. At the within-person level, days of higher than usual fatigue ($B = 0.35$, $p < 0.001$), pain ($B = 0.30$, $p < 0.001$), low mood ($B = 0.15$, $p < 0.001$), and stress ($B = 0.15$, $p < 0.001$) were significantly associated with higher same-day perceived cognitive dysfunction. In addition, nights of better sleep duration or quality were followed by days of better perceived cognitive function. No significant associations were observed between any symptoms and objective cognitive performance.

Conclusion: Daily fluctuations in fatigue, pain, mood, stress and sleep were significantly associated with perceived cognitive dysfunction. Of SLE symptoms assessed, pain and fatigue demonstrated minimal to moderate clinically important effects on perceived cognitive function. However, these symptoms did not relate to objective cognitive performance. These findings highlight the importance of considering daily symptom experiences when assessing perceived cognitive function in individuals with SLE. Given the small sample size, results should be interpreted with caution and replicated in larger cohorts.

SO.3.27-03

Motivation as an Engine for Enjoyment and Physical Activity in Personal Training

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

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Purpose: Self-Determination Theory (SDT) suggests that autonomous motivation enhances psychological (e.g., enjoyment) and behavioural (e.g., physical activity) outcomes. This study assessed motivation's explanatory power, independent of coach style, using BREQ-4, EMI-2, PACES, and self-reported weekly PA in personal training.

Methods: Adults receiving personal training ($N = 125$) completed the BREQ-4, EMI-2, PACES, and PA measures through an online survey. The sample consisted of 58% women; age mean = 46 years, $SD = 14.03$. We calculated scale scores and reliability (Cronbach's α , McDonald's ω), conducted correlation analyses with FDR correction (covariates: age, sex), identified motivational profiles via latent profile analysis (Gaussian mixture, k determined by BIC), and modelled physical activity using HC3-robust OLS and Elastic-Net with nested cross-validation. Additionally, a regression chain consistent with SDT was estimated (EMI-2 and RAI predicting PACES and PA) without testing indirect effects.

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Results: Most BREQ-4 and EMI-2 subscales demonstrated acceptable internal consistency. Higher RAI correlated with greater enjoyment and increased PA frequency and duration, while appearance/pressure motives were associated with lower RAI. Multivariable models showed RAI and PACES as primary predictors of PA, with EMI-2 motives (e.g., enjoyment, affiliation) providing additional insight. Elastic-Net confirmed RAI and PACES as key predictors. Motivational profiles differed in enjoyment and PA, with more autonomous profiles reporting higher levels. RAI strongly predicted PACES, which in turn predicted PA, supporting the role of autonomous regulation in enhancing enjoyment and activity.

Conclusion: Motivation significantly predicted psychological and behavioral outcomes in personal training, with autonomous regulation (RAI) playing a key role by enhancing enjoyment and physical activity (PA). EMI-2 motives influenced this relationship upstream. Interventions should focus on fostering self-determined regulation and enjoyment to promote sustainable PA. Future studies should include device-based PA measurements and longitudinal designs to improve causal inference.

SO.3.27-04

Social Norms and Warning Label Responses for Sugary Drinks in Mexican and Mexican American Adults: Data from the International Food Policy Study 2023

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Social norms (SN) are recognized determinants of sugar-sweetened beverage (SSB) consumption. Drinking behaviors often align with norms within culturally relevant groups, yet little is known about how SN surrounding SSBs in social gatherings relate to SSB intake and responses to Mexico's front-of-package warning labels (WL). This study aimed to (1) identify sociodemographic and behavioral factors associated with SN regarding serving SSBs in social events, and (2) examine whether such norms relate to WL-driven changes in cola purchases.

Methods: We analyzed data from the 2023 International Food Policy Study, an online self-administered survey including 2,596 Mexican Americans and 4,651 Mexicans (mean age: 39.6 years; 51.1% female). Analyses incorporated sampling weights and accounted for survey design. Three logistic models assessed: (A) perceived importance of including SSBs for oneself in social events; (B) perceived importance for "people like you" (Mexicans or Mexican Americans); and (C) WL-driven reductions in cola purchases. Covariates included sex, age, country, ethnicity, education, perceived income adequacy (ability to meet household expenses), nutritional knowledge, SSB intake in the prior week, and household food security.

Results: Model A: Income adequacy predicted perceiving SSB inclusion as important ("easy": OR=2.15; "very easy": OR=2.91; both $p<0.001$). Reporting any SSB intake increased odds (OR=1.90, $p=0.025$), and higher weekly volume was positively associated ($p<0.001$). Greater nutritional knowledge was significant (OR=2.29, $p<0.001$).

Model B: Being male (OR=1.23, $p=0.019$), residing in Mexico (OR=2.31, $p<0.001$), and higher nutritional knowledge (OR=2.15, $p<0.001$) predicted perceiving that SSBs are important for others.

Model C: WL-driven reductions in cola purchases were more likely among participants with weaker personal SN favoring SSBs (OR=0.57, $p<0.001$), Mexican residents (OR=3.34, $p<0.001$), women (OR=1.35, $p=0.003$), minorities (OR=1.72, $p<0.001$), higher nutritional knowledge (OR=1.75, $p<0.001$), and very low food security (OR=1.33, $p=0.021$). Higher weekly SSB volume reduced odds of reporting WL impact ($p<0.001$).

Conclusion: SN surrounding SSB inclusion in social gatherings influences WL responsiveness. Weaker personal norms were associated with greater WL-driven reductions in cola purchases. WLs appeared most effective among women, Mexicans, minorities, and higher nutritional knowledge, and least effective among high-volume SSB consumers. Integrating SN into public health strategies may strengthen WL impact and support SSB-reduction efforts.

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SO.3.27-05

Feasibility and Acceptability of MONITOR: A Remote Monitoring Of a Nutrition Intervention To Optimize Treatment Response in Pancreatic Cancer Patients

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Pancreatic cancer (PC) patients who maintain weight before/during treatment have statistically significantly improved survival. However, weight maintenance is challenging as more than 80% of PC patients suffer from significant weight loss coupled with severe nutrition impact symptoms (NIS) impacting the ability and desire to eat (e.g., pain, anorexia, early satiety, nausea). Despite significant weight concerns, limited interventions address nutrition coaching to enhance dietary quality and mitigate malnutrition. The aim of this pilot trial was to examine feasibility, acceptability, usability, and preliminary efficacy of a remote nutrition monitoring intervention in borderline resectable and locally advanced PC patients.

Methods: PC patients scheduled to receive neoadjuvant chemotherapy were randomized 1:1 to 1) MONITOR arm: a biweekly, remote-based personalized dietary coaching intervention focused on the dietary inflammatory index (DII) during the initial 12-weeks of chemotherapy or 2) standard usual care. *A priori* benchmarks were established for feasibility with rates of recruitment, retention, timing and acceptability with patient engagement via session attendance, adherence, and patient satisfaction with the intervention ($\geq 60\%$ recruitment; $\geq 70\%$ retention and timing; participants attendance ≥ 4 weeks of sessions (out of 6); $\geq 70\%$ report weekly SMART goal adherence; ≥ 3 for participant satisfaction). Preliminary efficacy was explored with pre- to post- intervention changes in dietary quality, body composition, and quality of life.

Results: Participants (N=35) were primarily white (97%), male (57%), married (74%), and college graduates (62%). For feasibility, 52% of eligible patients were recruited, 83% completed the post-intervention survey for the MONITOR arm, and 94% liked the timing of the intervention. For acceptability, average biweekly dietary coaching attendance was 73%, 77% adhered to weekly SMART goals, and all participants rated the intervention as ≥ 4 for participant satisfaction. There was a statistically significant decrease in the DII score, representing a more anti-inflammatory dietary pattern, (estimate=-1.31, $p=0.0025$) at 12-weeks compared to baseline for the MONITOR arm. No significant differences were noted for body composition or quality of life.

Conclusion: This intervention was feasible and acceptable. Preliminary efficacy data showed participants in the MONITOR arm significantly improved their overall diet quality. Future studies should examine intervention efficacy in a larger, randomized controlled trial.

SO.3.27-07

Establishing Reliability and Validity for the Individual Exercise Empowerment Scale

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Exercise empowerment is the perceived confidence and control over exercise choices that lead to sustained exercise and a sense of fulfillment. It can be experienced individually and collectively, and plays a role in exercise maintenance. This study evaluated the reliability and validity of the newly developed Individual Exercise Empowerment Scale (IEES).

Methods: We followed a five-phase scale development process: 1) conceptualization, 2) expert review, 3) cognitive interviews, 4) survey administration, and 5) statistical analysis. After developing an initial item pool, experts ($n=6$)

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provided feedback on face validity. Four cognitive interviews ensured questions were interpreted as intended. In October 2025, an online survey was conducted among a convenience sample of U.S. adults using Prolific to evaluate the scale's reliability and validity. The sample was randomly halved into derivation and holdout samples for exploratory (EFA) and confirmatory factor analysis (CFA). Internal consistency reliability was measured using Cronbach's alpha; test-retest reliability was evaluated using the intraclass correlation (ICC). Spearman correlations tested convergent validity with the Exercise Self-Efficacy Scale (ESES) and the Physical Activity and Social Support Scale (PASSS), and divergent validity was tested with the Family Resiliency Spirituality Subscale (FRAS).

Results: Eight hundred ten participants completed the survey (52% female, 93% response rate). The initial item pool consisted of 31 items and was reduced to 23 due to the presence of highly correlated items. EFA revealed a theoretically meaningful four-factor solution: 1) overcoming barriers, 2) personal fulfilment, 3) external networks, and 4) exercise maintenance. CFA showed marginal structural validity (RMSEA=0.092; 95% CI=[0.086, 0.098]; CFI=0.847; TLI=0.827). Internal consistency was supported by high Cronbach's alpha coefficients for factors 1-4 (0.84, 0.81, 0.86, and 0.91), and for the full-scale (0.92). ICC was good (0.89; 95% CI=[0.87, 0.91]). Correlation analysis supported convergent validity: IEES and ESS, $r_s(808)=0.66$, $p<0.001$; IEES and PASSS, $r_s(798)=0.58$, $p<0.001$. Correlation analysis also confirmed divergent validity: IEES and FRAS, $r_s(808)=0.26$, $p<0.001$.

Conclusion: These findings suggest that the IEES is a reliable and valid tool for assessing exercise empowerment, aligning with empowerment theory. Future research may explore its predictive validity and applicability across diverse populations and settings.

SO.3.27-08

Barriers and Facilitators to Reducing Sedentary Behavior among Prostate Cancer Survivors

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Prostate cancer is the most common cancer in men, resulting in a growing population of survivors who often experience treatment-related side effects. Sedentary behavior (SED) is associated with adverse health outcomes, including fatigue, depression, and anxiety in prostate cancer survivors (PCS). Despite this, few interventions have directly targeted SED, and factors influencing SED reduction remain poorly understood. **The purpose of this study is to explore barriers and facilitators in reducing SED in PCS.**

Methods: Using a Grounded Theory-informed qualitative design, semi-structured interviews were conducted with 19 PCS (Mage = 72.2 ± 7.1 years; 92.6 ± 64.0 months since diagnosis). Participants were recruited through an existing study database, community organizations, and clinical referrals. Inclusion criteria required participants to be ≥18 years old, diagnosed with localized or asymptomatic metastatic prostate cancer, not receiving active radiation or chemotherapy, fluent in English, and equipped with webcam access. Interviews were conducted virtually between November 2024 and February 2025. Participants were asked to define SED, discuss perceived barriers and challenges to reducing SED, and reflect on personal and external motivators, as well as the role of social support in influencing their SED levels. Transcripts were analyzed inductively through thematic analysis.

Results: Three overarching domains emerged: (1) awareness, personal meaning, and attitudes toward SED; (2) barriers and facilitators shaping daily sitting patterns; and (3) motivation and reinforcement through social networks. Despite broad awareness of SED-related health risks, many participants struggled to integrate behavior change into their daily life. Barriers reported include fatigue, mobility limitations, chronic conditions (e.g., osteoporosis, plantar fasciitis), and concerns tied to aging or changing testosterone and prostate-specific antigen (PSA) levels. Additionally, engagement with peer-based activity groups and social accountability emerged as strong facilitators for maintaining movement and reducing sitting time.

Conclusion: Findings highlight the ongoing challenge of transforming awareness into sustainable behavioral change. Interventions targeting SED reduction in PCS should address persistent physical and motivational barriers while leveraging social connection and peer support to strengthen adherence and long-term impact.

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SO.3.27-10

Bridging Socioeconomic Gaps in Healthy Food Choices through Digital Nudges: The Moderating Role of Socioeconomic Position in Nudge Effectiveness

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Individuals with lower socioeconomic position (SEP) face higher risks of premature mortality, obesity, and chronic diseases, partly due to poorer diets and lower adherence to nutritional guidelines. As food purchasing increasingly moves online, digital retail environments offer new opportunities to reduce these health disparities. One promising approach is the use of digital nudges: design features that subtly guide consumers toward healthier choices. Such nudges may be especially effective for lower SEP individuals by simplifying decisions and reducing cognitive demands when health literacy is limited. Although evidence generally supports positive or mixed effects of nudges in lower SEP groups, it remains unclear whether different nudge types vary in effectiveness across socioeconomic levels. Understanding these differences is essential for leveraging digital nudges to promote healthier food choices and reduce diet-related health inequalities.

Methods: This study examined the effectiveness of three nudge types and their interaction with SEP in a one-factor experiment using data from the Dutch LISS Panel (N = 1243). Participants, stratified by education, were randomly assigned to one of four conditions: a convenience nudge (behavioral), hedonic enhancement nudge (affective), evaluative labeling nudge (cognitive), or a no-nudge control. Each respondent viewed eight sweet snack products, with the three healthiest accompanied by the assigned nudge. The dependent variable was whether a healthy or unhealthy product was selected. SEP indicators (income, subjective income, subjective social status) served as moderators.

Results: Contrary to expectations, nudges did not increase the likelihood of choosing healthy products: only 33% of selections were healthy, below the 37.5% random-choice benchmark. A potential backfire effect emerged for the hedonic enhancement nudge, which increased unhealthy selections. Moderation analyses revealed significant interactions between education and nudge type. Convenience and evaluative labeling nudges promoted healthier choices among participants with lower education, whereas effects reversed for higher educated individuals.

Conclusion: These findings suggest that digital nudges are not equally effective across SEP groups. In particular, convenience and evaluative nudges may better support healthier food choices among lower-educated individuals than among higher-educated ones, underscoring the need for a more nuanced understanding of how socioeconomic indicators shape the cognitive and emotional processes underlying digital food choice behavior.

SO.3.27-11

Losing the Active Way: Two Decades of Change in Czech Adolescents' School Travel Patterns

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Active school transport (AST) is a key contributor to adolescents' daily physical activity and a potential lever for reducing obesity and promoting sustainable mobility. However, many high-income countries have reported declining AST participation over the past two decades. This study aimed to analyze long-term trends (2006–2022) in AST among Czech adolescents and to identify sociodemographic factors influencing participation, focusing on school travel distance, family affluence, age, and gender. This analysis provides the first nationally representative insight into whether previous declines in AST have stabilized or continued, offering important implications for public health and transport policy.

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Methods: Data were obtained from five nationally representative waves (2006, 2010, 2014, 2018, 2022) of the Czech Health Behaviour in School-aged Children (HBSC) study. The sample included **50,713 adolescents** aged 11, 13, and 15 years (50.1% boys). AST was assessed using self-reports of the main mode of travel to and from school, categorized as active (walking or cycling) versus passive. Independent variables included survey year, gender, age, Family Affluence Scale (FAS), and travel time to school. Weighted logistic regression analyses were conducted to estimate odds ratios (ORs) for AST participation while adjusting for all covariates.

Results: The prevalence of AST to school decreased from **71.7% in 2006** to **54.9% in 2022**, with a similar decline for travel from school (74.2% → 62.0%). The largest drop occurred between 2006 and 2010, after which rates stabilized. Boys consistently reported slightly higher AST than girls ($OR = 0.91-0.93, p < 0.001$). Adolescents from high-affluence families were significantly less likely to use AST than their low-affluence peers ($OR = 0.41-0.50, p < 0.001$). Travel time was the strongest determinant—students commuting more than 30 minutes had over **90% lower odds** of using AST ($OR = 0.07-0.09, p < 0.001$).

Conclusion: Between 2006 and 2022, active commuting to school among Czech adolescents declined markedly and has not recovered in recent years. Longer commuting distances and higher family affluence strongly predicted lower AST participation. These findings highlight the urgent need for **context-sensitive interventions**, including safe, walkable, and cycling-friendly urban environments, and school-based initiatives promoting sustainable and health-enhancing mobility.

SO.3.27-13

Does Civic Engagement Added to a Community Walking Program Confer More Benefit? A Comparative Effectiveness Trial in Rural Oregon

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SO.3.27 Motivation and behavior change: Determinants of Physical Activity, Sedentary Behavior, and Healthy Lifestyle Behaviors in Young Adults

Room 2, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: There is a major gap in achieving reach and sustainable impact in physical activity to reduce rural residents' risk of physical inactivity-related diseases. Promoting physical activity with multilevel programs is considered more effective than single-level programs. We conducted a comparative effectiveness trial of two multilevel programs, Step It Up! (SIU), a group walking program and SIU plus Change Club (CC), a civic engagement program aimed at enhancing walkability via community resident involvement, on the outcomes of physical activity, fitness, and collective efficacy.

Methods: Eighteen rural Oregon libraries were randomized to implement either SIU (60 minutes) or SIU plus CC (90 minutes) weekly for two years (Spring 2023-2025). Data were collected at baseline, 6, 12 and 24 months. Accelerometers worn by participants for a week measured physical activity (categorized into total physical activity and moderate-vigorous physical activity) and the 6-minute walk test measured fitness. Participants completed surveys on demographic, health and psychosocial variables (e.g., collective efficacy); attendance was recorded. Primary outcome analyses will be conducted with a linear mixed-effects modeling approach implemented in the lmer package in R. This model will account for nesting within- (i.e., longitudinal assessments) and between-person (i.e., intervention group, and site) with fixed effects for time, group, and the group x time interaction. We will evaluate primary hypothesis tests at traditional significance levels ($\alpha = .05$) and use modern methods to control for false discovery rate for post hoc analyses. Model diagnostics will be used to confirm statistical assumptions have been met. In the case of violations, more robust alternative models will be employed (e.g., robust mixed-effects models) as appropriate.

Results: Libraries enrolled 330 participants (SIU=164, SIU+CC=166; 86% female, 92% white, 60% aged 65 or older) and 260 were actively engaged at 2 years (SIU=135, SIU+CC=124; 79% retention rate). Final outcomes analyses will be conducted in December 2025 and final results will be presented at the ISBNPA meeting.

Conclusion: Rural libraries were able to successfully implement the programs for two years with good retention. Final results will provide the relative effectiveness of a walking program with or without civic engagement among rural residents, which can inform future dissemination efforts.

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SO.3.28-01

Physical Activity Levels of Early Childhood Educators: A Systematic Review and Meta-analysis

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices Room 3, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: While early childhood educators (ECEs) are instrumental in promoting healthy active lifestyles among young children, little is known about their physical activity (PA) levels. Understanding ECEs' PA behaviors is essential, as their personal activity patterns may influence how they model and encourage movement within childcare settings. The purpose of this systematic review and meta-analysis was to synthesize current evidence on ECEs' PA levels. The three primary aims were to examine: (1) the amount of time ECEs spend in moderate-to-vigorous physical activity (MVPA) each week; (2) the proportion of ECEs who meet the World Health Organization's (WHO) 24-Hour Movement Guidelines for adults; and (3) the associations between ECEs' and children's PA levels.

Methods: Searches were conducted across seven databases using terms related to PA, education, and early childhood. Studies were eligible if they reported quantitative data on at least one of the three objectives. Pooled estimates for MVPA and guideline adherence were generated using meta-analyses, and relationships between ECEs' and children's PA were synthesized narratively. Of the 21 studies included ($n = 5,291$ participants), 18 reported on MVPA (11 included in the meta-analysis), 11 reported WHO guideline adherence (11 included in the meta-analysis), and 6 examined ECE and child PA associations.

Results: ECEs accumulated an average of 223.6 minutes of MVPA per week (95% CI: 83.6–363.5), although there was substantial heterogeneity between studies ($I^2 = 97.6\%$). Just over half of participants (52.6%; 95% CI: 35.9%–68.8%; $I^2 = 97.3\%$) met the WHO 24-Hour Movement Guidelines, with proportions ranging from 21% to over 90%. Modest, but generally positive, associations were observed between educators' and children's PA, suggesting that more active educators may help foster greater movement among children in their care.

Conclusion: Overall, many ECEs were found to have achieved recommended levels of PA, underscoring their potential as active role models within childcare environments. Strengthening initiatives that support ECEs' movement behaviors may positively influence not only their own health and well-being, but also children's PA patterns. Future work should prioritize consistent measurement approaches, transparent data reporting, and intervention studies that leverage ECEs' unique position to promote movement-rich childcare settings.

SO.3.28-02

Associations between Cardiorespiratory Fitness and Muscular Strength with Arterial Stiffness in Children and Adolescents: A Systematic Review and Meta-analysis

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices Room 3, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: To synthesize and meta-analyse associations between cardiorespiratory fitness and muscular strength with arterial stiffness in children and adolescents aged 6–18 years.

Methods: A systematic review with meta-analysis was conducted following PRISMA guidelines¹ and prospectively registered in PROSPERO (CRD420251020370). MEDLINE, Web of Science, and Scopus were searched from inception to

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February 2025. Eligible studies included cross-sectional, longitudinal, and intervention designs reporting correlations between physical fitness (cardiorespiratory fitness or muscular strength) and arterial stiffness (assessed via pulse wave velocity [PWV] and augmentation index [AIx]) in participants aged 6–18 years. Search results were imported into Rayyan to remove duplicates and screen studies in two stages (titles/abstracts and full texts) by two independent reviewers, with discrepancies resolved by consensus or a third reviewer. Data on participant characteristics, fitness and arterial stiffness measures, and correlational estimates were extracted. Study quality was assessed using Joanna Briggs Institute checklists. Random-effects meta-analyses estimated pooled correlation coefficients (r), with heterogeneity assessed as I^2 . Publication bias was evaluated visually by funnel plots and formally by Egger's and trim-and-fill tests. Subgroup analyses considered age, sex, and arterial stiffness outcomes.

Results: Twenty-four studies ($n=12,711$) were included, with 19 unique studies ([CC1] $n=2,615$) contributing to meta-analyses. Cardiorespiratory fitness showed a small, non-significant negative correlation with arterial stiffness in cross-sectional analyses (pooled $r = -0.11$; 95% CI: $-0.22, 0.01$; $n = 2,615$; $I^2 = 85.6\%$) and a near-null association in longitudinal studies (pooled $r = 0.04$; 95% CI: $-0.02, 0.10$; $n = 971$; $I^2 = 0\%$). Muscular strength was assessed in only three studies, yielding a small non-significant negative correlation (pooled $r = -0.11$; 95% CI: $-0.25, 0.03$; $n = 778$; $I^2 = 52.6\%$). Subgroup analyses did not reveal significant differences by age, sex, or outcome type. No meaningful publication bias was detected.

Conclusion: Cardiorespiratory fitness and muscular strength were not significantly associated with arterial stiffness (PWV or AIx) in children and adolescents. Evidence remains limited, heterogeneous, and primarily cross-sectional. Well-designed longitudinal and intervention studies using standardized arterial stiffness and fitness test protocols are needed to clarify whether physical fitness influences early vascular health in youth.

SO.3.28-03

Preschool Teacher Education and Child-teacher Ratio in Relation to Children's Health: A Large-scale Study of Preschoolers in Stockholm, Sweden

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
Room 3, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: While many studies have examined how the physical environment influences preschool children's physical activity, less attention has been given to staff qualifications and child-teacher ratios. This study used population-based data from Stockholm preschools to examine how these factors relate to children's physical activity, inactivity, body mass index (BMI), and psychosocial functioning, to help inform future early childhood education policies.

Methods: This cross-sectional study combined data from two measurement occasions (spring 2020 and autumn 2021). Information on teacher education and child-teacher ratios was obtained from the Swedish National Agency for Education. Children's moderate-to-vigorous physical activity (MVPA) and inactivity were measured using accelerometers worn for one week. Psychosocial functioning was assessed using the Strengths and Difficulties Questionnaire (SDQ), and BMI was derived from measured height and weight. Mixed-effects linear and logistic regression models accounted for clustering within schools and adjusted for child age, sex, measurement occasion, and neighbourhood socioeconomic index. Models including teacher education additionally adjusted for child-teacher ratio, and vice versa.

Results: Analyses included 3,302 children for physical activity, 2,666 for SDQ, and 3,518 for BMI across 124 preschools representing all districts in Stockholm. On average, 31.8% of full-time teachers held a teaching degree, and the mean child-teacher ratio was 5.1 (SD 0.7). No strong associations were observed between teacher education levels or child-teacher ratios and children's MVPA, inactivity, SDQ, or BMI. Compared with the median, the 75th percentile of teacher education was associated with -0.22 minutes (95% CI: -0.84 to 0.40) and the 25th percentile with -0.04 minutes (95% CI: -0.77 to 0.69) daily MVPA. Similarly, increasing the child-teacher ratio from 5.0 to 5.5 children per teacher corresponded to -0.45 minutes (95% CI: -1.17 to 0.28) daily MVPA, with negligible differences in SDQ and BMI z-scores.

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Conclusion: In this large, population-based study of Stockholm preschoolers, no evidence was found that teacher qualification levels or child-teacher ratios were associated with children's physical activity, psychosocial functioning, or BMI. These findings suggest that factors beyond staffing characteristics may be more influential in shaping children's health and well-being in preschool settings.

SO.3.28-04

Accelerometer Measured Physical Activity in UK Early Childhood Education and Care Settings: A Cross-sectional Study

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
Room 3, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Low levels of physical activity (PA) in early childhood can impact on children's healthy development and increase the risk of a range of chronic conditions in later life. Accelerometer measured physical activity data within and outside of early childhood education and care (ECEC), together with demographic data, are needed to support policy changes and intervention development for the United Kingdom (UK).

Methods: Accelerometer data for 419 children aged 2-4 years (49.6% male) attending UK ECEC settings were analysed. Mixed-effects linear regression models were fitted to compare levels of PA between weekdays attending an ECEC, weekdays not attending an ECEC and weekend days. The proportion of children meeting international guidelines for physical activity and probability of children meeting these guidelines were analysed.

Results: TPA was significantly higher on ECEC weekdays than non-ECEC weekdays (mean difference (MD) -14.6 minutes (95% CI -20.8, -8.4), $p < 0.001$) and weekends (MD -11.5(-19.5, -3.5), $p = 0.005$). Girls had lower TPA on ECEC weekdays (adjusted MD -14.02 (-22.35, -7.48), $p < 0.001$) and activity for all children increased with months of age (adjusted MD 1.61 (1.11, 2.11), $p < 0.001$). Findings were similar for non-ECEC weekdays. Less than a quarter of children (23%) met the guideline of 180 minutes of total physical activity per day and 2.4% of children met the guidelines for 60 minutes of daily MVPA. Fewer girls achieved the recommended TPA (OR 0.53 (0.29, 0.97), $p = 0.038$) and guidelines were more likely to be met in older children (OR 1.12 (1.06, 1.17), $p < 0.001$).

Conclusion: Early years children were more active on days attending ECEC settings are were largely not meeting the recommended activity levels within ECEC or home environments. ECEC settings provide a unique environment that have potential to promote and encourage higher levels of PA and reduce inequalities in PA. The low proportion of children within our UK population sample who met the physical activity guidelines emphasises the importance of ongoing focus, investment and research in this area to improve PA in the early years, which will impact on health and wellbeing throughout the life course.

SO.3.28-05

1-2-3 MOVE!: A COM-B-Guided Co-creation Approach to Enhance Toddlers Motor Competence with ECEC Staff and Preventive Family Support Professionals

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: A recent study revealed a significant leftward shift in motor competence (MC) among Flemish toddlers, with only 3.8% performing above average or superior compared to 25.3% in the PDMS-2 reference values. As over 70% of Flemish toddlers attend Early Childhood Education and Care (ECEC) centers, these settings are crucial to support motor development. This study takes an innovative, co-creative approach by actively involving ECEC staff

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and preventive family support professionals in developing feasible and context-specific strategies to enhance MC. The first step involved administering a COM-B questionnaire (i.e., Capability, Opportunity, Motivation, Behaviour) to systematically identify factors affecting support for MC. Insights from this step will guide the design of contextually relevant strategies.

Methods: A newly developed questionnaire, grounded in the COM-B model (Michie et al., 2011) and the Theoretical Domains Framework (De Leo et al., 2021), was used to assess barriers and facilitators among ECEC staff (N=112) and preventive family support professionals (N=58). This approach systematically identifies behavioural determinants in early childhood settings.

Results: Capability, assessed through 15 expert-validated statements on essential MC knowledge, showed a mean score of 10.08/15, suggesting gaps in basic understanding of gross and fine motor skills as well as in developmental milestones. Social opportunities within organizations and from colleagues were generally satisfactory, though support from government and local agencies was perceived limited. Parents were often perceived as a key barrier, hindering efforts to support toddlers' MC. Physical opportunities, such as workspace, were adequate, yet participants felt insufficiently supported in acquiring and applying knowledge to promote MC. Motivation was relatively high, reflecting strong willingness to support MC. However, ECEC staff reported greater confidence in supporting gross motor skills than fine motor skills, and lowest confidence in supporting infant motor development. These differences were not observed among preventive family support professionals.

Conclusion: Findings highlight professional learning needs in supporting toddlers' MC and underscore the importance of engaging parents, ideally with support from local or governmental agencies. COM-B insights provide a foundation for the next co-creation phases to develop sustainable, context-specific strategies that strengthen capability, opportunity and motivation to foster rich movement opportunities in early childhood.

SO.3.28-06

Early Childhood Lifestyle Patterns and Risk of Overweight at 5 Years

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: An unhealthy diet, excessive screen time, low levels of physical activity and suboptimal sleep are known risk factors for childhood overweight. These behaviors tend to co-occur and combine into "lifestyle patterns" (LPs) that may exert synergistic effect on health. However, few studies have examined such LPs before preschool age, and none have incorporated parental feeding practices (breastfeeding and age at complementary feeding), leisure activities beyond screen time and sleep quality. We aimed to identify such LPs during the first two years of life and assess their associations with overweight at 5 years and age at adiposity rebound (AR).

Methods: Participants were children from the ELFE study, a French nationwide birth cohort launched in 2011. Postnatal factors were assessed through parental questionnaires, and anthropometric data were extracted from child health booklets. LPs were derived using principal component analysis of 18 items (n=13,121). Associations with overweight at 5 years (IOTF definition; n=8,388) and with age at AR (in days; n=7,845) were assessed using multivariable logistic and linear regression models, respectively.

Results: Three LPs were identified, explaining 32% of the total variance. The first was characterized by early introduction of complementary feeding and sweet beverages, and at 2 years, by high consumption of energy-dense and nutrient-poor foods, alongside high screen time. The second LP reflected high intake of fruits, vegetables, fish and dairy products (yogurts and *petits suisses*), along with frequent engagement in non-screen leisure activities. The third LP represented a mixed pattern, with longer breastfeeding duration, complementary feeding after 4 months, and, at 2 years, low dairy intake combined with short and poor-quality sleep. Higher scores on the first pattern were associated with increased risk of overweight at 5 years (OR [95% IC] = 1.09 [1.03; 1.16]) and an earlier age at AR (β = -10.79 [-17.88; -3.70]). No significant associations were observed for the other two patterns.

Conclusion: These results emphasize the critical role of the perinatal period in the development of early and

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interrelated lifestyle behaviors associated with overweight risk. They call for interventional studies to evaluate the effectiveness of integrated, early-life multibehavioral strategies to prevent childhood overweight.

SO.3.28-07

Individual- and Center-level Predictors of Early Childhood Educators' Active Play Practices

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: Background: Early childhood educators (ECEs) play a pivotal role in fostering young children's active play (AP) and fundamental movement skills (FMS). However, a range of individual and organizational factors may shape educators' capacity to provide developmentally rich AP opportunities. Understanding the relative influence of these factors is essential to inform strategies that promote daily AP in childcare settings.

Objective: To examine how individual-level factors (training, self-efficacy, and awareness of provincial standards and initiatives) and center-level characteristics (presence of schedules that include FMS and frequency of changing play installations) relate to educators' reported AP- and FMS-promoting practices.

Methods: A cross-sectional survey was completed by 207 ECEs (mean age=41 years; 96% female) from 59 licensed childcare centers across British Columbia. Participants reported on their training, self-efficacy, awareness of AP standards and initiatives, presence of FMS schedules, and frequency of environmental changes at the facility. Educators also self-reported their AP-related practices from the previous day, including modeling of AP, minutes spent outdoors, number of outdoor sessions, minutes of AP with children, and number of FMS facilitated. Covariate-adjusted logistic mixed-effects models were used to examine associations between individual- and center-level predictors and educators' practices, accounting for clustering by center.

Results: High self-efficacy and awareness of AP standards were significant predictors of modeling AP outdoors (OR=4.56 and OR=3.48, respectively). High self-efficacy also predicted facilitating a greater number of FMS activities (OR=4.82). Other daily practice outcomes were not significantly associated with individual factors, and no center-level characteristics were significantly related to educators' reported practices.

Conclusion: Findings suggest that educators' confidence and familiarity with AP standards may be key drivers of AP promotion in childcare settings. Strengthening ECEs' self-efficacy and awareness through targeted professional development could enhance the consistent implementation of AP and FMS opportunities, independent of structural center-level factors.

SO.3.28-08

Rain or Shine: Weather Conditions Shape Movement Behaviors in Preschoolers Using Compositional Data Analysis

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Purpose: To investigate the associations between daily weather conditions and movement behaviors (moderate-to-vigorous physical activity [MVPA], light physical activity [LPA], and sedentary behavior [SB]) in Swedish preschoolers, and to examine whether these associations differed by gender and day type (weekdays vs. weekends).

Methods: A total of 3307 preschoolers (4.5 ± 0.9 years; 51.4% girls) wore accelerometers to measure daily time spent in MVPA, LPA, and SB during seven days. Weather variables (temperature, sunshine, daylight duration, precipitation, and snow) were obtained from the National Meteorological Agency. A principal component analysis followed by k-means clustering was used to classify each day into different categories. Compositional data analysis (CoDA) was applied using isometric log-ratio (ILR) transformation and linear mixed-effects models, with predictions back-transformed to minutes/day using bootstrap procedures (1,000 replicates).

Results: Four weather-based clusters were identified: sunny and warm, cold and cloudy, rainy, and cloudy days. The mixed-effects model showed a significant association between weather clusters and daily movement composition ($p=0.001$). Compared with sunny and warm days, cold and cloudy days were associated with -14.6 min MVPA, -32.1 min LPA, and $+46.7$ min SB. Rainy days showed -10.9 min MVPA, -7.8 min LPA, and $+18.7$ min SB, while cloudy days showed -8.2 min MVPA, -6.8 min LPA, and $+15.0$ min SB. Gender-interaction showed similar responses in boys and girls ($p>0.05$). In contrast, the day-type interaction showed stronger weather effects on weekends ($p<0.001$). On cold and cloudy weekends, preschoolers engaged in less MVPA (-17 min) and LPA (-81 min), and more SB ($+98$ min) than on sunny and warm weekends. Rainy weekends also reduced PA (-11 min MVPA, -22 min LPA) and increased SB ($+33$ min), while cloudy weekends showed smaller changes (-9 min MVPA, -6 min LPA, $+15$ min SB). On weekdays, the same patterns appeared but were less pronounced.

Conclusion: Weather conditions exert a strong influence on preschoolers' movement behaviors. Cold, cloudy, and rainy days consistently reduced physical activity and increased sedentary time, with the most pronounced effects occurring on weekends. These findings highlight the importance of considering environmental context when designing interventions to support active lifestyles in preschoolers.

SO.3.28-09

Instructors' Perspectives on Implementing an E-learning Course on Physical Activity and Sedentary Behaviours in Canadian Early Childhood Education Programs

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: The TEACH e-Learning course, focused on movement behaviours in the early years, was found to be acceptable, effective, and feasible, with moderate-to-high fidelity in pre- and in-service early childhood educators. Moreover, it facilitated increases in educators' knowledge, self-efficacy, and intentions to promote physical activity in childcare. However, course implementation and feasibility have not been explored with instructors in pre-service early childhood education (ECE) programs. Thus, the aim of this study was to evaluate and gather ECE instructors' perspectives on the implementation of the TEACH e-Learning course in pre-service ECE curricula in Canada.

Methods: English-speaking institutions in Canada with entry-to-practice ECE programs were invited to participate. Program instructors were asked to review the TEACH e-Learning course and complete a process evaluation survey via Qualtrics. The survey examined: current ECE curriculum content at participating instructors' institutions (6 items), perspectives of topics covered in ECE curriculum (19 items), as well as the content, design, educational quality, and curriculum alignment of the TEACH e-Learning course (18 items). Zoom interviews ($n = 9$) were conducted to gather instructors' perspectives. Descriptive statistics were calculated for process evaluation survey data, and thematic analysis was employed to analyze interview transcripts.

Results: There was strong alignment ($M=4.58$) between the TEACH course and current ECE curriculum, with positive ratings for content, design, and educational quality. Instructors felt the TEACH course objectives complemented their program's curriculum ($M=4.83$), and met licensing standards ($M=4.42$). Instructors strongly endorsed its relevance for pre-service educators ($M=4.92$) and supported its continued use and integration. Instructors considered the course to be informative, well-structured, and engaging, with high effectiveness in covering physical activity ($M=5.00$). Five main themes emerged from the interviews: 1) course content (e.g., bridging knowledge gaps, reinforcing existing

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curriculum); 2) course design (e.g., interactive features support student engagement); 3) implementation feasibility (e.g., acceptability of e-Learning platform); 4) student uptake (e.g., workload considerations); and, 5) application of the course in practice (e.g., leveraging practical tools to sustain long-term impact, encouraging educators to advocate for broader system and policy changes).

Conclusion: Findings provide support for the integration of the TEACH e-Learning course in ECE curricula across Canada, including strategies for successful implementation.

SO.3.28-10

Examining Predictors of Outdoor Time and Patterns of Indoor and Outdoor Physical Activity among Preschool Children

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: The purpose of this study was to 1) identify child-level predictors of outdoor time while in childcare and 2) examine differences in children's outdoor and indoor physical activity.

Methods: Data were from 721 children ages 3-5 years who participated in a childcare-based healthy eating and physical activity cluster randomized controlled trial. Children wore an ActiGraph GT3X+ accelerometer on their hip for seven consecutive days with the ambient light sensor enabled. Outdoor time was classified using minute-level lux values (i.e., measure of light exposure). A cut point of 37 lux was used to distinguish between indoor and outdoor time. Physical activity data were collected in 15-second epochs and processed to assess non-wear time and compute physical activity outcomes using age-appropriate hip cut points. Additional variables included child sex, age, and body mass index (BMI). Mixed effect models were constructed to examine 1) predictors of outdoor time adjusted for wear time and 2) differences in outdoor and indoor moderate to vigorous physical activity (MVPA) by child age and sex.

Results: Mean outside time per day was 71.4 (± 55.0) minutes. Child sex, age, and level of MVPA were significantly associated with daily outside time such that girls ($p > 0.001$), increasing age ($p = 0.04$) and increasing daily minutes of MVPA ($p < 0.001$) were associated with higher daily outdoor time. Child BMI did not predictor outdoor time ($p = 0.44$). When comparing indoor and outdoor MVPA, children had significantly higher percent time in MVPA outdoors compared to indoors (18.2% vs. 7.7%; $p < 0.001$). Compared to girls, boys had higher percent time in MVPA indoors (8.1% vs 7.3%, $p < 0.001$) and outdoors (20.0% vs. 17.0%; $p < 0.001$). For age, percent of outdoor time in MVPA increased with age (3-3.5 years: 17.2%, 3.5-.4.5 years: 18.4%, 4.5+ years: 19.0%; $p < 0.001$).

Conclusion: Findings show higher percent time in MVPA when outdoors among preschool children in childcare, with differences by age and sex. This highlights the importance of providing opportunities for outdoor time in childcare settings to promote young children's physical activity.

SO.3.28-11

Differences and Determinants of Physical Education Enjoyment in Children with and without Special Educational Needs

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: Enjoyment of physical education (PE) is a key determinant of children's motivation to be physically active. However, little is known about how students with special educational needs (SEN) experience enjoyment in inclusive PE settings. This study aimed to (1) compare PE enjoyment between students with and without SEN, and (2) identify

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individual and contextual factors associated with enjoyment among students with SEN. The study provides novel quantitative evidence on an underrepresented group, contributing to the development of inclusive and motivating PE practices.

Methods: A cross-sectional survey was conducted in six Danish schools across three regions. In-class questionnaires assessed PE enjoyment, demographic characteristics, and leisure-time sport participation. Group differences were examined using Pearson's chi-square and Mann-Whitney U tests, and predictors of enjoyment were analyzed through multivariate linear regression. Analyses were part of the larger *"Moving PE – for children with special needs in school and leisure time"* project, which focuses on providing students with SEN positive experiences in PE through the integration of co-teaching.

Results: A total of 428 students (aged 6–15 years) completed the questionnaire, including 89 with SEN. The overall mean enjoyment score was 19.95 (range 4–24). Students with SEN reported significantly lower enjoyment (mean = 18.73) compared with those without SEN (mean = 20.29; $p = .029$). Among students with SEN, boys, those attending schools in Eastern Denmark, and those participating in leisure-time sports reported higher enjoyment, whereas students from larger schools reported lower enjoyment. No significant differences were found by age.

Conclusion: Although most students with SEN enjoy PE, their overall enjoyment remains lower than that of peers without SEN. The findings identify both individual (gender, leisure-time activity) and contextual (school size, region) factors linked to PE enjoyment. This study advances understanding of how inclusive and supportive PE environments can enhance engagement and motivation among students with SEN, offering evidence to inform school-based physical activity promotion and teacher training initiatives.

SO.3.28-12

Co-teaching in Physical Education to Support Inclusion of Pupils with Special Educational Needs

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
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Purpose: In Danish public schools, 23.4% of all pupils have special educational needs (SEN), often with autism or ADHD. Physical Education (PE) teachers often feel unqualified to teach this group, and 41% of pupils with SEN are exempt from subjects in school, most frequently from PE. This highlights a need for professional development and new didactic approaches to support inclusive PE that promotes participation among pupils with SEN. Over the past few years, merging special education with general pedagogy, has become more common in Danish schools. While existing research on co-teaching and inclusion shows positive outcomes, it mainly focuses on academic subjects, leaving a gap in knowledge about co-teaching in PE. This study aims to present the experiences of 12 PE teams using co-teaching throughout a school year, identifying both enabling and limiting factors.

Methods: The study is based on 6–8 co-teaching observations per PE team (84 in total), and 12 focus group interviews. Analysis follows Dubois and Gadde's abductive case study approach, using Sallis et al.'s socio-ecological model (policy, organizational, interpersonal, and individual levels) to identify opportunities and barriers.

The analysis is part of the broader research study *"Moving PE – for children with special needs in school and leisure time"* which explores inclusion in PE through co-teaching.

Results: The analysis identified three archetypes, each exemplified through a distinct PE team case: *the high jumper*, *the middle-distance runner*, and *the hurdler*. The high jumper used co-teaching consistently and reported mostly positive experiences across all four socio-ecological levels. The hurdler used co-teaching minimally due to significant barriers, especially at the organizational and interpersonal levels. The middle-distance runner showed varied use of co-teaching, with interpersonal relationships being key to its implementation.

Conclusion: Co-teaching was implemented to varying degrees in PE. Support from school leadership, such as creating organizational structures and stable PE teams, was crucial. When co-teaching was used systematically, it contributed to greater participation and inclusion of pupils with SEN in PE. This study contributes pedagogical suggestions to support more inclusive teaching practices in PE.

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SO.3.28-13

“They Don’t Notice That I’m Leaving” - How Children with Special Educational Needs Experience Participation in Physical Education

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SO.3.28 Early care and education: Physical Activity in Educational Contexts: Early Childhood and Inclusive Practices
Room 3, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Physical education (PE) can pose unique challenges for children with special needs (SEN) due to bodily, social, and cognitive differences that may affect how they engage and interact with others. These children are often excluded from PE and tend to have lower levels of physical activity, which can negatively influence both their physical health and emotional wellbeing. The purpose of this study is to explore how children with SEN experience PE in primary school, focusing on what they identify as factors that promote or limit their sense of joy, belonging, and inclusion in movement activities.

Methods: The study draws on qualitative interviews with 53 children with SEN attending Danish primary schools. The interviews were analyzed using thematic analysis, and the emerging themes were further examined through Wenger’s theory of social learning. The analysis is part of the larger research project “Moving PE – for children with special needs in school and leisure time” which focuses on providing children with SEN positive experiences in PE through the integration of co-teaching.

Results: Three key themes were identified: Experiences of PE as a school subject, teacher support, and children’s participation in decision-making. The analysis shows that many children with SEN describe PE as their favorite subject, where they can express themselves physically, and feel competent in ways that academic subjects rarely allow. However, others report feeling marginalized, particularly when lessons take place in large, noisy groups, when they struggle with bodily coordination, or when teachers fail to notice, guide, or include them meaningfully.

Conclusion: Children with SEN have diverse and sometimes contrasting experiences of PE. Some feel seen, supported, and motivated, while others experience exclusion or invisibility. Meaningful inclusion in PE requires adaptable and reflective teaching, sustained teacher support, and involvement of children in planning and decision-making to ensure participation for all. This study contributes to the field by bringing forward children with SEN’s own perspectives on inclusion in physical education. It adds to ongoing discussions on how teaching practices and child participation can foster more equitable and meaningful PE experiences for all children.

SO.3.29-01

Promoting Health Behavior after Childbirth in Migrant Women: A Qualitative Exploration of Challenges and Opportunities

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors
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Purpose: The period after childbirth is a critical period for long-term health and wellbeing, particularly among migrant women who face increased risks of weight retention and lifestyle-related diseases. Despite the potential of mobile health (mHealth) interventions to support healthy behaviors, migrant women remain underrepresented in this research area. This study aimed to explore Arabic- and Somali-speaking migrant women’s perspectives on physical activity and diet after childbirth, as well as their views on the potential of mHealth applications to support these behaviors.

Methods: We conducted semi-structured, audio-recorded interviews with 20 purposefully recruited Arabic- and Somali-speaking migrant women who had given birth within the past ten years. Transcripts were analyzed using

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qualitative content analysis guided by the COM-B model and the Theoretical Domains Framework. Coding and framework-based analysis were triangulated among three analysts to ensure consistency and depth.

Results: Preliminary results indicate that participants often entered the period after childbirth without reflecting on how their lifestyle habits—such as diet and physical activity—were influenced by their new environment which influenced their capability to deliberately adopt healthy behaviors. Their focus was primarily on the child's wellbeing, with limited attention to their own health. Advice from older female relatives sometimes provided them with the opportunity to reflect on their own habits, particularly regarding what they ate and how their dietary patterns could affect both their own and their infant's health.

Participants further expressed strong motivation to “feel well and be a good parent.” Building small daily routines, receiving practical guidance, and learning about supportive local resources were perceived as key motivators for establishing healthy habits.

Conclusion: This study provides a nuanced understanding of factors shaping migrant women's ability to adopt healthy lifestyle behaviors after childbirth. The findings support the application of theory-based frameworks in multicultural maternal health care and underscore the importance of tailoring interventions to conditions commonly experienced by foreign-born women. Such knowledge can also inform the design of equitable, culturally adopted mHealth interventions to promote sustainable health behaviors and reduce long-term risk of chronic disease.

SO.3.29-02

Rethinking MVPA Estimation: Is Human Activity Recognition a Viable Option over Cut-points?

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors

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Purpose: The public health message is simple: 150 minutes of weekly Moderate-to-Vigorous Physical Activity (MVPA), defined by real-world activities like brisk walking, cycling, and running. However, the research implementation is absurdly convoluted. We strap on accelerometers, convert the data into abstract metrics like „counts,“ and apply thresholds derived from a few dozen healthy people on treadmills with oxygen masks. This creates a nonsensical feedback loop: we inform participants they have failed to meet an MVPA guideline, then advise them to perform the very activities our methods were incapable of directly measuring. What if we skipped the middleman entirely? This means abandoning abstract metrics like counts, or Mean Amplitude Deviation (MAD) and, most importantly, abolishing arbitrary cut-points. In this paradigm, the logic is refreshingly simple: cycling is MVPA, running is VPA. Period.

Methods: We compared two approaches to MVPA quantification using publicly available datasets from adults wearing thigh- and hip-mounted accelerometers: a simple logic-based Human Activity Recognition (HAR) model versus traditional cut-point estimates (counts, MAD). To assess real-world validity, the HAR method was evaluated against its ground-truth (indirect calorimetry) to determine how effectively it provides a real-world translation connecting the clinical guideline, the technical assessment, and actual human behaviour.

Results: The simple HAR approach and traditional cut-point methods showed significant differences in MVPA estimates. While a MAD-based cut-point method achieved substantial agreement with HAR (Cohen's Kappa $\kappa = 0.77$), a counts-based method showed only moderate agreement ($\kappa = 0.46$). Critically, when validated against indirect calorimetry, the HAR method proved highly effective, with F1-scores of 0.97 for sedentary behaviour and 0.85 for MVPA. Its primary limitation was in distinguishing LPA (F1-score: 0.26), resulting in an overall accuracy of 76% ($\kappa = 0.64$).

Conclusion: Our findings demonstrate that a simple HAR approach is a valid and substantially agreeable alternative to established cut-point methods for estimating MVPA, excelling at identifying activities that are most important for public health guidelines. This paradigm shift offers a more logical and translatable method for assessing real-world physical activity. Could this be a viable alternative?

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SO.3.29-03

Technology-supported Shared Decision-making and Goal-setting to Increase Levels of Physical Activity in Patients with COPD and Complex Chronic Conditions in the RE-SAMPLE Virtual Companionship Program

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors

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Purpose: The growing number of patients with Chronic Obstructive Pulmonary Disease (COPD) and Complex Chronic Conditions (CCCs) calls for an integrated, personalized, and holistic approach to care. The Horizon 2020 RE-SAMPLE-project addressed this by combining real-world data monitoring with personalized predictions of CCC exacerbation risk, embedded in an eHealth programme, the Virtual Companionship Programme (VCP). The VCP included a Virtual Companion offering a multi-morbid action plan and coaching modules for physical activity (PA), medication adherence, and sleep. Healthcare providers (HCPs) used a clinical dashboard with data visualizations, predictions, and a technology-supported shared decision-making (SDM) tool to facilitate collaborative goal setting. This study evaluated the SDM-process and goal achievement within the RE-SAMPLE-programme.

Methods: Patients with COPD and at least one comorbidity or multiple risk factors were included from Italy, the Netherlands, and Estonia between July 2023 - February 2024. Adults (≥ 40 years), current or former smokers, with internet access and language proficiency, were included. Participants used Garmin Vivosmart4 to monitor PA and received tailored coaching messages. Descriptive analysis was used to analyse the goal-setting. The SDM-Q9 and Patients' Preference for Control (PPC) questionnaires were used to evaluate the SDM process (mean $\pm$ SD), and HCPs provided structured feedback. Bland-Altman analyses were used to examine the levels of agreement between patients and HCPs regarding the patient preferences for SDM.

Results: 122 patients (aged 70.1 ± 5.9 , 79% male) were included, of them 113 received coaching messages. Most goals ($n=119$) focused on PA, with the remainder on medication adherence. Short-term goals primarily involved walking; 90 patients set personalized goals, and 26 used standard options. Across all PA goals, 145 daily step, 6 daily intensity, and 11 weekly intensity targets were set. Overall, 53% of goals were achieved. The mean SDM-Q9 score was 38.5 ± 8.9 , indicating a positive SDM experience. Bland-Altman-analysis showed a mean difference of -0.49 (95%CI: -3.46 : $+2.48$), suggesting HCPs perceived patients preferred more control than patients reported. HCPs found SDM forms complex, repetitive, and time-intensive.

Conclusion: Technology-supported SDM must be user-friendly, time-efficient, and adaptable to patient needs. Enhancing preference elicitation, information presentation, and tool usability is essential to improve feasibility and impact in routine COPD care.

SO.3.29-04

The Landscape of Accelerometer-derived Signal Metrics

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors

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Purpose: Wearable accelerometers capture continuous signals that reflect multiple dimensions of human physical behavior. In recent years, numerous signal-derived metrics—such as ENMO, Intensity Gradient, Amplitude Index, Gini Index, and α -Exponent—have been proposed to characterize physical behavior in terms of volume, intensity, temporal distribution, pattern, and variability. However, the rapid expansion of available metrics and inconsistencies in their quantification have resulted in conceptual overlap and uneven interpretation across studies. This work aims to review and classify existing accelerometer-derived metrics according to their conceptual meaning and computational approach, providing a clear framework to support their quantification and interpretation.

Methods: We surveyed the existing literature and conducted a metric audit to identify signal-derived metrics used in

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accelerometer research. Metrics were categorized along two dimensions: (1) conceptual foundations—volume, time, pattern, and variability—and (2) computational level, including raw, epoch-based, daily, and aggregated calculations. Each metric was described mathematically, and its interpretative meaning was summarized based on examples from studies that proposed or applied it.

Results: More than 30 distinct metrics were reviewed and summarized. Most of these metrics were describing volume and time-related characteristics (~20 metrics), with smaller groups addressing pattern-related features (~7–9 metrics) and variability-related features (~5–7 metrics). Although several metrics were mathematically related, they differed in terminology, scaling, and computational level. Some metrics could be derived at multiple levels—such as epoch or daily—depending on the analytical context. For each metric, we documented its mathematical formulation and discussed the interpretative meaning of values using examples from the literature.

Conclusion: This study provides a structured overview and taxonomy of accelerometer-derived metrics, offering a practical reference for researchers interested in processing accelerometer signals into meaningful measures. Given the limited documentation on how these metrics should be quantified, our work consolidates dispersed information to support consistent computation and interpretation. Overall, this paper introduces key accelerometer-derived metrics and offers guidance to facilitate their applications in physical behavior research.

SO.3.29-05

Intervention on Unstructured Recess Physical Activity among Primary School Students Based on Existing Spatiotemporal Resources

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors

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Purpose: Recess in school is considered to be an important opportunity to promote physical activity (PA) for students. Unstructured recess provides students with opportunities for PA. However, the activity space is limited in many Chinese urban primary schools which constrain students' PA during recess. Therefore, the purpose of this study is to designed and implemented an unstructured recess PA intervention for primary school students using spatial analysis techniques in limit spatiotemporal resources in schools.

Methods: A within-subject design was used to test the effectiveness of the intervention in the study. Two primary schools in Shanghai were selected for one month intervention with different per capita playground areas ($>2.3 \text{ m}^2/\text{person}$ and $<2.3 \text{ m}^2/\text{person}$). All students in Grades 3-5 participated in the intervention. For PA measurement by accelerometers, 120 students (mean age = 9.72 years; 52.5% boys) were selected using a cluster random sampling method. The intervention is increasing activity equipment and facilities. Geographic Information System (ArcGIS) was employed to determine the spatial layout of activity equipment/facilities. Subsequent analysis using space syntax (Depthmap) was conducted to assess the visual integration. Pedestrian simulation (AnyLogic) was employed to verify the temporal and spatial utilization efficiency of students' activities during the intervention. Paired-sample t-tests were conducted to compare differences in recess PA before and after the intervention. A generalized linear regression model was applied to examine the intervention effects, controlling for gender, BMI, grade, activity level, and recess duration.

Results: Both the duration (before vs after: 6.26 vs. 7.12 min, $p < 0.001$) and percentage (14.33% vs. 16.31%, $p < 0.01$) of MVPA during unstructured recess increased. After controlling covariates, students' MVPA duration ($\beta = 0.86$, 95% CI [0.048, 1.68], $p < 0.05$) and MVPA percentage ($\beta = 1.98$, 95% CI [1.66, 2.31], $p < 0.01$) increased after intervention.

Conclusion: Under existing spatiotemporal resources, an intervention designed using spatial analysis techniques was effective in increasing students' unstructured recess PA in primary schools with limit space. This study provides an new way to promote students' PA using new technology.

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SO.3.29-06

Validation of Physical Activity Descriptors Derived from the Acceleration Data of Smartphones

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors
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Purpose: There is a transition from survey- to device-based assessments of physical activity, and smartphones may be a more convenient and less costly alternative than research-grade accelerometers. It remains unclear whether physical activity descriptors obtained from smartphones are comparable to those obtained from a research-grade accelerometer in healthy adolescents. We aimed to (i) compare two acceleration summary metrics (Activity Counts (AC) and the Euclidean Norm Minus One (ENMO)), and the derived physical activity descriptors between a smartphone and a research-grade accelerometer, and (ii) compare the impact of using two different data-processing pathways (based on either AC or ENMO) to derive these physical activity descriptors.

Methods: Sixty-four (48% female) European adolescents with a median [P25-P75] age of 15.1 [13.9-16.1] years simultaneously wore a smartphone (Samsung Galaxy A20e) and research-grade accelerometer (ActiGraph wGT3X-BT) placed on the waist for one week during waking hours. Five physical activity descriptors (i.e., inactive time, time spent in low, moderate (MPA), vigorous, and moderate-to-vigorous (MVPA) intensity physical activity) were obtained from both devices through either the AC or ENMO pathway. We used scatterplots, absolute and relative errors, Spearman correlations, intraclass correlation coefficients (ICC) and Bland-Altman plots to compare (i) summary metrics (AC and ENMO) and physical activity descriptors between devices; and (ii) physical activity descriptors between data-processing pathways.

Results: The device comparison showed large absolute and relative errors (e.g., mean absolute percent errors (MAPE): 20%-182%, except for inactive time: $\leq 14\%$), moderate-to-strong correlations (ρ : 0.58-0.94) and good-to-excellent agreement (ICC: 0.72-0.99) for both summary metrics and physical activity descriptors. Inactive time was the most comparable descriptor. The pathway comparison showed large errors (e.g., MAPE: 45%-166%), weak correlations (ρ : 0.07-0.58; except for inactive time and smartphone-derived MPA and MVPA: $\rho \geq 0.66$), and poor-to-excellent agreement (ICC: 0.05-0.91).

Conclusion: Absolute values of smartphone-derived summary metrics and physical activity descriptors were generally not comparable to those obtained from a research-grade accelerometer (except for inactive time), despite the moderate-to-strong correlations and good-to-excellent agreement between devices. None of the physical activity descriptors was comparable between processing pathways. This shows that the choice of device and processing pathway strongly impacts physical activity descriptor values in adolescents.

SO.3.29-07

Engaging a Nation: Who Joins and Who Stays in a Digital Population-wide Physical Activity Intervention with Two Million Participants?

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Purpose: The National Steps Challenge (NSC), initiated by Singapore's Health Promotion Board in 2015, is one of the largest national digital physical activity interventions worldwide. Given the growing recognition that large-scale interventions may not engage all groups equally, we examined NSC participation across six seasons (2015–2021) to understand reach, sustained engagement, and differences across key sociodemographic groups.

Methods: We linked all NSC registrants from season 1–6 to national registry data to obtain sociodemographic characteristics. Individuals who recorded valid step data (mean >1,000 steps/day) in at least one season were considered to have ever participated in NSC and were classified as: 'One-timers' (1 season), 'Repeat' participants (2–4 seasons), and 'Loyal' participants (5–6 seasons). We used multivariable logistic regression to identify characteristics associated with being a 'Repeat' or 'Loyal' participant (versus 'One-timer').

Results: NSC attracted 1,809,743 registrants across six seasons, thereby reaching approximately 51% of the Singapore population aged ³17 years. Registrants were aged 43.3±16.2 at first sign up, were mostly females (54.4%), of Chinese ethnicity (84.3%), and of higher per capita household income (>\$3100, 42.8%). Among them, 1,090,526 participated in at least one season (60.3%). Most were 'One-timers', (48.6%, n=529,626), 45.9% were 'Repeat' participants (n=501,048), and 5.5% were 'Loyal' participants (n=59,852). Females (1.27 [1.26, 1.28]), older adults ³40 to 59 years (1.33 [1.32, 1.34]) and ³60 to 79 years (1.35 [1.34, 1.37]), and those of higher per capita household income (\$1201–2000 OR = 1.32 [1.30, 1.33], \$2001–2800 OR = 1.52 [1.50, 1.54], \$2801–3100 OR = 1.64 [1.60, 1.67], >\$3100 OR = 1.80 [1.78, 1.82]) were more likely to be 'Repeat/Loyal' participants, while non-Chinese (Malays OR = 0.41 [0.40, 0.42], Indians OR = 0.50 [0.49, 0.51], Others OR = 0.60 [0.58, 0.62]) and older adults aged ³80 years (0.78 [0.74, 0.82]) were less likely to be 'Repeat/Loyal' participants.

Conclusion: Although NSC achieved substantial population reach, sustained participation differed across social groups. This highlights that large-scale digital public health interventions may unintentionally widen physical activity and health inequalities within the population, requiring tailored strategies to support equitable, long-term engagement in large-scale digital physical activity programmes.

SO.3.29-08

Effectiveness of Digital Tools on Lifestyle & Health-related Outcomes across the Full Continuum of the Maternal Journey: A Systematic Review

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Purpose: Maternal health is a global public health priority and a key determinant of generational and societal well-being. Emerging digital technologies, including mobile applications, telehealth, and chatbots, offer innovative opportunities to promote healthy lifestyle behaviors across the maternal continuum (preconception, pregnancy, and postpartum). Despite growing use and acceptance of these tools, the evidence supporting their effectiveness in optimizing maternal lifestyle and health outcomes remains limited and fragmented. This systematic review aimed to assess the effectiveness and characteristics of digital tools targeting lifestyle and health-related outcomes across the maternal journey.

Methods: Following the PRISMA 2020 guidelines and PROSPERO registration (CRD420251075108), comprehensive searches were conducted in PubMed, Scopus, Web of Science, and CENTRAL for randomized controlled trials (RCTs) published between January 2020 and May 2025. Eligible studies involved digital interventions targeting at least one of the CDC-defined lifestyle parameters (nutrition, physical activity, sleep, smoking, alcohol consumption) among women during preconception, pregnancy, or up to six months postpartum. Data were extracted independently by multiple reviewers, and risk of bias was assessed using the RoB 2 tool.

Results: Thirty-one RCTs (n = 7,153 women) were included, primarily conducted during pregnancy (n=20) and postpartum (n=15), with fewer in preconception (n=3). Digital interventions showed beneficial effects on nutrition (e.g., improved dietary intake, micronutrient supplementation), physical activity, sleep quality, and insomnia during pregnancy. Consistent reductions in gestational weight gain were observed among women with overweight/obesity, though general population effects were limited. Postpartum and preconception interventions demonstrated modest or inconsistent outcomes, particularly for anthropometrics and metabolic markers. Reminders (64.5%), self-monitoring (58.1%), and goal-setting (48.4%) were the most prevalent features across tools, while engagement

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reporting remained inconsistent.

Conclusion: Digital health tools exhibit significant potential for improving select lifestyle behaviors, particularly during pregnancy, and ongoing research may reveal more insights into sustained or postpartum benefits. Heterogeneity in intervention design, high risk of bias, and limited representation from low- and lower-middle-income countries constrain generalizability. Future research should prioritize rigorous, long-term, and equity-focused RCTs with standardized measures and engagement metrics to optimize digital strategies for maternal health promotion.

SO.3.29-09

A Dual-level Framework for Evaluating Student Experiences with Digital Health Interventions in University Settings

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Purpose: Digital health interventions for university students require evaluation approaches that capture both their direct experiences and broader contextual factors. Existing evaluation tools predominantly focus on either technology acceptance or clinical outcomes, without capturing students' direct experiences and the broader contextual factors that shape their health behaviors. This study presents a novel dual-level evaluation framework for assessing student experiences with digital health interventions using the MOVE@NUS pilot as a case study.

Methods: This study employed a mixed-methods design to develop and test the evaluation framework in a pilot digital health intervention targeting sleep, physical activity, and screen time among first-year undergraduates in Singapore (N=65). The framework integrates elements from established models (i.e., TAM, COM-B, MARS, social/digital determinants of health) to structure data collection. The dual-level framework comprises: (1) a micro level assessing intervention-specific feedback, technology user experience, and program engagement; and (2) a macro level examining capability factors (health and digital literacy), opportunity factors (physical and social environment), and motivational elements (participation drivers, engagement). Data collection included semi-structured interviews and sequential surveys across multiple timepoints. Analysis combined descriptive statistics for quantitative data and thematic analysis for qualitative data.

Results: The framework provides a comprehensive structure through its dual-level approach and demonstrated its ability to capture detailed experiences and broader contextual influences. Baseline surveys (n=41), exit surveys (n=54), and post-intervention feedback surveys (sleep: 18/36, physical activity: 16/44, screen time: 18/44) were collected, alongside 22 qualitative interviews. Micro-level findings revealed personalization and clear communication as key to positive experiences, while technical issues and academic pressures were common barriers. Macro-level analysis showed students' engagement and health behaviors were shaped by academic schedules, living contexts, and digital proficiency. The framework successfully captured both breadth and depth of contextual understanding.

Conclusion: This theory-driven framework offers a structured evaluation approach applicable for assessing digital health interventions targeting student populations. Unlike existing tools, it uniquely integrates personal experience with external determinants of health behavior, providing complementary insights that neither quantitative nor qualitative methods alone could achieve. The framework is freely adaptable and enables a more comprehensive evaluation of how digital interventions can support healthy behaviors in young adults.

SO.3.29-10

Physical Activity Reference Values for People Living with Health Conditions: Age- and Sex-specific Centiles from UK Biobank Accelerometer Data

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Purpose: While increased physical activity (PA) is universally recognised for its health benefits in individuals living with chronic health conditions, there is a gap in condition-specific reference values. Such values would enable meaningful evaluation of PA volume and intensity in these heterogeneous populations. This study aims to utilise accelerometer data from a large-scale dataset to define age- and sex-referenced PA centiles specific to distinct patterns of health conditions, establishing a rigorous foundation for personalised PA prescription.

Methods: This analysis will include UK Biobank participants (aged 40–71 years) with valid wrist-worn accelerometer data (Axivity AX3, ≥ 72 h wear). Volume and intensity will be characterised by average acceleration and intensity gradient (IG). Health conditions will be selected using medical diagnosis codes (ICD-10, and ICD-9) and self-reported conditions (UK Biobank Data Coding 6). Latent Class Analysis (LCA) will be applied to investigate distinct groupings of health conditions. Age and sex specific centile curves for average acceleration and IG will then be generated for each health condition group and LCA-derived groups using Generalised Additive Models for Location, Scale, and Shape (GAMLSS). PA metrics will be modelled across age using parametric distributions, with the optimal distribution selected based on the model with the lowest Akaike Information Criterion (AIC).

Results: The initial dataset comprises 103,582 participants of whom 78,331 have at least one health condition and will be integrated into the LCA. Subsequent analysis using GAMLSS will generate age- and sex-referenced centile curves (10th to 90th percentiles) for average acceleration and IG across all derived health conditions and identified patterns. Full statistical results and the definitive centile curves will be presented.

Conclusion: These condition, age and sex specific PA centiles will provide essential, data-driven benchmarks that will facilitate meaningful interpretation of accelerometer data in people with chronic health conditions. This will, move PA prescription for people living with chronic disease beyond generic guidelines toward meaningful, personalised targets for improved clinical outcomes and advancing behavioural change methods.

SO.3.29-11

Effects of a Live-remote Supervised Exercise Intervention for Cancer Survivors: The EX-MED Cancer Sweden Randomised Controlled Trial

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors

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Purpose: Exercise offers important benefits for cancer survivors; however, participation remains low due to barriers such as time constraints, distance, and limited availability of suitable services. Supervised live-remote delivery may overcome these barriers while retaining professional support. This trial evaluated the effects of a 12-week live-remote supervised exercise intervention on health-related quality of life (HRQoL) and other patient-reported and physiological outcomes in survivors of breast, prostate, and colorectal cancer.

Methods: Between January 2022 and December 2023, 200 participants (mean age = 58.5 ± 10.4 years; 62% women) were randomised to either a live-remote exercise intervention or usual care. Half had been treated for breast cancer, 23% for prostate, and 26% for colorectal cancer; 52% had received chemotherapy, and 41% were receiving endocrine therapy. The intervention comprised twice-weekly, 60-minute virtual group sessions (≤ 8 participants) led by upskilled personal trainers for 12 weeks. Outcomes were assessed at baseline, post-intervention (3 months), and 6 months. The primary outcome was overall HRQoL (EORTC QLQ-C30). Secondary outcomes included physical functioning, cardiorespiratory fitness (VO_2max), strength, and physical activity. Exploratory analyses examined moderators including sex, endocrine therapy, age, cancer type, and baseline health status.

Results: Median session attendance was 75%, with no serious adverse events. No between-group difference was found for overall HRQoL. However, compared with controls, the intervention group showed greater improvements at 3 months in self-reported physical functioning (ES = 0.31, $p \leq 0.001$), sit-to-stand performance (ES = 0.22, $p = 0.003$),

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VO₂max (ES = 0.12, p = 0.045), upper body strength (ES = 0.17, p = 0.010), and physical activity (aerobic ES = 0.57, p < 0.001; resistance ES = 1.03, p < 0.001). Most effects were not maintained at 6 months. Endocrine therapy and sex significantly moderated several outcomes, with women and participants receiving endocrine therapy showing greater gains in HRQoL, fatigue, and strength. Participants with lower baseline HRQoL or fitness derived greater benefit.

Conclusion: A 12-week live-remote exercise intervention led to short-term improvements in physical activity, function, fitness, and strength, with no effect on HRQoL. Most gains diminished by six months. Participants with lower baseline health, women, and those on endocrine therapy appeared to derive greater benefit.

SO.3.29-12

How Does the UK Food Supply Shape up? Food Quality Measures and Nutrient Intakes Using myfood24

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Purpose: Assessment of nutrient intakes and diet quality relies on accurate, detailed food composition tables. High in Fat, Salt and Sugar (HFSS) foods and NOVA scores (for food processing) have been linked to health.

Our objective was to compare estimates of HFSS and NOVA scores in the branded UK food composition database from myfood24. Identifying food categories where there was agreement and disagreement between classifications.

Methods: myfood24 is an online diet assessment tool used in research in over 20 countries. The UK food composition database contains back of pack nutrition information/100g product for branded and generic foods. Diet quality measures HFSS and NOVA were calculated using standard algorithms. Scores were allocated using ingredient decks. Some assumptions were made for NOVA scoring, items with preservatives were given a score of 4 (ultraprocessed). Food categories and nutritional content of products were compared.

Results: 89,496 UK branded foods had both HFSS and NOVA scores calculated from 32 food groups. Prepared meals and meat/poultry both provided 11% and cakes/sweet bakery 9% of total products. Of 76k foods classified as NOVA4 only 53% were also HFSS.

Food groups with the largest numbers of foods scored as non-HFSS and NOVA4 scores were 28% canned/tinned foods; 16% fish/seafood; 78% fruit juices/smoothies; 18% nuts/seeds; 18% pulses. Food groups with both HFSS and NOVA4 as the majority classification were bread, breakfast cereals, cakes/sweet bakery, canned/tinned foods, confectionary, dairy/eggs, fried food, jams/honey, meat/poultry, pies/pasties, pizza/pasta, prepared meals, savoury snacks, soft drinks/squash, soups/salad/sandwich.

Nutritional composition varied between scores. Mean energy for HFSS was 355kcal/100g and NOVA4 was 250Kcal/100g. Foods which were both HFSS and NOVA4 had nutrients/100g which were all higher than non-HFSS and NOVA4. Mean energy of 348 v. 144kcal/100g, protein 9 v. 7g/100g, carbohydrates 37 v. 17g/100g, total sugar 19 v. 4g/100g; fat 18 v. 5g/100g respectively.

Conclusion: HFSS and NOVA scores are *not* measuring the same concepts. HFSS and NOVA4 classifications show considerable variation in nutritional composition. Understanding where the differences and similarities lie between the scores can help interpret epidemiological research and develop public health policy to improve the quality of the UK diet.

SO.3.29-13

App4Support: Enhancing Pedagogical Skills of Youth Coaches with the Help of a Mobile App Developed via a Social Design Approach

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SO.3.29 E- & mHealth: Assessment and Evaluation of Movement Behaviors

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Purpose: Organized sports can offer an accessible and cost-effective complement to traditional healthcare. Yet, sports clubs are rarely recognized by healthcare professionals as suitable or preventive settings for children with mild psychosocial problems. The App4Support project seeks to foster behavioral change among youth coaches and enhance a pedagogically supportive sports climate through a practical digital support tool.

Methods: Using a social design approach, App4Support was co-created with youth coaches, parents, sport professionals, and technology partners. Building on a proof-of-concept version, the project progressed through three iterative phases: (1) *needs analysis* to explore challenges faced by coaches and identify situations involving difficult child behavior; (2) *prototype development* to translate insights into an accessible digital tool with realistic examples, practical tips, and explanations of underlying causes; and (3) *testing and feedback* at national meetings and local sports clubs, where coaches used the app and evaluated its usability, clarity, and relevance. Monthly field observations and reflection sessions further examined how the app promotes learning, self-reflection, and collaboration between coaches and psychomotor therapists.

Results: Preliminary findings show that coaches highly valued the app's focus on recognizable coaching situations and appreciated its combination of practical strategies, contextual explanations, and opportunities for professional exchange. Gamification features (e.g. progress tracking and quiz pop-ups) appear to enhance user engagement. Furthermore, the integrated collaboration platform connecting youth coaches and psychomotor therapists fosters a sense of shared learning and professional community, supporting continuous reflection and skill development in everyday coaching practice.

Conclusion: App4Support illustrates how co-creative, practice-based innovation can translate pedagogical knowledge into a m-health tool that empowers and connects youth coaches and psychomotor therapists. The upcoming phase will involve large-scale field evaluation to assess behavioral outcomes and the app's potential to strengthen pedagogically supportive sports environments.

SO.3.30-01

Exercise Prescription and Behaviour Change Techniques in Prehabilitation Programs for Solid Organ Transplant: A Scoping Review

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: Transplantation is the gold-standard treatment for individuals with end-stage organ failure. Pre-surgical exercise, or prehabilitation, is a safe and effective modality that may improve pre- and post-surgical outcomes. However, little work has defined exercise prescription parameters, and no work has identified the behaviour change strategies employed in interventions. Thus, a scoping review was conducted to bridge the fields of transplant prehabilitation and behavioural science through identifying and characterizing exercise prehabilitation programs.

Methods: MedLine, CINAHL, EMBASE, Web of Science, PsychInfo, and SportDiscus were systematically searched for exercise prehabilitation programs. Identified records were uploaded to Covidence for title/abstract and full-text screening. Titles/abstracts were independently reviewed by two authors against inclusion/exclusion criteria. Potentially relevant sources were then independently read in their entirety by two authors to determine if eligible for extraction. Data was extracted using the TIDieR checklist and Behaviour Change Technique (BCT) Ontology. Extracted information was analyzed using narrative synthesis and descriptive statistics.

Results: A total of 77 exercise prehabilitation programs described across 97 publications were included in this review. The majority of programs were for lung transplant (39%) followed by heart (25%), liver (18%), kidney (14%),

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and multiple organ types (4%). Fifty-four reported sufficient information to characterize the exercise intervention using the Frequency, Intensity, Time, Type (FITT) principle. The most frequent modality of exercise was combined resistance and aerobic training (39%). Thirteen studies (17%) included some education or behavioural counseling. Sixty-six studies (86%) reported enough information to extract at least one BCT. The number of BCTs extracted ranged from 0-14 with the most frequent number of BCTs extracted being one (19%), and most coded BCT being “practice behaviour BCT BCIO:007094”.

Conclusion: As transplantation numbers continue to rise, there is a greater need to address patient wellness in the pre-transplant period. However, limited reporting on exercise prescription components prevents summarizing across programs to determine beneficial exercise prescription components (i.e., dose, intensity, type). Additionally, comprehensive reporting of strategies used to support participant exercise behaviour remains sparse. Understanding what techniques have been used to support patient exercise behaviour pre-transplant can help future work build effective interventions to support long-term exercise behaviour and patient wellness.

SO.3.30-03

Supporting Sustained, At-scale Delivery of a Parent-focused Intervention: Insights from the INFANT Program

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: Early childhood is a critical window for establishing healthy behaviours that support lifelong health and wellbeing. Parent-focused interventions promoting healthy feeding and active play are important for achieving this goal. The INFANT program is an evidence-based program delivering group sessions for parents and caregivers during the child's first year of life, with session content reinforced through a mobile app. Since its statewide scale-up in Victoria, Australia, in 2021, rates of sustained delivery have varied, underscoring the importance of embedding the program in routine practice. This study explored the perspectives of INFANT-trained coordinators and facilitators on factors influencing the sustained, at-scale implementation of INFANT within their organisations.

Methods: A multi-site, qualitative exploratory study was conducted between 2022 and 2024. In-depth, semi-structured interviews were undertaken at 12-months (n=15) and 24-months (n=8) post-completion of the INFANT training. Interviews were audio-recorded and transcribed verbatim. Data were analysed using thematic analysis, informed by the Implementation Strategies Applied in Communities (ISAC) compilation, to identify barriers and enablers to the sustained implementation of INFANT at scale.

Results: Coordinators and facilitators were interviewed from 15 of the 34 local government areas implementing the INFANT program at the time of the study. All interviewees (n=19) were female. One third (32%) were Maternal & Child Health Nurses and the majority (68%) employed within local government organisations. Sustained program delivery was supported by strategies clustered into five overarching themes: (1) leveraging partnerships, funding, and community connections; (2) providing structured guidance and resources; (3) adapting and tailoring INFANT to meet parents' needs and contexts; (4) equipping and empowering facilitators to deliver INFANT; and (5) monitoring delivery through pragmatic evaluation and technology.

Conclusion: While implementation strategies collectively supported the sustained delivery of the INFANT program, most relied on individual and organisational efforts, with inconsistent funding and limited workforce capacity presenting key barriers. Findings from this study highlight the urgent need for additional systems-level support to strengthen the organisational capacity to embed the INFANT program into routine practice, ensuring its sustained implementation at scale.

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SO.3.30-04

Stepping up to Scale: Organisational Implementation of the 10,000 Steps Program in Victoria, Australia

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: Scalable physical activity programs are essential for addressing population-level inactivity and reducing chronic disease burden. Despite this recognition, few programs have demonstrated sustained implementation. The web- and app-based 10,000 Steps Program is a rare example, successfully implemented across Australia under varying funding models. While the Queensland Government has supported the program for over two decades, Victoria has provided no formal policy support or funding, despite strong organisational and individual uptake. By investigating scale-up in the absence of formal policy and funding, this study offers novel evidence on how organisations mobilise leadership, partnerships, and internal resources to sustain delivery. This study examined how the program has been implemented at scale within diverse settings and organisational contexts across Victoria, identifying enablers and barriers to sustainable delivery.

Methods: A qualitative case study design was employed to examine implementation across 12 Victorian organisations. Data were collected through semi-structured interviews involving 20 participants, including workplace health coordinators, program champions, and senior managers. Interview questions were guided by the WHO ExpandNet “20 Questions for Developing a Scale-Up Strategy,” which provided a structured lens for exploring key domains such as innovation characteristics, user organisation readiness, environmental context, resource team capacity, scale-up strategy, and sustainability. A reflexive thematic analysis approach was used to interpret findings.

Results: Findings revealed that organisations were drawn to the program’s evidence base, free use, ease of use, and alignment with workplace health goals. Leadership support (including staff time and an allocated budget) and internal communication were critical for uptake and sustained engagement. Supportive workplace cultures and informal health policies facilitated integration. Flexible, context-specific implementation strategies helped organisations navigate resourcing constraints. Most organisations expressed intent to continue the program, citing positive outcomes and strategic alignment.

Conclusion: This study demonstrates how evidence-based physical activity programs can be implemented at scale within diverse systems, even without formal policy or funding. It further highlights the important role of organisational leadership, strategic partnerships, and contextual adaptation in achieving sustainable implementation. These insights can inform future efforts to embed the 10,000 Steps Program within Victorian health systems and support advocacy for long-term policy alignment and investment.

SO.3.30-05

The Physical Activity Journey Project - The Development of a Toolbox for Designing, Implementing and Securing Physical Activity Journeys

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: Daily physical activity is essential for health and can complement treatment for people with physical or psychological conditions. Existing initiatives often lack orchestration, making the transition from healthcare to organized sports and/or homebased independent physical activity challenging and hindering a long-lasting impact. To achieve lasting change, a toolbox is being developed with evidence-based implementation strategies and practical guidance supporting healthcare and sports & exercise professionals and policymakers. To provide input for the toolbox, we identified barriers and facilitators for designing, implementing, and securing physical activity journeys.

Methods: This qualitative study consists of two components: 1) a regional needs assessments in 4 Dutch regions and 2) an analysis of national best practices. In both components, we conducted semi-structured interviews or focus group discussions between March and September 2025 with key stakeholders, including healthcare professionals, sports & exercise professionals, social workers, as well as patients (n=92 for Dutch regions; n=13 for best practices). All interviews were audio recorded and summarized. An inductive thematic analysis was conducted to identify barriers and facilitators. Barriers were then matched to implementation strategies with the CFIR-ERIC Implementation Strategy Matching Tool and further operationalized for use in practice.

Results: Barriers and facilitators were categorized into three themes: 1) fundamental design choices (e.g., target group, recruitment channels), 2) design of the physical activity journey (e.g., outreach, intake, coaching, training, referral and follow-up), 3) enabling conditions (e.g., movement friendly environment, knowledge and attitudes of healthcare professionals and patients, purpose-oriented cross-organizational network, long-term funding, contribution patient). Implementation strategies included developing and distributing educational materials, conducting training and educational meetings, identifying and preparing local champions, develop a formal implementation blueprint, building a coalition and creating a learning community.

Conclusion: Insights from this qualitative study were based on a large and diverse group of stakeholders and provided valuable understanding of the factors influencing the design, implementation and sustainability of physical activity journeys. Our embedded research evaluation in the four regions will provide insight in the usefulness of the implementation strategies and the toolbox in supporting long-lasting, patient-centered physical activity pathways that encourage physical activity.

SO.3.30-06

Societal Impact of Micro-exercise for Work-related Musculoskeletal Disorders

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

Room 5, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Work-related musculoskeletal disorders (MSDs) remain the leading cause of disability globally. This study describes the development and nationwide spread of workplace-based micro-exercise programs over two decades, addressing not only exercise effectiveness but also practical, ideological, and cultural barriers to adoption. Micro-exercises are, for example, brief bouts of strength training with elastic resistance bands targeting the back, neck, shoulders, and arms. The primary research questions examined: (1) what minimal exercise dose effectively reduces MSDs, (2) how to make strength training feasible and culturally acceptable in workplace settings, and (3) societal impact.

Methods: The research performed from 2005-2023 included: (1) laboratory studies using electromyography to compare exercise equipment and muscle activation patterns (n=various samples), (2) randomized controlled workplace trials testing exercise effectiveness across different doses and modalities, (3) a national communication campaign ('Job & Body', 2011-2014) including networking, workplace tours, and mass media outreach, and (4) repeated cross-sectional surveys of representative worker samples tracking adoption rates and register-based follow-up examining sickness absence (n=70,130 workers, 2012-2023). Outcomes included pain intensity, exercise feasibility, adoption rates, and long-term sickness absence.

Results: Initial workplace trials (2008) demonstrated that 3x20 minutes/week strength training significantly outperformed general fitness training and ergonomic advice for chronic neck-shoulder pain. Laboratory studies (2010) validated elastic resistance bands as equally effective as dumbbells. Subsequent workplace trials (2011) demonstrated that just 2 minutes daily of elastic band training performed to muscular fatigue effectively reduced neck-shoulder pain. Following the national campaign, workplace adoption of micro-exercise increased from 15.2% (2012) to 25.2% (2023) of Danish workers. Uptake among workers offered micro-exercise increased from 54.3% to 61.0% (2012-2018). Population attributable fraction estimates revealed that full implementation could potentially

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prevent 12.8% of all long-term sickness absence cases nationally.

Conclusion: This research demonstrates successful translation of exercise science into widespread workplace practice by systematically addressing implementation barriers. The increase in workplace adoption during the years represents significant societal impact, with substantial prevention potential. Key lessons include the importance of minimizing time requirements, ensuring cultural acceptability through strategic communication, and continuously adapting research to stakeholder needs. This model provides a framework for translating physical activity research into population-level impact.

SO.3.30-07

Customer Discovery for Scale Up: Enhancing the Adoption and Scalability of Faith in Action

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

Room 5, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Customer discovery is an entrepreneurial, iterative approach to inform the scale-up and broader dissemination of evidence-based interventions (EBIs) based on the needs and context of potential adopters or “customers.” Faith in Action is a faith-based EBI delivered by community health workers to increase physical activity among underserved churchgoing Latinas. This research applies customer discovery to gather perspectives from key customer groups—experts, partners, decision-makers, and funders—on potential determinants and opportunities for the dissemination and sustainability of Faith in Action.

Methods: We applied business modeling tools and conducted semi-structured interviews with 88 participants selected from four categories to identify cross-sector customer needs and inform sustainable dissemination strategies. Experts were defined as organizations with experience implementing similar programs; partners were entities capable of supporting program components; decision-makers were individuals responsible for making adoption decisions (e.g., church leaders); and funders were institutions with the capacity to provide financial resources. Thematic qualitative analyses were conducted iteratively by multiple coders to identify key themes related to adoption, implementation, and sustainment.

Results: Experts emphasized that sustainability requires early integration within churches, distributed leadership, ongoing investment in training and supporting community health workers, and trust-based partnerships. Partners highlighted the importance of flexible, community-driven programs that align with local needs and priorities, and integrate with existing infrastructure, leveraging resources within faith-based organizations to enhance recruitment and reach. Decision-makers noted that the program needed to prioritize engaging congregants and to include measurable impacts. Funders underscored the need for diverse, adaptable funding models (e.g., memberships, partnerships, fiscal sponsorships) and alignment with community benefit priorities to ensure long-term viability.

Conclusion: Customer discovery was a valuable process for identifying contextual factors that influence the adoption and scale-up of EBIs. Findings inform Faith in Action’s commercialization and sustainability strategies that align with partner and funder priorities, enhance adoption potential, and support continued access to the program. This methodological approach extends dissemination science by integrating business modeling principles to strengthen the long-term impact and reach of health behavior interventions.

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SO.3.30-09

From Consultation to Implementation: How Dijon Municipality Integrated Parents' and Children's Opinions into School Meal Planning

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

Room 5, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Transitioning towards more plant-based diets is a key strategy to promote both human and planetary health. School canteens represent an important leverage point and the French EGalim law (2018) already made one vegetarian meal per week mandatory. In 2021–2022, Dijon municipality (France) engaged in a participatory process to evaluate the acceptability of increasing the frequency of vegetarian school meals beyond one per week by consulting both parents and children.

Methods: First, an online survey was sent to parents of children registered for school canteens ($n = 1,261$) to collect information on sociodemographic characteristics, dietary habits, and food choice motives. This study explored parents' willingness to increase the number of vegetarian meals served each week and the family characteristics associated with this willingness. Second, children's (from 6 to 11 years old) acceptance of vegetarian and non-vegetarian main dishes was assessed using connected scoring devices displaying a five-point smiley scale, installed in 38 primary school canteens across socially diverse neighborhoods. Over one school year (September 2021–June 2022), 208,985 ratings were collected for 125 main dishes (32 vegetarian, 93 non-vegetarian), allowing comparison of children's liking for vegetarian and non-vegetarian dishes.

Results: Among parents, 49% supported adding a second weekly vegetarian meal and 26% favored daily vegetarian options. Willingness was higher among highly educated, flexitarian or vegetarian parents, and those currently opting for pork-free meals (religious preference). Environmental, health, and animal welfare motives were positively associated with willingness, while sensory appeal and familiarity motives were negative predictors. Children's ratings revealed no difference in liking between vegetarian and non-vegetarian dishes. Interestingly, plant-based dishes tended to be more liked in schools located in lower socioeconomic areas, suggesting that increased vegetarian offerings may contribute to closing social dietary inequalities.

Conclusion: Integrating both parental preferences and children's feedback provided a comprehensive understanding of acceptability toward vegetarian school meals. Based on these findings, the Dijon municipality decided to increase the frequency of vegetarian school meals from one to two per week starting in 2023. This participatory approach illustrates how evidence-based local policy can facilitate a socially acceptable and sustainable food transition within public catering systems.

SO.3.30-10

Implementing Lifestyle Front Offices in a Hospital Setting

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: A new innovation to help patients (with non-communicable disease) with improving their lifestyle are Lifestyle Front Offices (LFOs). Patients are referred to these hospital-based innovations by their healthcare professional and receive help with finding an appropriate community-based intervention, such as a dietitian or physical activity support. The current study aimed to identify barriers and facilitators for the implementation of LFOs in hospitals through a process evaluation, using the Consolidated Framework for Implementation Research (CFIR).

Methods: A mixed methods (case) study was carried out on a LFO in the Netherlands. Quantitative data included patient demographics (gender, age) and data on the process (number of referrals, intakes, intervention starts) which were analyzed in SPSS through frequency analyses. Qualitatively, semi structured interviews and phone calls with

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fieldnotes were used, including three stakeholder groups (patients (N=15), healthcare professionals (N=8) and lifestyle health coordinators (N=3)). The interviews and coding guide were based on the CFIR and analyzed based on thematic analysis.

Results: In 20 months, 360 patients were referred to the LFO (47% male, 53% female; mean age of 68). Of these patients, 68% came to all appointments and started an intervention (of which 28% dietary interventions and 21% physical activity interventions).

Facilitating factors included good mission alignment of the LFO with the hospital, the societal relevance of lifestyle, and high need fulfillment for healthcare professionals, which all aided in generating support, easing the implementation process of the LFO.

Barriers to implementation were mainly found on patient level. Patients were not included in the development of the LFO, causing mixed need fulfillment in this group. Furthermore, patients with a lower socio-economic status faced many barriers regarding access to the LFO, because of a lack of information around appointment possibilities and monetary contributions.

Conclusion: The knowledge on barriers and facilitators for LFOs can help improving implementation and accessibility of the LFO, which then can aid in a higher uptake of lifestyle interventions by patients. An effect evaluation of the impact of these interventions on patient behavior and health, e.g. measuring diet quality or physical activity level, is a valuable suggestion for further research.

SO.3.30-11

Engaging Fathers and their 5-11y Old Children in Health Promotion: Effectiveness and Process Evaluation of the “Healthy Dads, Healthy Kids” Randomised Controlled Trial in Germany

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: The prevalence of overweight and obesity in fathers from Germany is high, whilst their participation in health promotion programmes is low. We adapted the Australian, evidence-based healthy lifestyle programme “Healthy Dads, Healthy Kids”, targeting father-child tandems. We evaluated the effectiveness of the German programme using a randomised controlled trial with embedded process evaluation.

Methods: A two-arm randomised waitlist-controlled trial was conducted in 2023/2024 in Northern Germany. Trained facilitators delivered the intervention “Starke Väter, starke Kinder” (i.e., one dads-only session, eight father-child sessions, and handbooks with homework activities). Each tandem-session contained a 30-minute theoretical part (about physical activity, nutrition, media use and parenting), followed by 60 minutes of activities focussed on rough-and-tumble play, fundamental movement skills, and fitness. The primary outcome was fathers’ weight. Secondary outcomes included physical fitness (VO₂max; shuttle-run test) and physical activity (MVPA per week; accelerometry) for fathers and children. The process evaluation included participation quota, logbooks, focus groups with fathers and children, a post-intervention questionnaire, and semi-structured partner interviews.

Results: Overall, N=109 fathers (mean age: 44.2 years, mean BMI: 29.9 kg/m², high social status: 53.3%) and their children (mean age: 7.8 years, 46.7% girls) participated. N=34 father-child tandems were lost before follow-up. Fathers with very low activity and high BMI were more likely to drop out. Focus groups were conducted with n=38 fathers and n=37 children, supplemented by n=4 partner interviews. On average, fathers reduced their weight by 1.53 kg (p<.05) compared to the control group. No significant intervention effects were found on VO₂max and MVPA. While sessions were implemented as intended, the homework activities were only partially completed. The intervention dose received was 60%. Most families wanted the programme to be continued. Changes in lifestyle of families more broadly were reported. Programme alterations were suggested relating to the theoretical part, handbooks, and social interactions between families beyond the programme.

Conclusion: The German programme proved acceptable and was overall implemented as intended. Fathers weight loss was clinically meaningful. However, a need for programme modifications remains before considering a

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nationwide roll-out, in particular modifications to the theoretical part (reductions and linguistic simplifications) and the commitment of the homework activities.

SO.3.30-12

Strengthening a National Network for Nutrition Policy Implementation in ECEC: Findings from an EPIS-Guided Needs Assessment

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: The National Nutrition Network – Early Childhood Education and Care (ECEC) is an Australian community of practice uniting practice, policy and research to co-create positive and sustainable ECEC food environments that strengthen children's health and learning. This study identified barriers, facilitators, and priorities to strengthen the Network's ability to support policy implementation. Guided by the Exploration, Preparation, Implementation, Sustainment (EPIS) framework, we generated strategies to advance equitable, sustained policy translation across systems.

Methods: A multi-method design captured breadth and depth of perspectives across policy, research, and practice sectors. Data were collected from June-September 2025 via network members: online survey (n = 21); semi-structured interviews (n=2 policymakers, n=2 researchers, n=2 practitioners); leadership SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis (n = 7); two-day Community-Engaged Dissemination and Implementation (CEDI) workshop (n = 16). Survey items assessed engagement, confidence, and perceived barriers to implementation. Qualitative data analysis used rapid EPIS-aligned coding template to identify barriers, facilitators, and implementation strategies. Triangulation across sources and member checking with leadership enhanced credibility.

Results: Participants described a deeply relational network grounded in trust and shared purpose. These qualities facilitated Exploration phase, fostering collaboration and community legitimacy. These qualities served as facilitators in the Exploration phase by fostering collaboration and community legitimacy. However, accountability for nutrition policy was diffuse between health and education portfolios, which limited political will and coordination. During Preparation, participants emphasized co-design and valuing practitioner perspectives as mechanisms for readiness; fragmented training, short-term funding, and consultation-fatigue were barriers. In the Implementation phase, adaptive and relationship-driven strategies (e.g., coaching, storytelling) effectively tailored efforts to local contexts. High workforce turnover, competing demands, and perceptions of external oversight rather than partnership constrained consistent delivery. Sustainment depended on stable policy mandates, continuous funding, and mechanisms to capture practice-based evidence. Shifting political priorities, commercialization of the sector, and staff-turnover hindered long-term impact. SWOT also identified opportunities to improve communication, clarify roles, and develop practical implementation tools.

Conclusion: Applying EPIS revealed phase-specific priorities including enhancing training systems, workforce stability, and cross-sector communication to strengthen capacity for sustained and scalable policy impact.

SO.3.30-13

Adapting a Prenatal Exercise Trial for Community Delivery Using the Replicating Effective Programs Framework

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SO.3.30 Implementation and scalability: Strengthening Systems: Organisational Strategies for Scaling Nutrition and Activity Interventions

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Purpose: Most pregnant individuals in the U.S. do not meet physical activity (PA) guidelines. The *Expecting* clinical trial demonstrated that a supervised training program improved fitness and activity among pregnant individuals with obesity. This study describes (1) key outcomes from the clinical trial, (2) the adaptation of the intervention for community delivery using the Replicating Effective Programs (REP) framework, and (3) preliminary outcomes from a pilot community-based trial.

Methods: In *Expecting*, participants ($n=264$; $\text{BMI} \geq 30 \text{ kg/m}^2$) were randomized to exercise (EX) or standard of care (SOC) from 12 weeks of gestation until delivery. Compliance and step counts were measured. Using REP, the intervention was adapted for delivery in community settings. Adaptation steps included pre-testing virtual ($n=3$) and hybrid ($n=5$) delivery models, gathering stakeholder input ($n=11$ community partners), modifying intervention materials, data collection systems, and designing implementation strategies. A pilot randomized community trial was then implemented ($n=26$; 19 EX, 7 SOC). Participants were offered twice-weekly live exercise sessions. Compliance was the percentage of sessions completed, and fidelity was monitored monthly by research staff.

Results: In the clinical trial, median compliance was 61.7%. Daily steps showed a significant time $\times$ group interaction ($p=0.039$); higher-attendance participants took $\sim 1,100$ more steps/day vs. SOC. The EX group reduced their steps less (-592.9) than SOC (-889.8) as pregnancy progressed. During adaptation, EX participants preferred live sessions over recorded workouts (87% of sessions completed live), and community partners emphasized accountability, data collection simplification, and social support. In the community pilot, median compliance was 53.4%; EX participants were more compliant (57%) than SOC participants (25%) with providing step counts at 2+ of the requested time points. Among EX participants, 55% increased their average step counts from 12 to 36 weeks ($+229$ to $+4,929$ steps). Fidelity of the community-based trainers to the exercise protocol was $>95\%$. Qualitative feedback indicated the program was acceptable, achievable in pregnancy, and valued for its structure and support.

Conclusion: The *Expecting* intervention promoted physical fitness in a clinical trial and was feasibly adapted for community delivery using REP. Pilot data show moderate compliance, high fidelity, and meaningful step gains supporting the program's promise for scalable community implementation.

SO.3.31-01

Development and Validation of Nature-based Physical Literacy Scale

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

Room 6, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: While several instruments have been developed to assess physical literacy, few consider its application in outdoor and nature-based contexts. Nature-based physical activities involve distinct challenges and affordances compared to build environments. Emerging evidence suggests that interaction with natural settings enhances prosocial behaviour, environmental awareness, and overall wellbeing (Bopp et al., 2022; Edwards et al., 2017; Young et al., 2020). This study aimed to develop and validate a context-specific nature-based physical literacy scale (NBPLS) to assess individuals' perception for lifelong engagement in nature-based physical activity.

Methods: A modified Delphi technique was employed to develop the initial item pool. A panel of 25 experts in physical literacy, physical education, and outdoor education participated across three iterative rounds and provided both quantitative ratings and qualitative feedback on item clarity, relevance, and domain alignment. Based on expert consensus, a 32-item preliminary scale was constructed. The scale was then administered to two independent samples of university students. Exploratory factor analysis (EFA) was conducted ($n=399$) to examine the underlying factor structure. Confirmatory factor analysis (CFA) was conducted ($n=401$) to validate the emergent model.

Results: The modified Delphi process yielded high levels of agreement and support the content validity of the scale. EFA identified five factors of motivation, confidence, physical competence, knowledge and understanding, and environmental interaction, which account for 58.31% of the total variance. Factor loadings exceeded .60 for most

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items. Internal consistency for each domain was acceptable ($\alpha = .73-.85$), and overall reliability of the scale was excellent ($\alpha = .91$). CFA supported the five-factor model, indicating acceptable model fit indices ($\chi^2(314)=844.60$, $\chi^2/df=2.69$, CFI=.88, GFI=.86, AGFI=.83, NFI=.87, RMSEA=.06, and SRMR=.06).

Conclusion: The NBPLS provides a psychometrically robust tool for assessing physical literacy in nature-based settings. Its application can guide the development of interventions that promote physical activity, environmental stewardship, and holistic wellbeing. The scale bridges a critical gap in physical literacy research and offers practical utility for educators, health professionals, and community organisations seeking to foster lifelong engagement with nature through movement.

SO.3.31-02

Healthy Lifestyle and Increased Happiness among Adolescents in Castilla-La Mancha

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

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Purpose: Given the growing importance of mental health among adolescents, it is essential to investigate strategies that contribute to their well-being. In this context, adopting a healthier lifestyle is increasingly recognized as a significant pathway to achieving a happier life in this population. Therefore, the aim of this study was to examine which healthy lifestyle factors are involved in increasing happiness among adolescents in Castilla-La Mancha.

Methods: The sample consisted of 462 third-year secondary school students (3^o ESO) from the five provinces of Castilla-La Mancha (Toledo, Ciudad Real, Albacete, Cuenca, and Guadalajara). Participants completed an ad-hoc questionnaire addressing sociodemographic and psychosocial variables (the “feeling worried, sad, or unhappy” dimension of the Euroqol-5D quality of life questionnaire) and lifestyle factors (including the 24-Hour Movement Guidelines, adherence to the Mediterranean diet, and breakfast habits). Descriptive tests, chi-square tests, and binary logistic regression adjusted for sex, age, socioeconomic status, environment, marital status, adherence to the Mediterranean diet, and breakfast consumption were used for statistical analysis.

Results: Findings show that 35.1% of the adolescent sample reported feeling worried, sad, or unhappy, of which 71.3% were girls ($p < 0.001$). Factors significantly associated with greater perceived happiness among adolescents included higher compliance with the 24-Hour Movement Guidelines ($p = 0.028$), particularly meeting physical activity recommendations ($p = 0.005$) and not skipping breakfast ($p = 0.005$). Logistic regression results indicate that meeting all recommendations of the 24-Hour Movement Guidelines predicts greater happiness in adolescents (OR = 0.365, 95% CI 0.136–0.982, $p = 0.045$).

Conclusion: Greater adherence to the 24-Hour Movement Guidelines, especially regarding physical activity, as well as not skipping breakfast, is associated with increased happiness in a sample of adolescents from Castilla-La Mancha. Furthermore, it is particularly relevant to apply these strategies among girls, as they exhibit lower levels of happiness at these ages.

SO.3.31-03

The Development and Feasibility of a Comprehensive Measurement Instrument for Parental Well-being, a Qualitative Analysis

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

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Purpose: Parents play a pivotal role in the promotion of healthy nutrition and physical activity in the home environment. Factors related to parental mental health, like stress or depressive symptoms have been subject of research in healthy parenting. However, mental health is more than the absence of mental disorders and mental well-being may play an important role in parenting. Parental well-being appears to be a complex construct in need for a multidimensional operationalisation. The Dutch Youth Institute developed a comprehensive framework on parental well-being. The goal of the current research was to develop a measurement instrument based on this comprehensive framework and test its feasibility.

Methods: A first version of the questionnaire was developed from an item bank of existing questionnaires measuring aspects of parental well-being. This version was pretested among a convenience sample of parents of children aged 0-18-years using cognitive interviews with a thinking aloud method. Based on this pretest, a second version of the questionnaire was developed. Adaptations were made on formulation of items to increase understandability, the answering scale, and development of new items. As part of a larger validation study, an open-ended question on the questionnaire was analysed on feasibility aspects.

Results: Six parents participated in the cognitive interviews and N=379 replied on the open-ended question. In general, the questionnaire was received well by the parents. Parents sometimes perceived the formulation of the questions as difficult. They were inclined to choose the middle category of the answering scale (5-point scale, never – always) and the answering scale did not always match the question well. Answering was complicated in case of more children and parents perceived the age of the children as an important factor related to their well-being. The cognitive interviews strongly showed that parents became increasingly aware of their well-being due to the questionnaire: *“I will be still thinking about these questions later on”*.

Conclusion: This research showed that the questionnaire was received well by parents and identified some first issues regarding feasibility of the questionnaire. The questionnaire will be further developed and used to study the association between parental well-being and healthy parenting.

SO.3.31-04

The Effects of the Coronavirus Job Retention Scheme (Furlough) on Lifestyle Health-related Behaviours and Mental Health Symptoms in a Sample of UK-based Truck Drivers

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

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Purpose: The COVID-19 pandemic triggered an unprecedented shutdown that reshaped work and daily life worldwide. In the UK, the Coronavirus Job Retention Scheme (furlough) supported over 8.7 million workers on temporary paid leave. This large-scale policy created a unique opportunity to examine how relief from occupational demands influenced lifestyle behaviours and wellbeing. For truck drivers, already vulnerable to poor sleep, prolonged sitting, and fatigue, the lockdown created two opposing realities: intensified workloads for drivers with essential deliveries versus complete work cessation for other drivers under furlough. This study examined whether furlough provided relief that enabled healthier behaviours and improved wellbeing or introduced new challenges for this high-risk group.

Methods: A COVID-19-specific online questionnaire was completed by truck drivers participating in the Structured Health Intervention For Truckers (SHIFT-UK) trial, a randomised controlled trial of a workplace health promotion programme. The survey captured sleep, nature visits, alcohol intake, sitting and standing time, occupational-fatigue and symptoms of anxiety and depression. Of 220 invited drivers, 91 (age: 51.3±9 years, 98.9% male) responded, with 44 (48%) reporting furlough. Longitudinal analyses also included follow-up data six months post-lockdown from the SHIFT trial.

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Results: During lockdown, furloughed drivers reported longer sleep (median 7.0 vs 6.5 h/night, $p < .001$), more nature visits (3 vs 2 times/week, $p < .01$), greater standing time (2 vs 1 h/day, $p < .05$), and higher engagement in new physical activity (36% vs 15%, $p < .05$) than non-furloughed drivers. Furloughed drivers experienced a temporary reduction in anxiety symptoms during lockdown ($p = .010$) and a rise in frequent nature visits (41% ≥ 4 days/week vs 7% pre-pandemic), but by 6-months follow-up, after returning to work, anxiety symptoms returned to baseline ($p = .263$), new activity declined ($p < .001$), and chronic fatigue increased ($p < .01$).

Conclusion: Furloughed drivers adopted healthier behaviours with short-term improvements in sleep, activity, and mental wellbeing, including reduced anxiety. These gains, likely reflecting temporary relief from work demands, diminished after returning to work, as chronic fatigue increased post-lockdown. This study provides rare insight into how an unprecedented national policy affected health in a high-risk occupational group, underscoring the need for sustained workplace interventions to maintain wellbeing beyond temporary disruptions.

SO.3.31-06

Portuguese Validation of the Psychological Insight Scale: Psychometric Properties and Associations with Behavioral Change Following Psychedelic Experiences

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

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Purpose: Recent decades have witnessed a resurgence of interest in psychedelic science. Teixeira et al. (2022) suggest that psychedelics may disrupt maladaptive patterns and facilitate health behavior change, contributing to the emerging concept of „behavioral psychedelics“ (Neuhaus and Slavich, 2022). To advance future research examining psychological factors as potential mechanisms facilitating behavioral change and promoting psychological well-being, validation and adaptation of psychometric instruments is essential. This study aimed to: i) translate and adapt the Psychological Insight Scale (PIS) to Portuguese language and culture, and ii) examine the psychometric properties (factorial validity, reliability, and construct validity) of the translated items.

Methods: Data were collected in ceremonial contexts via online questionnaires administered at multiple time points before and after ceremonies. Following the original authors procedures, Principal Component Analysis (PCA), internal consistency analysis, concurrent validity, and predictive validity analyses were conducted. Spearman correlations and linear regression models examined relationships between psychological insight, well-being, and behavioral change.

Results: PCA revealed a unifactorial structure with the principal component explaining 73.3% of total variance and demonstrating excellent internal consistency ($\alpha = 0.993$) across the six items. Concurrent validity analyses indicated that higher psychological insight was significantly associated with lower psychological resistance ($\rho = -.700$, $p < .001$). Predictive validity was evidenced by significant correlations between PIS-6 scores (one day post-ceremony) and psychological well-being at two-week follow-up (WEMWBS; $\rho = .156$, $p < .001$). A moderate positive correlation emerged between insight-influenced behavioral change (PIS-item 7) and well-being at follow-up ($\rho = .401$, $p < .001$). Regression analyses demonstrated that PIS-6 scores assessed one day post-ceremony marginally predicted subsequent well-being changes ($\beta = .219$, $F(1,78) = 3.919$, $p = .051$, $R^2 = .036$), while PIS-6 scores at two weeks significantly predicted well-being outcomes ($\beta = .252$, $F(1,78) = 5.30$, $p = .024$, $R^2 = .052$). Notably, insight-related behavioral change (PIS-item 7) assessed at two weeks strongly predicted well-being at follow-up ($\beta = .420$, $F(1,78) = 16.671$, $p < .001$, $R^2 = .166$).

Conclusion: The Portuguese version of the PIS demonstrates robust psychometric properties, including unifactorial structure, internal consistency, and adequate concurrent and predictive validity. The instrument proved sensitive in capturing the relationship between psychological insight, behavioral change, and well-being outcomes following psychedelic experiences in ceremonial contexts.

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SO.3.31-07

Device-measured Moderate-to-vigorous Physical Activity and Mental Health among University Students: Insights from the Health@NUS Cohort Study

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

Room 6, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: University years represent a crucial window where students encounter diverse academic and social stressors. Engaging in moderate-to-vigorous physical activity (MVPA) is often associated with better mental health, however, existing studies have leveraged on self-reported MVPA, which is prone to inaccuracy and recall biases. In this study, we seek to examine how device-measured MVPA influences the mental health of university students.

Methods: Health@NUS is a two-year prospective cohort of university students in Singapore leveraging on Fitbit smartwatches to continuously collect physical activity and sleep data between October 2020 to January 2023. Mental health was assessed by the 21-item Depression, Anxiety, and Stress (DASS-21) in January 2023. Fitbit data were filtered to exclude days with <8h of daily wear time or atypical activity levels. Participants with at least 30 valid person-days of data and DASS-21 response were included. Differences in mental health across MVPA tertiles were examined using ANOVA with post hoc analyses adjusting for sex and year of study.

Results: Participants (N=421) were mostly female (57.7%) and of Chinese ethnicity (92.4%). Equal proportions were enrolled in years 1-2 (36.3%), year 3 (27.6%), and years 4-5 (36.1%). In total, 131,490 person-days were collected (mean 312.3±159.6 days/participant; average wear time of 16.9±3.6 hour/day). Mean daily MVPA was 15.3±5.5 min, 29.6±4.6 min, and 58.5±18.1 min for the low-, mid-, high-MVPA tertiles, respectively. After adjusting for sex and year of study, depression scores (p=0.42) and anxiety scores (p=0.17) did not differ across MVPA tertiles. Stress scores differed significantly (p=0.03), participants in higher MVPA tertiles had approximately 2 points higher adjusted stress scores than those in the lowest MVPA tertile.

Conclusion: Our findings highlight that higher device-measured MVPA levels was associated with greater perceived stress, but not with symptoms of depression or anxiety. This suggests that greater MVPA may coexist with increased perceived stress among university students, reflecting academic workload, time pressures, or stress-induced activity rather than the health promoting effects of PA.

SO.3.31-08

Do Physical Activity and Sedentary Behaviour Have an Effect on Burnout Risk in Flemish Secondary School Teachers? A Prospective Study

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

Room 6, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Burnout in secondary school teachers is an increasing concern. More physical activity (PA) and less sedentary behaviour (SB) may be beneficial to reduce burnout risk in this population. However, no longitudinal evidence on the role of PA-intensities across PA-domains and the role of SB-domains exists. Furthermore, the teaching population, characterized by high PA levels, needs to be studied, as literature showed that leisure PA was less effective to reduce burnout risk in employees with physically demanding jobs. Therefore, this study aimed to examine the causal effects of different PA-intensities and -domains and SB-domains on burnout risk in secondary school teachers.

Methods: In this prospective study, 306 Flemish secondary school teachers participated in three measurement moments during the school year 2019-2020 (i.e., start and end of 1st semester, start of 2nd semester). Each measurement

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moment, burnout risk (including recovery need and the three burnout dimensions: emotional exhaustion, depersonalisation, personal accomplishment), PA-intensities (walking, moderate-intensity PA (MPA) and vigorous-intensity PA (VPA)) in five PA-domains (work, transport, leisure-time, domestic and garden), and SB in three domains (work, transport, leisure-time), as well as sociodemographic factors and work-related factors were assessed. Multiple linear mixed models including selected confounders based on directed acyclic graphs were applied in R.

Results: MPA during transport and SB at work were negatively associated with emotional exhaustion ($p=0.021$ and $p=0.003$, respectively). MPA at work was positively associated with personal accomplishment ($p=0.049$), whereas VPA at work was positively associated with recovery need ($p=0.041$). Gardening MPA was positively associated with emotional exhaustion ($p=0.010$), and both gardening and domestic MPA were positively associated with recovery need ($p=0.016$ and $p=0.018$, respectively). The (negative) association between leisure-time VPA and emotional exhaustion was borderline significant ($p=0.055$).

Conclusion: To reduce burn-out risk, our findings suggest teachers to engage in MPA at work and during transport, VPA during leisure-time, and SB at work, and to limit VPA at work as well as gardening and domestic MPA. Altogether, this study highlights the importance of differentiating between PA-intensities across PA-domains and between SB-domains when addressing burnout risk. Future research should measure additional potential confounding factors and employ longer time intervals.

SO.3.31-10

Exploring Food Insecurity, Diet Quality and Mental Wellbeing among Students at Queen's University Belfast

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

Room 6, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Food insecurity, defined as limited access to sufficient nutritious food for a healthy and active life, is an important social determinant of health. University students constitute a vulnerable group concerning both food security and mental health. In the UK, 44% undergraduate students were classified as food insecure. This study aimed to investigate the associations between food security, diet quality, and mental wellbeing amongst Queen's University students (QUB).

Methods: A cross-sectional online survey was conducted among undergraduate and postgraduate students enrolled at QUB between November 2024 and July 2025. The 88-item survey covered demographics, food security, diet quality, general health, mental wellbeing, and academic success. Food security was evaluated using the 10-item U.S. Adult Food Security Survey Module (FSSM; cut-off score=3). Mental wellbeing was assessed using three different validated measures: Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS; 7–35, higher scores indicating greater wellbeing), the Patient Health Questionnaire-9 (PHQ-9; 0–27) and Generalized Anxiety Disorder-7 (GAD-7; 0–21), with higher PHQ-9 and GAD-7 scores indicating higher levels of depression and anxiety symptoms, respectively. Diet quality was assessed using a culturally adapted Mediterranean Diet Screener (0–13). Regression models examined associations between food security and mental wellbeing, depression, and anxiety adjusting for age, gender, and ethnicity.

Results: Data from 1084 students (78.0% female, 70.8% undergraduate, 81.2% white) aged 24.3 ± 7.2 years (range 18 to 63), were analysed. Approximately 42% were classified as food insecure, among whom 52.7% reported low mental wellbeing, 55.1% exhibited elevated depressive symptoms, and 64.7% experienced higher anxiety symptoms. Food insecurity was associated with a significant reduction in wellbeing scores ($B = -1.9$, 95% CI $-2.32, -1.42$). Food insecure students scored on average 1.9 points lower on the mental wellbeing score and were twice as likely to report depressive and anxiety symptoms compared to food secure students (OR 2.74, 95% CI 2.08–3.60 and OR 2.16, 95% CI 1.65–2.83, respectively). All findings are from fully adjusted models.

Conclusion: Our findings highlight food insecurity as a significant social determinant adversely affecting mental wellbeing and anxiety/depressive symptoms, suggesting that addressing food insecurity through tailored interventions could substantially improve mental health outcomes in the university student population.

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SO.3.31-11

UK Truck Drivers' Musculoskeletal Discomfort and Associated Risk Factors

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

Room 6, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Truck drivers are a sedentary occupational group, with high prevalences of physical inactivity, prolonged sitting and poor / disrupted sleep. Limited international research suggests that truck drivers experience high levels of work-related musculoskeletal (MSK) disorders; however, little evidence exists within UK truck drivers. This study examined MSK symptom prevalence in a UK truck driver cohort and explored associations between MSK risk, health behaviours, and markers of physical and mental health.

Methods: Baseline data from UK truck drivers collected as part of the UK-SHIFT RCT were used in this study. Measurements included a comprehensive health check, device-based measures of activity, sitting (activPAL) and sleep (GENEActiv), and self-reported measures of MSK symptoms and markers of mental wellbeing (including symptoms of anxiety and depression [Hospital Anxiety and Depression Scale], acute occupational fatigue, situational sleepiness [Karolinska Sleepiness Scale]). A descriptive analysis was conducted on the prevalence of pain and its sites. Spearman's correlation analysis evaluated the relationship between overall MSK pain and potential risk factors. Binary logistic regression was subsequently performed to assess associations between risk factors and overall MSK pain.

Results: Out of 385 drivers (99% male, median age=49 years, BMI=29.8 kg/m²), 84.7% reported experiencing MSK pain, mainly in the lower back (55.3%), knee (46.0%), shoulder (40.5%), and neck (37.9%). There were no associations between device-measured physical activity, sitting time, sleep duration or BMI and MSK pain/discomfort. After controlling for covariates (BMI, waist, hip and neck circumferences, age, sex, working duration, sleep duration, sitting time, physical activity), associations between anxiety symptoms, acute occupational fatigue, situational sleepiness, age and MSK risk were observed. The highest odds ratio was observed for anxiety symptoms, with those having borderline or abnormal scores being 4.4 times more likely to report MSK pain than those with healthy scores (95% CI [1.551,12.57] p=0.005).

Conclusion: Truck drivers show a high prevalence of MSK pain, driven by an ageing workforce and occupational factors that promote anxiety, fatigue, and situational sleepiness. In this sample, poor mental health had a stronger association with MSK pain than physical behaviours like sitting or activity.

SO.3.31-13

Social Media Use and Mental Distress: Is the Association Different by Age?

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SO.3.31 Mental Health and Wellbeing: The Ecology of Wellbeing: Promoting Mental Health in Education, Work, and Nature

Room 6, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Considering the increase in social media usage time by the population, some studies have been warning about its effects on mental health. This issue may be even more pronounced when considering the population at different ages, given their varying social media use. Thus, the objective of this study was to test the association between social media frequency of use and mental distress and see if this association is different by age groups.

Methods: The study used data from the Health Information National Trends Survey (HINTS) 6 project, based on a United States of America representative adult sample (N=6252). Mental distress was evaluated using the Patient Health Questionnaire-4 (PHQ-4) tool, with scores higher than or equal to three considered as having some mental distress. Social media frequency of use was measured through a survey and categorized as 'Never', 'Low Frequency of Use', and 'High Frequency of Use'. Association between social media and mental distress was tested using multivariable logistic regression, adjusted for sex, ethnicity, age, education, marital status, and isolation level, and stratified by different

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age categories (18-29, 30-39, 40-49, 50-59, 60-69, 70+ years).

Results: Overall, 53.05% of the sample reported a high frequency of social media usage, and 34.62% were classified as having some mental distress. Compared to individuals who never used social media, individuals with low (OR=1.33, 95%CI=1.11-1.59) and high (OR=1.78, 95%CI=1.52-2.09) frequency of use presented higher odds of mental distress. When stratifying by age, only individuals with 18 to 29 years presented higher odds of mental distress for low (OR=13.96, 95%CI=1.47-49.42) and high (OR=8.52, 95%CI=2.18-89.13), when compared to those who never used. For the other age groups, no marked and significant associations were observed.

Conclusion: Frequent social media use has been associated with mental distress, especially among young individuals. This result highlights the need for more initiatives to improve the healthy use of social media targeting young adults.

SO.3.32-01

Which Factors Influence Urban Indian Adolescents' Snacking Behaviors? A Qualitative Study

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Urban Indian adolescents often practice unhealthy dietary behaviors such as meal skipping and snacking on energy-dense, nutrient-poor (EDNP) foods. Excessive consumption of EDNP snacks is widely cited as one of the potential drivers of the obesity epidemic. To facilitate healthy snacking among adolescents it is important to explore the various factors which may influence the consumption of healthy and unhealthy snacks among Indian adolescents. The aim of this inquiry was to qualitatively explore factors influencing snacking behavior of urban Indian adolescents.

Methods: Underpinned by the social constructivism paradigm, an exploratory-descriptive qualitative research approach was used to obtain an in-depth understanding of the influences on adolescents' snacking behaviors. Purposive sampling was employed to recruit adolescents aged 10-19 years from two government and two private schools in Varanasi, Uttar Pradesh, India. Face-to-face interviews were conducted in Hindi/English, per the preference of the interviewees. The interviews were audio recorded, transcribed verbatim, and translated to English (where necessary) for data analysis. The transcribed data were subjected to thematic analysis. Themes were extracted using inductive coding in the NVivo software program.

Results: A total of 62 adolescents (50% male; 76% private school students) with mean age 15.3 (SD : 1.86) years completed the interviews. Ten themes emerged including:

- (i) Perceptions of a snack;
- (ii) Liking for unhealthy snacks;
- (iii) Cost of snacks;
- (iv) Family food environment (e.g. Food rules regarding snacking);
- (v) Influence of the peer group;
- (vi) School food environment (e.g. Easy availability of unhealthy snacks in canteens, limited supply of healthy snacks in canteens);
- (vii) Snacking episodes (e.g. consuming snacks at night, consuming snacks while watching TV);
- (viii) Influence of mass media;
- (ix) Packaging;
- (x) Neighborhood food environment.

Conclusion: The emerging themes demonstrate that multiple factors are likely to influence snacking behaviors in Indian adolescents, aligning with existing scholarship on adolescent snack consumption. Behavioral nutrition interventions should be developed to create enabling environments to promote healthy snack consumption in adolescents by eliminating barriers at the individual, household, and community levels.

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SO.3.32-02

Validity, Reliability, Feasibility and Safety of Field-based Physical Fitness Test for Individuals with Intellectual and Developmental Disability: A Systematic Review

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Individuals with intellectual and developmental disability (IDD) often present lower levels of physical fitness, high levels of sedentary behaviour, and increased risk of chronic diseases compared with general population. Researchers, clinicians, and sport professionals still lack clear evidence on which field-based fitness tests are valid, reliable, feasible, and safe for this population. This systematic review is the first to synthesize several psychometric evidence of field-based fitness tests in individuals with IDD.

Methods: A systematic search was conducted in MEDLINE (PubMed), Web of Science, Scopus, and SPORTDiscus up to February 4, 2025, following PRISMA guidelines. Methodological quality was rated as high, low or very-low using standardized checklist. Three evidence levels (strong, moderate and limited) were established based on the quantity and consistency of studies, and according to the global evidence for validity, reliability, feasibility and safety.

Results: Of 1,722 records identified, 43 original studies were considered eligible, of which 24 (9 of high quality) examined validity, 34 (19 of high quality) reliability, 21 (2 of high quality) feasibility, and 16 (5 of high quality) safety of field-based fitness tests. Fourteen studies included participants with DS, 15 only IDD, and 14 included mixed-samples. Strong evidence indicated that: a) the 20-m shuttle run test shows lack of consensus on its validity in children and adolescents; b) the 6-min walk, and the handgrip strength tests shows high reliability in adults; and c) the standing long jump test shows high reliability in children and adolescents. Moderate evidence indicated that the 6-min walk test was safe in adolescents and young-adults. No strong evidence was found for feasibility and safety, mainly due to a few studies. Overall, when examining the global evidence for validity, reliability, feasibility, and safety (all ages included), all field-based fitness tests showed limited evidence.

Conclusion: Is the first review that synthesis several psychometric evidence for field-based fitness tests in individuals with IDD. Not all tests have been evaluated across different age groups, and some intellectual disability's levels remain underrepresented. More high-quality studies are needed to establish standardized, evidence-based assessment protocols that improve monitoring, exercise prescription, and promote participation in physical activities among individuals with IDD.

SO.3.32-04

The Acute Effects of Interrupting Prolonged Sitting with Regular Activity Breaks on Postprandial Glucose and Insulin in Adults: A Systematic Review and Meta-analysis

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Experimental studies indicate that frequently interrupting sitting with acute bouts of physical activity tend to reduce postprandial glucose and insulin responses, although questions remain about the consistency of this effect

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across different modes and patterns of activity. The purpose of this study was to conduct a comprehensive systematic review and meta-analysis of intervention studies investigating the effect of regular activity breaks on postprandial glucose and insulin responses in adults.

Methods: Acute (<24 h duration) laboratory-based randomised crossover trials, which compared postprandial glucose, and/or insulin response between prolonged sitting and any intervention involving interrupting sitting with repeated (at least three times) short (<10 min) bouts of activity, were identified across five databases up until 9th October 2024. Risk of bias was assessed using the Downs and Black quality assessment tool. For each outcome, study effect sizes were standardised and a random-effects meta-analysis undertaken. To account for multiple results from a single study, multilevel meta-analyses were carried out with study as a random effect. Subgroup meta-analyses were undertaken for mode and frequency of activity breaks.

Results: A total of 53 studies met inclusion criteria, of which 39 were included in the meta-analysis. Overall, when compared with prolonged sitting, regular activity breaks lowered postprandial glucose incremental area under the curve (iAUC) (SMD -0.30, 9% CI -0.43 to -0.13) and insulin iAUC (SMD -0.30 95% CI -0.46 to -0.14). Walking activity breaks produced the largest reductions in postprandial glucose iAUC (SMD -0.33, 95% CI -0.48 to -0.17) and insulin iAUC (SMD -0.44, 95% CI -0.62 to -0.27), compared to the other modes of activity. Interrupting sitting more frequently (every 15-20 min) produced the largest reductions in postprandial glucose iAUC (SMD -0.51, 95% CI -0.83 to -0.19) and insulin iAUC (SMD -0.41, 95% CI -0.77 to -0.06).

Conclusion: Frequently interrupting prolonged sitting by performing short activity breaks can improve acute postprandial glucose and insulin response in adults, with the largest reductions occurring when walking activity breaks are performed every 20 min or less.

SO.3.32-05

Co-designing a Climate-resilient Healthy Active Living Intervention for Youth as Agents of Change: Lessons Learned across Contexts and Geographies

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: This presentation shares lessons from an international collaboration between research teams in Canada and Jamaica to co-design a healthy active living intervention with youth, youth leaders, and service providers. The project aimed to engage young people as agents of change in promoting sustainable, health-enhancing behaviors across diverse contexts. We describe the overarching goals of the research program, the participatory approach used to engage communities, and the resulting intervention that will be pilot-tested in low-income neighborhoods within a high-income nation (Hamilton and Calgary, Canada) and a low-to-middle income nation (Jamaica).

Methods: Noncommunicable diseases (NCDs) account for 70–90% of deaths in both Canada and Caribbean nations, with prevalence rising globally and further threatened by climate change. Major NCDs, including cardiovascular disease, type 2 diabetes, and certain cancers, share modifiable risk factors such as poor diet, physical inactivity, and obesity. Early-life prevention through sustainable diets, physical activity, and mental well-being offers the most cost-effective pathway to reduce these risks. This project leverages an experience-based co-design approach to empower youth as citizen scientists, fostering local solutions for healthy active living that are both contextually relevant and climate-resilient.

Methods: Using a Community-Based Participatory Action framework, we conducted community engagement workshops, key informant interviews, community ecosystem mapping, and co-design sessions with youth and service providers. These activities were implemented across neighborhoods in Calgary and Hamilton (Canada) and in three Jamaican communities to inform the development of a shared intervention model with locally tailored adaptations.

Results: The resulting intervention is an intergenerational, climate-resilient healthy active living program emphasizing local and sustainable food production and preparation and home economics skills, after-school physical

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activity, social connection, and fostering a sense of belonging. Core program components were co-developed with communities, while contextual adaptations ensure cultural and environmental relevance across all sites.

Conclusion: This project demonstrates the potential of co-design to empower youth as catalysts for community-based health and wellness. By centering youth voices and lived experiences, the intervention fosters ownership, climate action, and meaningful cross-geographical learning, laying the groundwork for scalable, equity-driven approaches to healthy active living.

SO.3.32-06

Association between Cardiovascular Health and Mental Health in Apparently Healthy Adults: The Mediating Role of Physical Fitness. CARDIOFIT Study

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Cardiovascular diseases burden make monitoring cardiovascular health (CVH) essential. The Life's Essential 8 (LE8) assesses CVH across behavioral and biological domains. Mental health disorder, are leading causes of adult disability. Recent evidence suggests better CVH may protect against poor mental health, while physical fitness (PF), a powerful indicator of both cardiovascular and mental health, may modify this association. This study examined (i) the association between CVH and mental health (anxiety, depression) and (ii) the role of PF in this relationship.

Methods: This cross-sectional study included 354 apparently healthy adults (42.37±12.57 years). Anxiety and depressive symptoms were self-reported using the *State-Trait Anxiety Inventory* and the *Center for Epidemiologic Studies Depression Scale* questionnaires. PF was assessed by a graded-exercise test for cardiorespiratory fitness and the handgrip strength test for muscular strength. CVH was evaluated using LE8 score (0-100), combining behavioral (diet, physical activity, nicotine exposure, sleep) and biological (non-HDL cholesterol, blood glucose, blood pressure, body mass index) components. Two multiple linear regression models were fitted: (1) included LE8 as the independent variable and adjusted for age, sex and education; (2) further adjusted for cardiorespiratory fitness and handgrip strength. Analyses were also stratified by sex and age group (18-34, 34-40, 50-64 years). Statistical significance was set at $p < 0.05$.

Results: Mean scores were 15.56 ± 10.41 and 26.72 ± 3.47 for state and trait anxiety, 10.13 ± 3.58 for depressive symptoms, and 76.2 ± 10.82 for LE8. There were no significant association between LE8 and anxiety ($p > 0.05$). LE8 showed a negative tendency with depressive symptoms ($\beta = -0.103$, $p = 0.078$), although this tendency disappears when adjusting for PF. However, separated by age group, LE8 showed a negative tendency with depressive symptoms only in the 50-64 year group ($\beta = -1.79$, $p = 0.07$), but this association disappeared after adjusting for PF. All models were non-significant by sex ($p > 0.05$).

Conclusion: Higher LE8 scores tended to associate with lower depressive symptoms, but this relationship was attenuated after adjusting for PF. This suggests PF may partly mediate the link between cardiovascular and mental health, underscoring the value of promoting both CVH and PF to help prevent depressive symptoms in adulthood.

SO.3.32-07

Can 24-h Activity Intensities and Domains, Body Composition, and Diet Macronutrients Compositions Reveal a Diagnosis of Gestational Diabetes?

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: This observational study aims to examine differences in 24-hour activity patterns (intensities and domains), dietary macronutrient intake, and body composition between women with and without a diagnosis of gestational diabetes mellitus (GDM), with the goal of identifying behavioral and physiological characteristics associated with GDM that may support its early detection and enhance management approaches.

Methods: Pregnant women (n=88) were classified as either diagnosed with GDM or non-diagnosed at approximately the 24th week of gestation. The 24-hours activity behaviours were assessed using an accelerometer to quantify activity intensities and the Pregnancy Physical Activity Questionnaire to quantify time spent in activity domains. Body composition was measured using a bioelectrical impedance device, and dietary macronutrient intake was assessed by a Food Frequency Questionnaire. The composition of activity intensities was derived from the time spent in sleep, sedentary behavior (SB), light physical activity (LPA), and moderate-to-vigorous physical activity (MVPA). The composition of activity domains was determined from the time allocated to household/caregiving, occupational, leisure, commuting, and inactive activities. Body composition was characterized by the relative percentages of fat, muscle, and bone mass, while dietary composition was expressed as the proportional intake of macronutrients, including saturated fat, unsaturated fat, protein, and carbohydrates. Isometric log-ratio (ilr) coordinates were compared between diagnosed and non-diagnosed women using Hotelling's T^2 test. Binomial logistic regression was employed to examine associations between ilr coordinates and GDM diagnosis.

Results: Significant differences were observed in activity intensity ($p=0.048$), activity domain ($p=0.041$) and body ($p=0.005$) compositions between pregnant women diagnosed with GDM and those without a diagnosis, while no significant differences were found in dietary composition. Binomial logistic regression showed significant associations between the diagnosis of GDM and the ilr.3 coordinate of activity intensity ($p = 0.046$), the ilr.3 coordinate of activity domain ($p = 0.047$), and the ilr.2 coordinate of body composition ($p = 0.031$).

Conclusion: Significant differences in activity patterns and body composition, but not dietary intake, were observed between women with and without GDM. Associations between activity behaviors and body compositions with GDM diagnosis suggest that these factors may serve as relevant indicators for the early detection and targeted management of GDM.

SO.3.32-08

Movement Behaviour Profiles and Body Composition: A Latent Profile Analysis of 24-h Time-use Composition among Pregnant Women

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: This study aims to identify movement behaviours profiles and to investigate their association with pregnant women body composition.

Methods: 24-h hours activity behaviours were objectively assessed using an accelerometer at mid-pregnancy in a sample of 137 pregnant women. Activity composition was created from the accelerometer time spent in sleep, sedentary behaviours (SB), light intensity physical activity (LPA) and moderate-to-vigorous intensity physical activity (MVPA) using a default sequential binary partition. Body composition was assessed using a bioelectrical impedance device to determine BMI, BAI, fat mass, muscle mass, bone mass, and total body water (TBW)), and a skinfold caliper to measure the sum of skinfold thicknesses. Movement behaviour profiles were determined using latent profile analyses of isometric log-ratios of the 24-h composition. Linear regression models were employed to examine the association between profiles and body composition.

Results: Two distinct profiles were identified: Highly active pregnant women (Cluster 1) were characterised by engaging in significantly higher levels of LPA and MVPA ($p<0.001$) and spending less time in SB compared with low active pregnant women (Cluster 2) ($p<0.001$), while no significant differences were found for Sleep. Highly active pregnant women showed more favourable body composition indicators than low active pregnant women: BMI (-5.0 kg/m²), BAI (-2.9 kg/m²), skinfold thicknesses sum (-4.6 mm), fat mass (-5.1%), muscle mass (+5.1%), bone mass

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(+5.0%), and TBW (+4.9%) (all $p < 0.005$). Linear regression models indicated that the cluster grouping, in addition to the Pre-pregnancy BMI, was significantly associated with fat mass, muscle mass, bone mass and total body water when the model is controlled by potential confounders. When confounders were excluded, cluster grouping is also significantly associated with BMI, BAI, and skinfold thicknesses sum.

Conclusion: Movement behaviour profiles among time-use composition are associated with body composition during pregnancy. Pregnant women classified as highly active profile, by engaging in higher levels of LPA and MVPA physical activity and spending less time in sedentary time, exhibited more favourable body composition indicators. In addition to pre-pregnancy BMI, the findings highlight the potential importance of promoting higher physical activity levels during pregnancy for maintaining healthier body composition.

SO.3.32-09

Evaluation of a Co-creation Process to Adapt an Intervention Targeting Adolescents' School-related Sedentary Behaviour

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice
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Purpose: Co-adaptation is a collaborative process through which existing public health interventions are adapted to new contexts, offering a promising way for scaling them. Little is known about how co-adaptation processes are implemented. However, the implementation of a co-adaptation process can strongly influence participants' experiences with the co-adaptation process as well as the relevance, acceptability and quality of the adapted intervention. This study therefore evaluates the implementation of and participants' experiences with a co-adaptation process of a previously co-created intervention targeting adolescents' school-related sedentary behaviour.

Methods: Two secondary schools in Flanders, Belgium, including all Grade 7 and 8 classes, participate in the study. In each school, three co-adaptation sessions involving researchers and a representative group of pupils and teachers, will be conducted between November 2025 and January 2026. The sessions will be guided by the *Intervention Mapping Adapt* framework. Data on the implementation of and experiences with the co-adaptation process will be collected by researchers completing a reflection form after each session. Additionally, one focus group with pupils and one with teachers per school will be conducted after the co-adaptation process. Data will be analysed in MAXQDA using reflexive thematic analysis.

Results: As the co-adaptation process has not yet started, results are not available at this stage. At the conference, we will present the evaluation of the implementation of the co-adaptation process and findings on pupils', teachers', and researchers' experiences with the co-adaptation process.

Conclusion: Evaluating the co-adaptation process will provide insights to guide future adaptations of public health interventions together with the target group and other key partners, supporting the development of more acceptable, relevant and sustainable interventions.

SO.3.32-10

"I Feel Seen and Connected": A Mixed Method Study on Culturally Tailored Videos to Enhance Sense of Belonging among ITCA WIC Participants

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice
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Purpose: The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a U.S. federally funded program providing monthly nutritious food benefit packages, nutrition education, breastfeeding support and health referrals to low-income women, infants, and children up to age five. WIC helps address high food insecurity rates and nutrition-related health concerns in American Indian communities. However, low participation rates among the eligible population (56% in the US state of Arizona), and barriers such as perceived stigma hinder program engagement. This mixed-methods study evaluated perceptions of short, culturally-tailored digital video content for social media, as well as their effectiveness in fostering a greater sense of belonging (SoB) among eligible participants.

Methods: The study employed a convergent mixed-methods design. Surveys were administered to ITCA WIC participants before (January 2024; N=1,587) and after (July 2024; N=1,632) video dissemination through social media channels. Quantitative data measured SoB using an eight-statement scale, complemented by social media metrics (reach, impressions, and engagements). The qualitative component involved thematic analysis of post-intervention open-ended survey feedback on video perceptions.

Results: In the post-video survey, a significantly higher percentage of respondents agreed or strongly agreed with 7 of the 8 statements about positive SoB in WIC. For example, agreement with “WIC is a part of my community” increased from 91.6% to 97.6% ($p < 0.001$), reflecting a stronger sense of belonging within the ITCA WIC community after the video dissemination. Preliminary qualitative analysis validated these findings, revealing that participants highly valued the content, with three dominant themes emerging: Cultural Representation, Relatability, and Informational Value. Participants expressed that seeing Native individuals in the videos and content that reflected their lifestyles was crucial to feeling connected and seen. Other dominant themes included the content’s strong informational value and its engaging presentation that promoted a sense of community.

Conclusion: Overall, these findings suggest that culturally specific digital outreach strategies are highly effective tools for increasing a sense of community, connection, and belonging among American Indian WIC participants. This approach holds significant promise for increasing program engagement and mitigating social barriers to WIC participation among other marginalized communities.

SO.3.32-11

Patient and Public Involvement in Health and Social Care Doctoral Research: Recommendations Co-developed by Doctoral Researchers, Public Contributors, and a Public Involvement Coordinator

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Patient and Public Involvement (PPI) is increasingly recognised as a foundation of relevant, equitable, and impactful behavioural, nutrition, and physical activity research. Doctoral studies provide a pivotal opportunity to embed these principles early in researchers’ careers, cultivating future leaders who view engagement and collaboration as core scientific practices. Yet there remains limited guidance on how to deliver meaningful, sustained PPI within doctoral contexts. This paper presents co-produced reflections and practical recommendations developed through collaboration between doctoral researchers, public contributors, and a PPI coordinator. The goal was to identify transferable approaches that strengthen authentic involvement, build capacity, and promote equity across health and behavioural research settings.

Methods: The team adopted a participatory co-production process using online surveys, facilitated discussions, and iterative reflection. Drawing on experiences from multiple doctoral projects, contributors jointly analysed enablers and barriers to effective involvement. The process emphasised both “space to talk,” encouraging open dialogue, and “space to change,” allowing adaptation of ideas and roles in real time. Collective insights informed a framework of recommendations directed at doctoral researchers, PPI contributors, and institutional coordinators.

Results: PPI improved research quality, recruitment, and accessibility, while enhancing communication and reflexivity among early-career researchers. Contributors valued the opportunity to shape study design, interpret findings, and influence outcomes relevant to lived experience. Key challenges included managing emotional topics,

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limited time and resources, and variable institutional support. The coordinator role emerged as essential for bridging communication, managing reimbursement, and ensuring continuity. Recommendations highlight early planning, trust-building, accessible communication, shared learning, emotional support, and structural funding for involvement as critical success factors.

Conclusion: Authentic PPI enriches doctoral research by fostering scientific rigour, inclusivity, and translation of behavioural evidence into real-world impact. Embedding PPI training, recognition systems, and coordinator roles within doctoral programmes can normalise co-production and create more responsive research cultures. These recommendations offer a practical roadmap for integrating public involvement across disciplines, advancing equity, implementation, and the societal relevance of future behavioural and public health research.

SO.3.32-13

Co-designing Community Priorities to Promote Youth Health and Sustainable Lifestyles: Findings from the SCORE! Youth SHAL Calgary Site

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SO.3.32 Participatory Research in Health Promotion: Integrative Perspectives on Movement Behaviors: Mental Health, Metabolic Outcomes, and Inclusive Practice

Room 7, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Cardiovascular diseases such as heart attack and stroke are largely preventable, yet their early risk factors — poor diet, low physical activity, and sedentary behaviour — are increasingly observed in youth, particularly in urban settings. The *SCORE! Youth SHAL* (Sustainable Healthy Active Living) project aims to prevent these risks while fostering environmental sustainability by promoting outdoor activity, active transportation, and consumption of locally grown foods. The purpose of this study was to conduct co-design workshops with youth residing in at-risk communities in Calgary to identify priorities for community-based interventions that could promote healthy eating and active living while considering environmental impacts.

Methods: Using a participatory co-design framework, 32 youth (ages 12–18) took part in one of two 3-hour workshops. Employing the MoSCoW prioritization method (“Must-Have,” “Should-Have,” “Could-Have”), participants collaboratively identified and ranked feasible and desirable intervention strategies. The process emphasized youth voice, feasibility, and alignment with community strengths and context.

Results: “Must-Have” priorities reflected immediate, actionable needs: improved food labeling and education about ingredients, social-media-based cooking tutorials, access to free exercise spaces near neighbourhoods, reducing screen time, and creating walkable, low-pollution cities. “Should-Have” items highlighted household and seasonal adaptations such as balanced meal planning, batch cooking, winter activity planning, and affordable markets. “Could-Have” priorities emphasized social connection through affordable gyms, outdoor recreation, community events, and volunteer-led sport programs.

Conclusion: Youth co-design workshops revealed that health promotion must address not only individual behaviours but also environmental and infrastructural barriers to healthy living. These findings will inform the next phase of *SCORE! Youth SHAL*, which will co-develop and pilot test community-based interventions grounded in the identified priorities. This participatory, strength-based approach offers a model for sustainable, youth-driven health promotion across diverse community contexts.

SYMPOSIUM

S.3.50-1

Transferring the Promotion of Physical Activity in Primary Schools from a Feasibility Trial to an Implementation in the Real World: The Bremen Activeschools

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S.1.01 Motivation and behavior change: Addressing the Complete Picture: Advancing the Promotion of Physical Activity in School-Aged Children During School Terms and Holidays

Auditorium, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Following the promising findings of a feasibility cluster-randomized controlled trial, the ACTIPROS approach (promoting physical activity in primary school children by participatory choosing from a set of 12 evidence-based physical activity interventions) is currently being prepared for scale-up in the German Federal State of Bremen. Potentially, ~100 primary schools are available to join this subsequent 5-year-project, called Bremen Active Schools (BAS). To reach as many primary schools as possible, multiple efforts are implemented to promote BAS as an attractive project for schools.

Methods: The qualitative measures implemented for promoting BAS include local stakeholders' workshops (n=3), an exchange with similar projects from other countries (n=2), a world café with local stakeholders from a deprived district, and interviews with local school administrators (n=20). Findings of the measures are intended to inform the name, branding and social marketing of BAS. The social marketing and the recruitment of schools for BAS will commence in January 2026.

Results: Following the findings of the stakeholder workshops and the world café, a German name for the project was selected ('AktivSchule Bremen'). The positive impact of physical activity on educational outcomes and social interactions was chosen to be at the forefront of the social marketing of BAS, resulting in the branding claim 'Education.Physical Activity.Together' ('Bildung.Bewegung.Miteinander'). The world café and interviews indicated that BAS should highlight the ease of implementation, the participatory approach of the intervention selection process, the close cooperation of schools and the research institute, low costs and limited additional work required in the marketing materials to schools (website, newsletter, flyers, etc.). Results from the recruitment process will be added at the conference.

Conclusion: This study provides insight into the development of the social marketing process of BAS, in order to transfer the ACTIPROS approach as tested in a feasibility trial towards a scale-up in the real world. We demonstrate how findings from multiple qualitative activities can be applied to this transition, and hope to inspire researchers and stakeholders on how to transfer findings from controlled conditions to real-world settings. Findings from the recruitment process will serve as an indicator of success in our approach.

S.3.50-2

From Evidence to Implementation: Building Sustainable Pathways for the Active School Concept in Switzerland

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S.1.01 Motivation and behavior change: Addressing the Complete Picture: Advancing the Promotion of Physical Activity in School-Aged Children During School Terms and Holidays

Auditorium, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Swiss adolescents spend most of their school day sedentary and fail to achieve sufficient levels of physical activity (PA). Schools are recognized as key settings for promoting PA, as they provide inclusive environments to reach all students. Based on the CSPAP framework, *Active School 1.0* was designed and implemented to promote daily PA opportunities and reduce sedentary behavior during the school day. Extending the CSPAP approach, *Active School 1.0* placed particular emphasis on training two teachers per school as Physical Activity Leaders (PALs). Through targeted workshops, these PALs developed the skills and capacity to promote PA within their schools. Building on the

evaluation findings, the planning of *Active School 2.0* is underway to develop sustainable and scalable structures for PA promotion within the Swiss school system.

Methods: The evaluation of *Active School 1.0* is based on a cluster-randomized controlled trial involving 12 secondary schools and 703 students (aged 12–16 years) over a two-year period. A mixed-methods approach captured both effectiveness and implementation processes. Quantitative data from accelerometer-based MVPA measurements and questionnaires were complemented by qualitative data from document analyses, ripple effect mapping, and semi-structured interviews, providing a deeper understanding of how the program works, for whom it is effective, and under which conditions.

Results: Preliminary quantitative results indicate a tendency toward increased school-based MVPA, particularly during classroom instruction. Qualitative findings emphasize that successful PA promotion requires time, guidance, and intrinsically motivated PALs who can anchor PA practices in everyday school routines. Building on these insights, *Active School 2.0* addresses the need for systematic mentoring, capacity building, and long-term support through participatory development. Two core components define this next phase: (1) a coach-the-coach system, in which former PALs participate in two workshops to become mentors and coach new PALs during implementation, and (2) a Community of Practice promoting peer learning and networking through annual conferences and regional meetings.

Conclusion: *Active School 2.0* marks the transition from an evidence-based intervention to a sustainable, system-level approach embedded in school development and teacher education. Fostering mentoring and regional learning communities, it provides the foundation for a national framework to sustainably integrate physical activity into Swiss schools.

S.3.50-3

Addressing Unhealthy Behaviors and Weight Gain in the Summer: Evidence from Four Randomized Controlled Trials

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S.1.01 Motivation and behavior change: Addressing the Complete Picture: Advancing the Promotion of Physical Activity in School-Aged Children During School Terms and Holidays

Auditorium, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: There's growing recognition that summer vacation/holiday from school is a high-risk timeframe for unhealthy behaviors (e.g., low activity levels) and accelerated weight gain in children. In summer, the most at-risk group are those children from low-resourced areas. A leading explanation for this phenomenon is the Structured Days Hypotheses (SDH) which states structured settings, like school, promote healthy behaviors via environmental control and limit setting. For the majority of children, summer represents an extended period of time with less structure than the school year. Accessing structured programming in summer (e.g., summer day camps, SDC) is an out-of-pocket expense, thereby creating a financial barrier for families from low-resourced areas. One solution is providing free access to pre-existing community-operated summer programs. This presentation will provide an overview, findings, and future directions from three ongoing, and one recently completed, large-scale RCTs addressing unhealthy behaviors and weight gain during summer among children (3-12yrs).

Methods: The four RCTs intervention approach is providing free access to pre-existing, community-operated SDC (5-12yr olds) or center-based childcare (3-4yr olds) for families from low-resourced areas. Importantly, no changes to routine practice occurs – the programs operate “as usual” without any outside (i.e., researcher) requested enhancements/modifications.

Results: The RCTs address questions related to 1) the efficacy of providing SDC during the summer (Voucher RCT, N = 422) or free childcare (Voucher Early Years, N = 300); 2) how many weeks of SDC are necessary to improve health behaviors and reduce weight gain (DOSE, N = 360); and 3) what is the year-round impact on health behaviors and weight gain from providing both free SDC and free afterschool programming (Beyond the Bell, N = 480). Outcomes presented include changes in physical activity, sleep, diet, and screen use, and anthropometrics (BMI/percent body fat). Spillover effects on parents will also be discussed.

Conclusion: Despite the epidemiological evidence from 4 decades of the negative health effects of summer on children, few interventions have been tested for this timeframe. The cumulative evidence from these four RCTs has the potential to inform policies at the local, state, and national level to address childhood obesity.

SYMPOSIUM

S.1.02-1

Co-developing Local Policy Solutions for Equitable, Healthier Restaurant Food Environments

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S.1.02 Policies and environments: Collaborative approaches to transform retail food environments for health promotion

Room 1, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: This study applied systems science and human-centered design (HCD) to co-identify policy-based solutions that facilitate the provision of nutrient-rich, locally-sourced offerings in independently-owned in New Orleans, Louisiana. Restaurants play a pivotal role as intermediaries between consumers and locally grown foods. Yet, the adoption of locally sourced, nutritious ingredients remains limited among independently owned, economically accessible establishments. This challenge reflects a dynamic interplay of multi-level barriers and facilitators that require systemic, participatory approaches to understand and address.

Methods: Through the Voices at the Table project, we conducted a total of seven workshops with restaurant owners, producers, government representatives, and food system organizations (n=15, on average, per session). The 2-hour, in-person sessions incorporated facilitation techniques from HCD (Liberating Structures) and group model building (GMB) to elicit systems-based barriers and potential leverage points for change. Each workshop ended with a debriefing discussion and survey, and summaries of findings were shared with participants after each meeting. Findings were summarized into a causal loop diagram (CLD) that was expanded and refined through a dedicated GMB session, where participants mapped and developed new solutions. The GMB exercise was followed by a debriefing meeting to share the revised CLD. This presentation will also incorporate our final workshop (December 2025), in which government and local food organizations will co-develop an implementation for the co-identified solutions.

Results: Participants identified reinforcing and balancing feedback loops influencing the provision of nutrient-rich, locally grown foods in restaurants. Key themes included perceived customer demand, economic pressures, operational constraints, and supply chain coordination challenges. Leverage points included incentive programs, consumer education, recognition mechanisms, and supportive local policies and services. Results will also integrate final feedback from participants on prioritized solutions.

Conclusion: This work demonstrates how participatory systems approaches can help identify opportunities for collaborative action within local food environments, including independently-owned restaurants, an under-engaged sector. The CLD served as both a research and policy tool, informing interventions that align economic, social, and public health objectives. Insights from this work contribute to broader discussions on multi-level strategies to foster equitable, resilient, and health-promoting food environments.

S.1.02-2

Towards Healthier Retail Food Environments in East Asia: From Monitoring to Collaborative Action with Retailers and Policymakers

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S.1.02 Policies and environments: Collaborative approaches to transform retail food environments for health promotion

Room 1, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Diet-related non-communicable diseases represent a major and growing health burden in the East Asia and Pacific (EAP) region. This concerning trend has been partly attributed to changes in the retail food environment over recent decades, which have led to unhealthy foods becoming increasingly available, more affordable, and more heavily promoted. Recognising the pivotal role that food retail companies play in shaping purchasing behaviours through their business practices, UNICEF launched an initiative in EAP aimed at improving the retail food environment

for children.

Methods: A co-created research agenda led to the development of a healthy food retail initiative for obesity prevention across five East Asian countries launched by UNICEF's East Asia and Pacific Regional Office and Deakin University. The initiative involved: 1) a series of landscape analyses and monitoring studies assessing the healthiness of physical and online retail food settings and how people interact with them; 2) a knowledge-sharing platform and network of key interest-holders; and 3) a business case for action and collaboration with retailers, governments, and industry associations to implement evidence-based interventions.

Results: Assessments of product availability and marketing strategies across supermarkets, convenience stores, informal street food vendors, online grocery retailers, traditional stores and meal delivery apps showed that unhealthy products were disproportionately available and widely promoted through a broad range of marketing strategies. The established network brought together over 80 interest-holders engaged in advancing the healthy food retail initiative agenda. Based on a guidance framework informed by expert input and international best practices, as well as a business case developed using results of landscape analyses, contact was made with at least 27 major food retailers across the region. Of these, 10 were actively involved in implementing healthy food retail initiatives in collaboration with government policymakers supporting this agenda.

Conclusion: This pioneering initiative provides a critical foundation for understanding the key aspects of retail food environments in the EAP region and identifying opportunities to improve their healthiness. The findings support the prioritization of public health policies, encourage voluntary actions by retailers, and offer a roadmap to guide retailer engagement in co-designing healthy retail interventions.

S.1.02-3

Creating Healthier Layouts in Discount Supermarkets in England: Outcomes on Store Sales, Customer Purchasing, Diet and Household Waste

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S.1.02 Policies and environments: Collaborative approaches to transform retail food environments for health promotion

Room 1, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Previous product placement trials have been small and limited in outcomes. Discount supermarkets have less healthy environments than other supermarkets and are frequently used by families experiencing deprivation. This study assessed the effects of a retailer-led intervention which positioned an expanded fruit and vegetable section near the entrances of discount supermarkets on store-level sales, household-level purchasing and waste, and dietary behaviours.

Methods: This prospective matched controlled cluster trial involved 36 stores (18 intervention and 18 control) of a discount supermarket chain in England. The intervention was implemented for six months. Control stores were matched on store sales, customer profiles and neighbourhood deprivation. Women customers aged 18 to 60 years, with loyalty cards, who shopped at intervention (n=280) or control (n=300) stores agreed to participate.

Results: Interrupted time series analyses showed increases in store-level sales of fruit and vegetables were greater in intervention stores than predicted at intervention implementation (0.32SDs (95%CI 0.11, 0.53), p=0.002) and 3-months (0.23SDs (95%CI -0.05, 0.52), p=0.10) and 6-months follow-up (0.18SDs (-0.16, 0.52), p=0.29), equivalent to ~2525 (95% CI 775, 4115), 1940 (95% CI 380, 3950) and 1450 (95% CI -945, 3950) extra portions per store, per week respectively. Effect sizes were somewhat stronger in stores where the produce section moved forward further. The proportion of households purchasing fruit and vegetables in intervention compared to control stores was very similar at baseline (-0.1% (95%CI -6.1%, 6.0%)) but somewhat higher after 3- (0.6% (95%CI -5.6%, 6.7%)) and 6-months (3.3% (95%CI -2.5%, 9.2%)) exposure to the intervention. Changes in dietary quality were small but generally in the direction for health benefit. Change in frequency of household vegetable waste was negligible at 3-month follow-up but increased at 6-months.

Conclusion: Positioning produce sections near supermarket entrances can improve the nutrition profile of store sales and may improve household purchasing and dietary quality. Government regulations to curb unhealthy placement marketing being used in retail outlets should consider requiring the placement of a fruit and vegetables section at store entrances alongside limiting placement of unhealthy foods in locations such as checkouts, aisle-ends and store entrances to maximise their health benefit.

SYMPOSIUM

S.1.03-1

Advancing the Precision of Sedentary Behaviour Guidelines: Current Evidence and Opportunities

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S.1.03 Cancer prevention and management: Identifying Behavioural Antidotes to Too Much Sitting: Findings and Implications From Two Nationally Funded Controlled Trials

Room 2, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Current physical activity guidelines from global and disease-specific bodies, including the World Health Organization and the American Diabetes Association, provide only general recommendations to reduce and interrupt sitting, with limited specificity regarding sedentary behaviour. Identifying and integrating practical, evidence-based strategies into these guidelines is crucial for effectively supporting the growing population of physically inactive, overweight/obese middle-aged and older adults at risk of or living with type 2 diabetes.

Methods: Current international and disease-specific guidelines on sedentary behaviour were reviewed to assess their scope and recommendations. A parallel review was conducted of recent experimental studies and systematic reviews assessing both the short and longer-term metabolic health effects of reducing and interrupting sitting time, with particular attention to variations by age and gender. The analysis focused on identifying evidence gaps and opportunities for greater guideline specificity.

Results: Recent findings suggest that regular interruptions to prolonged sitting provide short-term glycaemic benefits; however, the optimal interruption patterns and underlying mechanisms have yet to be established. The longer-term effects are beginning to be characterised. For example, in a three-month randomised controlled trial involving overweight and obese post-menopausal women, two sedentary behaviour interventions – ‘sit less’ and ‘sit to stand’ (STS) - were compared with a healthy living control¹. The STS intervention led to a statistically significant reduction in diastolic blood pressure (main difference: -2.2 mmHg; $p < 0.05$) compared to control, while the ‘sit less’ group showed no significant change. Neither intervention affected glycaemic outcomes. These findings suggest that increasing sit-to-stand transitions can modestly improve blood pressure in older women with overweight or obesity; additional research is needed to determine whether similar cardiovascular or glycaemic benefits can be achieved in individuals with, at risk of, type 2 diabetes.

¹Hartman SJ et al. *Circulation*. 2025 26;152(8):492-504

Conclusion: Current evidence remains insufficient to warrant further specification of sedentary behaviour guidelines with respect to optimal interruption frequency or duration. High-quality research is warranted to define the most effective types and intervals of activity breaks, and to assess whether short-term physiological benefits can be sustained as long-term health improvements.

S.1.03-2

Impact of a ‘Sit Less and Move More’ Intervention on Daily Sitting Time and Glycaemic Control in Type 2 Diabetes: The OPTIMISE Your Health Trial

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S.1.03 Cancer prevention and management: Identifying Behavioural Antidotes to Too Much Sitting: Findings and Implications From Two Nationally Funded Controlled Trials

Room 2, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: To investigate the impact of a 'sit-less and move-more' sedentary behaviour intervention on device-measured daily sitting time and glycated haemoglobin (HbA1c) in office workers with type 2 diabetes (T2D) over 6 months (primary endpoint).

Methods: In total, 145 office working adults (35-65 years old), overweight/obese, physically inactive, with managed (6.5 – 10.0% HbA1c) T2D were randomised to receive usual care (n=72) or a multicomponent intervention, consisting of health coaching, a height-adjustable sit-to-stand desk, and an activity tracker (n=73). Daily sitting, standing, and stepping time (standardised to 16-h waking time, measured via thigh-worn accelerometer worn continuously for 10 days), and HbA1c were assessed at baseline, 3- and 6-month follow-ups. Analyses were conducted using linear mixed models accounting for repeated measures, baseline values, baseline glucose-lowering medication use, age, and gender. Significance was set at two-tailed $p < 0.05$ and $p < 0.025$ for the co-primary outcomes.

Results: Six-month follow-up was completed by 122 (84%) participants (64 intervention, 58 control). Daily sitting time was significantly reduced in the intervention group compared with control participants at 3-months (between group difference: -73 [95%CI: -101, -45] Δ min per 16-h day) and 6-months (-79 [-107, -51] Δ min/16h; $p < 0.001$). Correspondingly, between-group differences favouring the intervention were observed for standing time at 3- and 6-months (+63 [39, 88]; +67 [42, 91] Δ min/16h) and stepping time at both timepoints (+9.6 [1.0, 17.9]; +12.4 [4.1, 20.7] Δ min/16h). The intervention participants also experienced a significant improvement compared to controls in HbA1c at 3- and 6-months (between group difference, -0.4% [-0.8, 0.1]; -0.5% [-1.0, -0.1]; $p < 0.01$), which was due to a decrease (improvement) in intervention participants (adjusted mean change, 3-month: -0.3% [-0.5 to 0.0]; 6-months: -0.2% [-0.4, 0.0]) and an increase in controls at 6-months (+0.3% [0.1, 0.5]).

Conclusion: In overweight/obese, physically inactive, office workers with T2D, this 'sit less and move more' sedentary behaviour intervention achieved clinically significant improvements in glycaemic control, following substantially reduced sitting time (>1 h/day) replaced mostly by standing (>1 h/day) and some stepping ($\approx$ 10 min/day), highlighting the relevance of such interventions for T2D management.

S.1.03-3

Interrupting Sitting: Glycemic Benefit of Seated and Upright Muscle-activity Bursts in Type 2 Diabetes

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S.1.03 Cancer prevention and management: Identifying Behavioural Antidotes to Too Much Sitting: Findings and Implications From Two Nationally Funded Controlled Trials

Room 2, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Active interruptions to sitting are known to beneficially influence glucose and insulin in inactive adults with type 2 diabetes. These benefits may be through aspects of the increased muscle activity from such interruptions. We examined the glycaemic effects of different modes for interrupting sitting, and the role of durations and bursts in gluteal, hamstring and quadriceps muscle activity, assessed using shorts with fabric-embedded electromyography (EMG).

Methods: Inactive overweight/obese adults with type 2 diabetes (n = 24; 15 women; 61.3 $\pm$ 8.1 y) participated in a randomized crossover trial with four 6.5-h/d experimental conditions: uninterrupted sitting (control; SIT); or, sitting with six active interruptions each hour of 30-min standing (STAND), 6-13-min seated pedaling (PEDAL), or 2-7-min sit-to-stand transitions (SST). The active interruption conditions were matched on total muscle activity. Incremental areas under the curve (iAUCs) for glucose and insulin were compared between upright and seated interruption conditions, and the effects on glucose and insulin of EMG activity durations [%] and usual muscle activity bursts [%EMG_{MVC}] and were examined with mixed models.

Results: Compared to SIT, PEDAL and SST significantly attenuated glucose iAUC (PEDAL: iAUC -21.1.7%, 15.1 mmol [95% CI= 10.2,22.4]; SST: -22.9%, 14.7 [9.9,22.0], insulin iAUC (PEDAL: -29.2%, 530.4 pmol [383.6, 733.4]; SST: -26.8%, 548.0 [396.0, 761.2]) but STAND did not. Higher quadriceps muscle activity bursts were inversely associated with glucose (β = -0.13[-0.04, -0.00]) and insulin (-0.13[-0.12, -0.00]); muscle activity durations were not related. Hamstring

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muscle activity bursts (0.01[0.00, 0.02]) were also related, but for gluteals no relationships of muscle activity durations or bursts were apparent.

Conclusion: Interrupting sitting with dynamic muscle activity, whether seated or upright and characterized by higher quadriceps muscle activity bursts, enhances glycaemic control in type 2 diabetes. Interruptions to prolonged sitting that can optimize muscle activity bursts may efficiently offer health benefit for those with diabetes, and potentially for those who are living with, or at risk of, other ageing-related metabolic disorders. Further evidence is needed on the long-term glycaemic and other health benefits of muscle activity bursts.

S.1.04-1

SUPER-AIM: A Holistic Framework to Evaluate Systems-informed, Co-creation Projects in Public Health

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S.1.04 Participatory Research in Health Promotion: CANCELLED: The YoPA Project: latest insights from a youth-centered participatory research and systems dynamics approach

Room 3, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: No comprehensive evaluation framework has been designed for systems-informed co-creation projects within the field of public health. In response to this gap, a novel evaluative framework—the SUPER-AIM framework—adapted from the well-established RE-AIM model is developed and proposed. Drawing on a real-world systems-informed co-creation project aimed at enhancing health in youth, the YoPA project, the aim is to present the practical application of the SUPER-AIM framework in the evaluation of all key aspects of this systems-informed co-creation project.

Methods: The SUPER-AIM framework is specifically designed to evaluate the process and effects of co-creation projects for public health across eight interrelated components: Systems, User Perspective, Participatory Process, Effect, Reach, Adoption, Implementation, and Maintenance. These components operate across multiple levels (e.g., individual, organizational, and community) and are interrelated, shaping the overall impact of co-creating and implementing public health interventions.

Results: Within the Systems component, action teams used multiple participatory methods (e.g., photovoice, interviews, questionnaires) to map drivers of unhealthy movement behaviors and wellbeing through Causal Loop Diagrams. The User Perspective component involved community focus groups assessing the acceptability and accessibility of co-created actions for adolescents in vulnerable settings. The Participatory Process was evaluated using facilitator logbooks, reflection forms, and focus groups to assess adolescents' satisfaction with co-creation. Under Effect, pre-post questionnaires (n=200) and systematic observations measured life satisfaction, peer relationships, agency, and physical activity, supplemented by a Realist-informed Ripple Effects Mapping exploring (un)intended outcomes. Reach was assessed via demographic and participation questionnaires identifying whether the target group was engaged. Adoption captured stakeholder engagement through interviews examining their commitment to co-creation and implementation. Implementation was documented using facilitator logs and project records detailing delivery, adaptations, action quality, and costs. Finally, Maintenance was explored through stakeholder interviews 12 months post-implementation to evaluate sustainability of the co-created actions.

Conclusion: Evaluating all eight components in a co-creation project is crucial for understanding the mechanisms that explain how and why the project succeeds or fails, and under which conditions. Although a comprehensive evaluation of all components can be resource-intensive, we encourage using the SUPER-AIM framework to enable a more complete assessment of co-created public health interventions in the future.

S.1.04-2

From Co-creation to Action Plan: Intervention, Context, Actors, Mechanism, Outcome (ICAMO)-guided Physical Activity Systemic Action Plan for Adolescents in Nigeria

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S.1.04 Participatory Research in Health Promotion: CANCELLED: The YoPA Project: latest insights from a youth-centered participatory research and systems dynamics approach

Room 3, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Nigerian adolescents in disadvantaged communities have limited opportunities for physical activity (PA) and are at risk of non-communicable diseases (NCDs). This study examined how a youth-centered participatory approach can be used to identify barriers to PA and generate practical solutions to improve PA among adolescents (12-18 years) in a low-resource community in Ido Osun, Nigeria.

Methods: A qualitative participatory approach, utilizing group discussions, presentations, mapping, photovoice, interviews, and direct observations. Adolescents (N=22), school staff (N=2), parents (N=2), community and religious leaders (N=4), and public health and urban planning professionals (N=2) participated in 10 co-creation sessions to explore factors that promote and limit adolescents' PA in school and community environments. Insights were visualized through a system map that highlighted connections and relationships among the identified factors of PA. An action plan was developed to outline practical solutions, including core activities/actions. Each action was articulated using the innovative ICAMO framework, specifying the intervention, context, actors, mechanisms, and expected outcomes.

Results: Identified limiting factors include limited infrastructure for PA, safety concerns about strangers' intrusion into school open spaces, absence of Physical and Health Education (PHE) tutors, lack of organized activities, and unavailability of social and physical security measures. The connections highlighted in the system map include perceived safety, number of strangers in outdoor spaces, inclusive space design, access to outdoor space, availability of physical safety measures, maintenance of outdoor space, and availability of social safety measures. The resulting action plan identified practical solutions, including fencing the school environment to ensure safe outdoor spaces, engaging a PHE tutor to facilitate structured PA sessions and classes, engaging security personnel to maintain safety, and implementing a 12-week after-school PA program tailored to adolescents' needs. The ICAMO descriptions ensured transparency by showing how each action functions, who is responsible, and the mechanisms for achieving the expected outcomes.

Conclusion: Our participatory, context-driven co-creation approach, system mapping, and ICAMO-guided action plans provide a practical, evidence-based solution to improve adolescents' PA in a disadvantaged community in Nigeria. This approach can be scaled up as a practical community-led solution to addressing physical inactivity and NCDs in other low-resourced settings.

S.1.04-3

Mechanisms Driving the Lack of Physical Activity in Adolescents in Local Communities in Europe and Africa: Insights from Developing Systems Maps in the YoPA Project

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S.1.04 Participatory Research in Health Promotion: CANCELLED: The YoPA Project: latest insights from a youth-centered participatory research and systems dynamics approach

Room 3, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Worldwide, 81% of adolescents do not meet physical activity (PA) guidelines, which is considered a complex problem. In YoPA, the systems influencing PA in adolescents in vulnerable life situations is depicted through the development of causal loop diagrams (CLDs) in five local communities in Europe and Africa. This presentation provides insights into the mechanisms driving the lack of PA, specifically for adolescents in a local community in Portugal and overall across the five communities.

Methods: One practical protocol was developed to apply youth-centred participatory action research (YPAR) and systems dynamics in local communities in Denmark, the Netherlands, Nigeria, South Africa and Portugal. Adolescents (n=4-22) were actively involved as co-researchers in 7-16 participatory sessions aimed at developing stories explaining the lack of PA in adolescents, using various participatory methods (e.g., photo-voice, neighbourhood walks). Adult stakeholders (n=2-10) participated in one session. Based on the developed stories, researchers created CLDs, depicting the mechanisms driving adolescents' lack of PA in local communities, and identified similarities and differences in mechanisms driving adolescents' lack of PA across all CLDs.

Results: The CLD of the local community in Portugal revealed the following five key themes:

- (1) quality and maintenance of public spaces,
- (2) safety and surveillance,
- (3) social cohesion and community relations,
- (4) availability and accessibility of PA opportunities, and
- (5) behavioural and lifestyle patterns.

Preliminary analysis of all CLDs revealed six common themes:

- (1) accessibility of well-maintained outdoor (public) spaces,
- (2) safety,
- (3) availability and accessibility of extracurricular PA,
- (4) time available for PA,
- (5) peer influence and
- (6) mental health.

The underlying causes of these themes differed between local communities, e.g., lack of safety was caused by community crime and gender-based violence in South Africa and by a fear of being judged in the Netherlands.

Conclusion: The developed CLDs highlight how environmental and social factors interact to constrain PA in adolescents in local communities in Europe and Africa. The comparison of CLDs of the different local communities revealed similar themes, however, the underlying mechanisms driving adolescents' lack of PA differed. This suggests that the different local communities need different interventions to disrupt these mechanisms.

S.1.05-1

Perceptions of Lifelong Physical Activity, and the Physical Literacy Journey: The Voice of Children and Young People across the Island of Ireland

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S.1.05 Children and families: Translating Physical Literacy into Policy and Practice

Room 4, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: In recent years, the respective physical literacy (PL) journeys for children and young people (CYP) have become increasingly relevant to physical activity (PA), physical education (PE) and sports settings. While research has documented understanding of PL among specific stakeholders, such as physical educators and sports coaches, no such research exists regarding the voice of CYP across the island of Ireland (Northern Ireland and Ireland). This study explored CYP's (aged 3-18 years) perceptions of lifelong PA and their PL journey, including factors which they believed

to have influenced their involvement in, or avoidance of, PA, PE, and sport.

Methods: Conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for scoping reviews. Relevant peer-reviewed and scholarly grey literature was identified through database searching, followed by manual hand searching of reference lists, key journals, and author networks. Searches were conducted for studies published from January 1st, 2010, to October 24th, 2025, and screened against pre-determined inclusion criteria. Data was extracted using charting methods and thematic analysis. To ensure transparency, clarity, and reflexivity, coding decisions were discussed collaboratively with the wider research team, who acted as ‘critical friends’.

Results: The review examined 31 qualitative research studies conducted across the island of Ireland, published since 2010. Thematic analysis of the data identified the following five key themes in relation to lifelong PA as part of one’s PL journey: (i) providing choice, (ii) fun, (iii) social influences, (iv) competition, and (v) barriers to positive PL journey experiences.

Conclusion: Drawing on the insights from this study, a series of holistic PL promotion strategies have been proposed that reflect what is meaningful to CYP across Ireland and Northern Ireland. These strategies aim to enhance CYP’s commitment to developing holistic PL and to support sustained lifelong engagement in physical activity (PA). Findings have informed the development of a national consensus statement, the first study of its kind internationally, and learnings can and have been transferred into other contexts. Critically, this study highlights meaningful ways for young people to develop a positive relationship with movement, from the perspectives of CYP themselves.

S.1.05-2

THRIVE Principles to Support Positive Movement Experiences and Enact Physical Literacy into Policy and Practice

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S.1.05 Children and families: Translating Physical Literacy into Policy and Practice

Room 4, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Positive, enjoyable and meaningful movement experiences in childhood and adolescence are critical for fostering sustained engagement in physical activity across the lifecourse. Research consistently demonstrates that the environments and interactions surrounding movement influence motivation, competence, confidence and long-term behaviour. Despite increasing interest in physical literacy as a holistic and person-centred orientation to movement, there remains limited cross-sector guidance on how organisations can translate this concept into practice. This study aimed to co-design a set of clear and usable principles to support the enactment of physical literacy across education, community, health and sport settings.

Methods: A co-design process was undertaken with a working group comprising academics (n=3) and system leaders (n=6) with expertise in physical literacy, education, coaching, community development, youth voice and environmental design. The process included iterative workshops and online meetings, concept mapping, and evidence synthesis. Participants explored what constitutes a positive movement experience, how physical literacy can be operationalised through practice rather than theory alone, and how principles could remain flexible enough for diverse settings while retaining a clear conceptual anchor. Drafts were refined through multiple rounds of feedback, sector testing and alignment with the Physical Literacy Consensus Statement for England.

Results: The co-design process generated six principles - THRIVE (Tailored, Holistic, Reflective, Inclusive, Varied, Empowering) - which articulate the conditions and experiences that support individuals to develop and sustain a positive and meaningful relationship with movement. The principles emphasise: designing experiences around people’s strengths, needs, preferences and circumstances; attending to physical, social, cognitive and emotional dimensions; fostering reflection and personal growth; creating welcoming and supportive environments; offering diverse and engaging ways to move; and enabling individuals to contribute to, shape and take ownership of their movement experiences. THRIVE provides a practical, action-oriented framework that organisations can use to review, design and enhance policies, environments and programmes.

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Conclusion: THRIVE offers a shared, cross-sector language for translating physical literacy into practice. By foregrounding positive movement experiences and whole-person development, the principles support systems seeking to embed physical literacy and cultivate lifelong engagement in movement and physical activity.

S.1.05-3

Operationalising Physical Literacy in Primary Schools: Development and Evaluation of a Monitoring and Feedback Tool

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S.1.05 Children and families: Translating Physical Literacy into Policy and Practice

Room 4, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: We developed a tool that enables teachers to capture children's physical literacy (PL) within the Dutch primary school context. The tool translates the holistic concept of PL into practical indicators and supports physical education (PE) teachers in using these data to provide tailored physical activity (PA) and sport advice to children and parents.

Methods: Three core domains—motor competence, motivation and confidence, and social competence in PA contexts—were defined through scientific evidence and expert consensus and translated into measurable indicators. We used a combination of quantitative testing and qualitative input from children, parents, and teachers to inform the design. Several pilot studies were carried out in schools across multiple locations to test the feasibility, usability, and perceived added value of the monitoring and feedback tool. Specific attention was given to practical integration within school settings and data-protection compliance.

Results: Children and teachers considered the assessments feasible, understandable, and engaging. Teachers reported that PL-based feedback enhanced their understanding of pupils' strengths and needs and supported individualized PA and sports advice. They valued the tool for a basis for communication with parents and for helping to adapt PE lesson content. Implementation challenges included the time required for data entry, the interpretation of composite indicators, and integration with existing school assessment systems. Teachers emphasized the importance of intuitive dashboards, clear visualizations, and targeted guidance materials to support consistent use in practice.

Conclusion: Operationalizing PL into a practical, teacher-led monitoring and feedback tool offers a promising approach to help teachers guide children and parents toward forms of PA and sport that best fit the child. PL-based monitoring provides a meaningful foundation for individualized feedback and aligns well with the aims of daily educational practice. Sustainable implementation will require further refinement of the user interface, additional teacher training, and a robust data-management infrastructure. Future work will focus on implementation of the tool, strengthening national surveillance and policy development around PL in the Netherlands.

S.1.06-1

Moving from Horizontal to Vertical Scale-up: Opportunities and Challenges with an Australian School-based Physical Activity Intervention - Pre-Recording

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S.1.06 Motivation and behavior change -: School-Based Interventions to Promote Physical Activity: Thorns and Roses

Room 5, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: To describe the challenges and opportunities of linear and non-linear horizontal scale-up and moving to vertical scale up and system level sustainment of school-based physical activity interventions.

Methods: In 2009, the TransformUs whole of school physical activity and sedentary behaviour intervention commenced following a traditional research pipeline of pilot to RCT, then testing of a Type 2 hybrid effectiveness-implementation trial at scale (2017-2022) across primary schools in Victoria, Australia. A less traditional non-linear pathway involved program adaptation of the program for secondary schools and for special schools. Two Type 2 hybrid effectiveness-implementation trials were conducted nationally in secondary schools and special schools (2022-2025). Dissemination strategies and outcomes (reach, website engagement, adoption) were also evaluated across implementation trials. Equity at scale and effectiveness of dissemination strategies were also examined.

Results: The 4-arm RCT (n=20 primary schools; ~600 students) significantly reduced sedentary time (~60mins) and increased physical activity (~5mins), relative to controls. When tested at scale (n=40 schools; n= 1218 students) there were no significant intervention effects. Collaborating with 17 external partner organisations the implementation trial reached 462 primary schools and 1,176 teachers registered in Victoria, with no differences in school socioeconomic status for adopting versus non-adopting schools. Seven secondary schools (n=205 students) and five special schools (n=68 students) participated in respective effectiveness trials (analysis of outcomes is in progress). For implementation at scale, collaborating with 16 external partner organisations nationally, 10 dissemination strategies were identified, including promotion via mass media (33%, 110 person-hours), development of educational materials (21%, 48 person-hours), and maintaining partner engagement (12%, 20 person-hours). A total of n=137 teachers across Australia registered for the secondary school program in the implementation trial. In total the TransformUs program is currently reaching n=887 schools nationwide.

Conclusion: Major challenges have included lack of effectiveness at scale, difficulties in assessment of implementation (both for effectiveness and implementation at scale), and the lack of evidence of effective dissemination strategies. Future research should examine effectiveness of different dissemination and implementation strategies, and use of digital technologies to assess implementation. Next steps are to explore vertical scale up and sustainment at the system level.

S.1.06-2

The PACO School-based Cycling Intervention in Spanish Adolescents: Beyond Changing the Mode of Commuting

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S.1.06 Motivation and behavior change -: School-Based Interventions to Promote Physical Activity: Thorns and Roses

Room 5, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: To examine the effects of a school-based cycling intervention on adolescents' usual mode and frequency of active commuting to/from school (ACS), as well as ACS-related psychosocial outcomes.

Methods: A cluster-randomized controlled trial was conducted in eight Spanish secondary schools as part of the PACO study. A total of 256 adolescents (53.1% girls; 14.4±0.6 years) participated. The four-week intervention (one session/week) followed the Bikeability methodology, including theoretical lessons, closed-circuit cycling practice, urban-circuit cycling practice, and bicycle's Party. Outcomes were assessed at baseline and immediately post-intervention. Usual mode of commuting, frequency of ACS, and psychosocial outcomes (perceived barriers, basic psychosocial needs, and motivation) were measured using validated ACS-specific questionnaires. Data were analyzed following an intention-to-treat approach with mixed models, adjusting for gender, socioeconomic status (SES), distance to school, and bike availability. Additionally, per-protocol and moderation analyses were conducted to explore potential effects of gender and SES.

Results: No significant group-by-time differences were observed for the usual mode or frequency of ACS, or for psychosocial outcomes. However, participants in the intervention group reported higher perceived environmental/safety barriers compared with the control group ($\Delta=0.22$, $p=0.041$). Moderation analyses in the ITT indicated greater amotivation among girls in the intervention group ($\Delta=0.54$, $p=0.018$) compared with their peers in the control group. Per-protocol results also showed greater external motivation ($\Delta=0.38$, $p=0.037$) and amotivation ($\Delta=0.45$, $p=0.030$) in the intervention group compared with the control group. The moderation analyses of the per-protocol revealed that girls reported higher environmental/safety barriers ($\Delta=0.40$, $p=0.029$) and external motivation ($\Delta=0.47$, $p=0.047$), while high-SES adolescents reported higher environmental/safety ($\Delta=0.47$, $p=0.010$), planning/psychosocial barriers ($\Delta=0.40$, $p=0.028$), and amotivation ($\Delta=0.54$, $p=0.047$) compared with their peers in the control group.

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Conclusion: The school-based cycling intervention did not produce change in the commuting behavior. However, it increased perceived environmental/safety barriers, especially for girls in the intervention group, exhibiting higher amotivation. Per-protocol analyses also revealed increases in external motivation and perceived barriers, particularly among girls and high-SES adolescents. These findings suggest that short, skills-based cycling interventions can effectively highlight motivational and environmental challenges, representing an initial step toward long-term behavior change when combined with broader environmental and structural support.

S.1.06-3

When an Intervention Isn't an Intervention: Challenges of Evaluating Partner-designed Whole-school Physical Activity Promotion Programmes

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S.1.06 Motivation and behavior change -: School-Based Interventions to Promote Physical Activity: Thorns and Roses

Room 5, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: This presentation aims to highlight the challenges of working with funding partners and schools to design, implement, and disseminate school-based physical activity interventions. It will highlight the tensions which can occur between research rigour and the desire from schools and funders to implement interventions quickly to enhance and inform school-level practices and policies.

Methods: Previously published school-based physical activity interventions will be introduced and discussed to highlight key elements of rigorous intervention design, implementation, and reporting which align to the MRC framework for complex interventions. These will be contrasted with an example of a funder- and school-led programme which did not meet the research definition of an intervention, even though some researcher input and research methods were applied to produce data.

Results: Intervention feasibility and effectiveness data will be summarised to demonstrate how key intervention elements were central to the published studies. Longitudinal physical activity data from the funder- and schools-led programme will be presented and discussed to highlight the tension between the need to deploy funds based on current needs and a desire for quick results to see 'impact', and rigorous intervention design considerations, such as having control groups.

Conclusion: This presentation provides contrasting examples of the challenges of school-based physical activity interventions designed to varying degrees by researchers, funding partners and/or schools. In an ideal world researchers, partners/funders, and schools would be involved together at all stages of intervention planning, delivery, and dissemination, but in reality this is not always the case. Recognising and understanding the 'thorny' issues raised will hopefully help researchers and schools to work together to develop interventions that are rigorous as well as timely and impactful.

S.1.07-1

A Decade of Change: The Legacy and Global Vision behind the 2025 Position Statement on Active Outdoor Play

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S.1.07 Systems Science: From Vision to Impact: The 2025 Position Statement on Active Outdoor Play

Room 6, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: The 2015 Position Statement on Active Outdoor Play marked a pivotal moment in recognizing children's right to play freely outdoors as essential to their healthy growth and development. In the decade since, the global landscape has shifted dramatically—shaped by the climate crisis, the COVID-19 pandemic, digitalization, urbanization,

and widening inequities. These profound societal transformations called for a renewed and expanded statement reflecting the growing evidence base, evolving priorities, and global calls to action linking active outdoor play, health equity, and planetary health.

Methods: A three-person executive team was formed to guide the update process, comprising representatives from academia, practice, and policy: Dr. Louise de Lannoy (Outdoor Play Canada), Dr. Eun-Young Lee (Yonsei University/Queen's University), and Dr. Mark Tremblay (CHEO Research Institute). Building on the legacy of the 2015 statement and the subsequent establishment of a not-for-profit organization, Outdoor Play Canada, the group led an iterative and consultative process to convene an 11-person international leadership group tasked with updating the original statement in celebration of its 10-year anniversary.

Results: The initial discussion of the need for an update revealed several areas where the 2015 statement no longer reflected the complexity of contemporary realities. Emerging themes included equity and inclusivity for people of all abilities, the influence of digital technology on active outdoor play, and the need to address active outdoor play within increasingly urbanized and climate-impacted environments. Consequently, the updated framework broadened its focus from a child-centered approach to a life-course perspective, positioning active outdoor play as a shared human experience vital to not just individual well-being but also for community and planetary health.

Conclusion: Updating the 2015 Position Statement on Active Outdoor Play was necessary to preserve its legacy but also to extend its relevance for the next decade. The 2025 statement redefines active outdoor play as a foundation for lifelong holistic well-being, connected societies, and planetary health, offering a roadmap for policy and practice that recognizes active outdoor play as a fundamental right and our collective responsibility for all generations.

S.1.07-2

Turning Evidence into Action: Outcomes and Insights from the 2025 Active Outdoor Play Statement

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S.1.07 Systems Science: From Vision to Impact: The 2025 Position Statement on Active Outdoor Play
Room 6, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: In 2015, the Position Statement on Active Outdoor Play was released in Canada, emphasizing the critical role of active outdoor play—with its risks—in fostering children's healthy development. Building on this foundation, a 10-year update of the Position Statement on Active Outdoor Play (AOP10) was initiated to broaden its scope and impact, by encompassing all age groups and extending its reach conceptually and globally. Here we explain and present the new 2025 Position Statement.

Methods: Development of the 2025 Position Statement was informed by 18 rigorous literature reviews, a series of leadership group meetings, three rounds of draft AOP10 surveys, followed by extensive communication, translation, production, and dissemination activities.

Results: The 2025 Position Statement on Active Outdoor Play states: "Active outdoor play promotes holistic health and well-being for people of all ages, communities, and environments, and for our entire planet. It is critical given the multiple global challenges we face today (e.g., social and health inequities, climate change and digital addiction). Together, as a collective of the outdoor play sector, we recommend increasing opportunities for active outdoor play in all settings where people live, learn, work, and play. To achieve this, it is important to collaborate across sectors, settings, and societies to preserve, promote, and value equitable access to active play outdoors and in nature." We also provide key evidence pertaining to the nine core themes that informed the development of the 2025 Position Statement and offer recommendations across sectors, calling for multi-sectoral, multi-level actions and collaborations. Across all three survey rounds, responses indicated strong support for the 2025 Position Statement and its supporting content (Round 3: 93–98%). Comprehensive, proactive knowledge translation and dissemination plans were executed to maximize the reach and impact of the 2025 Position Statement.

Conclusion: The 2025 Position Statement calls for systemic changes that prioritize equitable access to active outdoor play opportunities and aims to create healthier communities and a healthier planet. Achieved through international collaboration and consensus, the 2025 Position Statement aspires to connect, advise, inspire, and activate active outdoor play worldwide.

SYMPOSIUM

S.1.07-3

Mobilizing a Movement: Global Knowledge Translation for the 2025 Position Statement on Active Outdoor Play

L. de Lannoy¹

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S.1.07 Systems Science: From Vision to Impact: The 2025 Position Statement on Active Outdoor Play
Room 6, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: To advance the global reach and practical uptake of the 2025 Position Statement on Active Outdoor Play, Outdoor Play Canada implemented a comprehensive suite of knowledge translation (KT) activities designed to bridge research, policy, and practice. These KT activities were structured to ensure accessibility, uptake, and mobilization of evidence across age groups, sectors, cultures and geographies.

Methods: Key KT strategies included the development and dissemination of multi-format resources, incorporating multilingual and multicultural translation invites. A public-facing toolkit including infographics, a slide deck, a whiteboard video and summary webinar was created to support uptake by diverse audiences. An endorsement mechanism was also launched, enabling individuals and organizations worldwide to register support, thus promoting the Position Statement's legitimacy, dissemination network and social mobilization. Implementation-oriented KT steps included tailoring the slide deck and whiteboard video for use in webinars, conference sessions, classroom settings and organisational briefings.

Results: The full Statement is available in all six official UN languages to enable global engagement and context-relevant adaptation. Publications underpinning the Statement, 12 systematic reviews, six global/regional reviews and two dedicated manuscripts, were made

publicly available to ensure transparency and to provide a knowledge base for users. The toolkit's assets are explicitly offered for free, reflecting a strategic commitment to lowering barriers to uptake and supporting multiplier effects in local adaptation and action planning. The slide deck and whiteboard video are also available to facilitate knowledge translation into training, curriculum, professional development and organizational strategy. To date, 578 supporters from over 60 countries have endorsed the Statement and the slide deck and related materials have been used by the AOP10 leadership group and steering committee members in over 20 presentations across 8 countries. To date, the Statement gained 584 endorsements, 173 media hits with 16.2M impressions, and global translation into 12 languages.

Conclusion: Through this layered and resource-rich KT framework, Outdoor Play Canada positions the 2025 Statement not merely as a static document, but as a living catalyst for change—enabling global citizens to play and thrive outdoors, and to act as stewards of land, water, air and each other for planetary health.

S.1.08-1

Development and User Testing of a Digitally-delivered Rehabilitation Support for Older Adults with Cancer: REMOTE-GO

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S.1.08 Cancer prevention and management: From development to evaluation: building robust remotely-delivered interventions designed to improve activity behaviours among people living with and beyond cancer
Room 7, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: This work had two purposes. First, exploring goals, needs, and preferences for remote rehabilitation among older adults with cancer, and understanding allied/healthcare professionals (A/HCPs) views of delivering this type of rehabilitation. Secondly, understanding practical needs for a smartphone-based rehabilitation app and conducting user testing.

Methods: Intervention Mapping guided our process. Previous work (systematic review (Forbes et al, 2020); qualitative interviews (Swan et al, 2021)) highlighted gaps in knowledge (step 1). Here we report findings for step 2, identifying outcomes and objectives. The target sample was 30 people with a history of cancer (10 each for ages 65-74, 75-84, 85+) for qualitative interviews, and 20 A/HCPs for focus groups. Patient participants were recruited via community

groups or in clinic; A/HCPs were directly invited. Previous interview participants with access to an iPhone or iPad (prototype at the time worked in Apple operating software (iOS)) were invited to user testing. Interviews/user testing were conducted either face-to-face or online. Focus groups were online. All sessions were recorded, transcribed verbatim, coded, and analysed for themes.

Results: Twenty-four patient interviews were completed (65-74 n=14; 75-84 n=10; 85+ n=0). Eight A/HCPs participated in focus groups (n=4 per group). Four people conducted user testing. Most patient participants were fairly confident using an app-based programme and many highlighted potential convenience and accessibility. Both patients and clinicians wanted simple, straightforward designs with clear instructions and reporting functions. Patients and clinicians also reported potential barriers and facilitators for activity in general. The clinician group felt symptom reporting would be very helpful to identify those needing clinical intervention sooner and that social support might be useful. Three of four testers were able to complete testing without many difficulties. App design and functionality was positively viewed overall. Technology confidence was impacted more by previous tech experience than age.

Conclusion: Older adults with cancer welcome proactive, clear and instructive information for cancer rehabilitation in app or non-app form. Making cancer rehabilitation easily accessible and available to people outside of a supervised setting could help bridge the gap between more effective, yet costly, supervised programmes and less effective unsupervised programmes.

S.1.08-2

Feasibility and Acceptability of ExerciseGuideUK for Those Living with and beyond Lung Cancer: A Mixed Methods Study

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S.1.08 Cancer prevention and management: From development to evaluation: building robust remotely-delivered interventions designed to improve activity behaviours among people living with and beyond cancer

Room 7, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Remotely delivered physical activity interventions have emerged as scalable approaches to support individuals living with and beyond cancer, yet feasibility and engagement challenges persist, particularly among those with treatment-related fatigue and digital literacy barriers. This study examined the feasibility and acceptability of ExerciseGuideUK, a web-based, personalised physical activity and health and lifestyle education intervention designed for individuals living with and beyond lung cancer.

Methods: A single-arm, mixed-methods feasibility study was conducted with participants recruited from oncology clinics in Northern England. Participants engaged with ExerciseGuideUK over eight weeks, receiving tailored aerobic and resistance exercise prescriptions aligned with national and international guidelines, plus behavioural support via goal-setting and self-monitoring modules, combined with virtual one-to-one support. Quantitative outcomes included recruitment, retention, and usability (System Usability Scale; SUS), while qualitative interviews explored experiences using the Theoretical Framework of Acceptability. Data were integrated using the Pillar Integration Process to identify convergent themes.

Results: Eighteen participants (mean age = 65 ± 14 years; 56% male) enrolled, with 77% completing the program. Recruitment was 30.5%, constrained by treatment side effects and limited digital literacy. Average SUS was 72%, indicating good usability. Participants valued flexibility, goal-setting, and progression features, reporting improvements in breathlessness management, confidence, and daily activity habits. However, digital access issues and fatigue limited reach. Integration of quantitative and qualitative data revealed high perceived benefit, low intervention burden, and strong alignment with personal health values.

Conclusion: ExerciseGuideUK demonstrated high acceptability and moderate feasibility as a remotely delivered physical activity and health behaviour intervention for those living with and beyond lung cancer. While participants reported meaningful physical and psychological benefits, digital literacy and symptom burden remain barriers to wider implementation. Future work should evaluate hybrid models combining remote delivery with tailored in-person or telephone support to promote equitable access and sustained engagement across diverse cancer populations. These findings underscore the promise of scalable, patient-centred digital interventions in enhancing cancer survivorship care.

SYMPOSIUM

S.1.08-3

Effects of a Remotely-delivered Intervention for Reducing Sedentary Behaviour among Prostate Cancer Survivors: A Randomized Controlled Trial

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S.1.08 Cancer prevention and management: From development to evaluation: building robust remotely-delivered interventions designed to improve activity behaviours among people living with and beyond cancer

Room 7, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Quality and engaging supportive care programs are needed in prostate cancer survivors (PCS) to reduce the chronic and late effects of cancer and its treatment (e.g., fatigue). Independent of physical activity (PA), high volumes of sedentary behavior (SED) are associated with elevated all-cause and cancer mortality, and poorer cancer-specific quality of life (QoL). Simultaneously increasing PA and decreasing SED may be an effective health promotion strategy. Given the barriers to engaging in supervised programs, there is a need to implement remotely-delivered approaches for behavior change. The primary objective was to determine the effects of a 12-week, remotely-delivered intervention (Fitbit + behavioral counselling) vs. Fitbit-only control group in reducing SED among PCS.

Methods: This two-armed, randomized controlled trial recruited 124 inactive PCS (stage I-IV) across Canada who self-report engaging in >8 hours/day of SED. Participants were randomized to the intervention (n=64; Fitbit and behavioral support) or active control group (n=60; Fitbit-only). The intervention consisted of a Fitbit and a series of six behavioral support sessions (based on the M-PAC; two group, four individual sessions) in gradually replacing SED with light-intensity PA by increasing daily step counts to 3,000 steps above baseline values. The Fitbit-only control condition received a Fitbit and public health PA resources. The primary outcome was change in SED measured objectively using activPAL inclinometers, collected at baseline, post-intervention, and at 6-month post-intervention. Linear mixed models will be used to model the primary outcome (i.e., SED) at the three time points.

Results: Results are forthcoming as the trial was completed in November 2025. Results will be ready by the conference date. Briefly, PCS (N=124) had a Mage=69.9±7.5 years, 74.7±80.9 months since diagnosis, and body mass index of 27.3±5.6 kg/m². PCS received surgery (60.9%), hormonal therapy (27.1%), and radiation (36.8%), and 77.4% had localized prostate cancer.

Conclusion: Reducing SED and increasing light-intensity PA plays an important, yet often undervalued role in the health and well-being of PCS. This study will create a unique remotely-delivered platform that can be used by clinical and community-based organizations as a low-cost, supportive care tool to improve health outcomes for PCS.

S.1.09-1

Ghana's Beverage Tax and Beverage Purchasing Decisions and Behaviours among Low-income Households in Accra

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S.1.09 Policies and environments: Demand- and supply-side responses to mandatory food policies around the world

Room 8, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: This study explored factors influencing water and sweetened beverage (SB) purchasing decisions and behaviours among low-income households (LIHs) in four peri-urban settings of Accra in response to Ghana's Water, Sugary Drinks, Energy Drinks and Juices (WSEJ) tax. Ghana introduced a 17.5% ad valorem tax on bottled water and SBs in 2014; later increased to 20% in 2023 and extended to include fruit and vegetable juices. However, sachet water; packaged in 500ml polyethylene bags heat sealed at both ends, commonly consumed by LIHs was exempted throughout.

Methods: Focus group discussion (FGD), complemented by quantitative cross-sectional data was used to triangulate FGD findings. Four FGDs were conducted in March-April 2025 in Oyarifa, Teiman, Kweiman, and Danfa. Primary shoppers who frequently purchased water and SBs for their households were purposively sampled for the study. The Theory of Planned Behaviour and the Stimulus-Response Model guided the exploration of factors underpinning water and SB purchasing decisions and behaviours. FGD transcripts were thematically analysed in ATLAS.ti, and quantitative data were analysed descriptively in Stata.

Results: Participants (n= 43) were predominantly female (67%), and over half (56%) were 18-35 years. Majority (65%) had attained Junior High School education. Six themes emerged: household water insecurity; water and SB purchasing and consumption; factors influencing purchasing decisions and consumption; knowledge, attitudes, practices related to SB consumption and health risks; awareness and perceptions of the WSEJ tax; and perceptions of taxed versus untaxed SBs and the tax's impact on patronage. Most households (60%) reported water insecurity in the previous four weeks. Sachet water was the main drinking water source (77%) and over half (51%) purchased three or more bags weekly. Taste, convenience, safety, and availability influenced SB preferences, while safety, price, and availability influenced sachet water purchases. Although tax awareness was low (56%), many participants perceived bottled water taxation as unfair and substituted taxed SB with cheaper local SBs.

Conclusion: Findings reveal limited awareness and perceived inequities regarding WSEJ tax among LIH. To improve health and equity outcomes, tax policy adjustments are needed to better align fiscal and public health objectives.

S.1.09-2

Decomposing Consumer and Producer Responses to the Front-of-Pack Warning Labels in Mexico: The Case of Sugar-sweetened Beverages

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S.1.09 Policies and environments: Demand- and supply-side responses to mandatory food policies around the world

Room 8, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Mexicans consume excessive amounts of sugar-sweetened beverages (SSBs), which contribute to population health harms and high healthcare spending. In March 2020, Mexico announced front-of-pack warning labels (FOP-WLs) to discourage the consumption of SSBs and other packaged foods high in calories, sugar, fat, and sodium, with its implementation scheduled for October 2020. FOP-WLs are intended to modify consumer purchase behavior by providing accessible information about the products' content of health-harmful nutrients. Moreover, producers are likely to respond either by reformulating their products or by updating their product portfolio (removing or launching products). This study aims to disentangle the contributions of consumer and producer responses to changes in SSB purchases in terms of sugar.

Methods: Based on a descriptive approach, we decompose the FOP-WL-associated changes in sugar from SSBs into: (1) purchase volume changes, (2) product switching (consumer responses), (3) product reformulation, and (4) product portfolio updates (producer responses). We use monthly SSB purchase data from Kantar Mexico's urban households for 2017-2021, linked to time-varying product nutritional information. We conduct sub-analyses by policy period (announcement and implementation) and by households' socioeconomic status (SES).

Results: In the post-policy period, compared with the pre-policy period, we found a net reduction of 2.5 sugar grams per capita per day in SSBs, equivalent to a 14% reduction from pre-policy levels. Sugar reductions were driven mainly by reformulation, which accounted for about 90%, followed by product portfolio updates, and were marginally offset by consumer behavior. We also found that reformulation mainly occurred during the announcement period, the largest sugar reduction occurred in sodas, and sugar reductions were larger for low-SES households (-17%) than for high-SES households (-13%). Results remained robust when assuming pre-COVID SSB purchase levels.

Conclusion: After FOP-WLs were introduced in Mexico, sugar from SSB purchases declined substantially. Product reformulation is likely the main driver behind these reductions, despite initial concerns that the innovation of the Mexican FOP-WL system targeting non-caloric sweeteners would discourage reformulation. The overlap between the COVID-19 irruption and the FOP-WL policy limits our assessment of consumer behavior, even though we found sugar reductions across all SES households.

SYMPOSIUM

S.1.09-3

What Have We Learned from England's Mandatory Calorie Labelling Policy? An Evidence Synthesis from a Multi-component Evaluation

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S.1.09 Policies and environments: Demand- and supply-side responses to mandatory food policies around the world

Room 8, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: To synthesise evidence from a multi-component evaluation of England's 2022 mandatory calorie-labelling policy for large out-of-home food outlets (OHFOs), examining its impacts on business practices and consumer behaviour.

Methods: Findings are synthesised from four quantitative studies:

1. A national pre-post audit of ~15,000 menu items before and after implementation across 78 large chains, assessing changes in mean energy per item, food group, and chain type.
2. A point-of-choice audit of 117 large OHFOs evaluating compliance with statutory calorie-labelling requirements.
3. A customer intercept survey (n=6,578) comparing energy purchased and consumed, and self-reported noticing and use of calorie information pre- and post-policy.
4. A multi-country natural experiment using International Food Policy Study data (2019–2022; n≈39,600) assessing changes in noticing and using nutrition information and related behaviours in England versus jurisdictions without menu labelling.

Results: Across regulated businesses, mean energy per menu item declined by 2% (–9 kcal), driven by the removal of higher-calorie items and addition of slightly lower-calorie new items rather than reformulation. Reductions were greatest for burgers (–103 kcal, –11.1%), beverages (–36 kcal, –16.4%), and mains (–30 kcal, –4.2%). The prevalence of OHFOs meeting any compliance criteria increased from 21% pre-policy to 80% post-policy, although only 15% met all display requirements. Customer intercept survey data (n=6,578) from 330 outlets showed that meals purchased averaged approximately 1,000 kcal per meal, well above nationally recommended intake per meal, with no significant change in calories purchased or consumed. In England, the proportion noticing nutrition information rose from 16% in 2020 to 26% in 2022, and those using the information increased from 8% to 13%. The proportion ordering something different also rose from 13% to 18%, while eating-out frequency did not change.

Conclusion: Mandatory calorie labelling in England was followed by measurable supply-side impacts through menu turnover and modest shifts in how consumers engaged with nutrition information, but limited evidence of reformulation and no change in calories purchased. Information disclosure alone may be insufficient to drive large dietary change. Stronger policy mechanisms that encourage reformulation and more directly influence behaviour are likely needed to achieve greater population health impact.

S.1.10-1

Associations of Stepping Patterns and Diabetes, and Implications for Future Physical Activity Guidelines and Policies

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S.1.10 Policies and environments: How as well as how much. Can evidence for the importance of physical behaviour micro-patterns inform future guidelines and policies? Evidence from the ProPASS Consortium.

Room 9, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Stepping has been associated with reduced risk for type 2 diabetes (T2D), but existing prospective studies focus largely on average stepping volume (steps per day or week) and ignore important differences in how stepping is accumulated. We examined independent associations of stepping volume and within and between day variability, with incident T2D.

Methods: Participants (n=4594, 40-75y) without preexisting T2D from The Maastricht Study wore an activPAL3 accelerometer (6-7 days). Prospective associations of stepping volume (steps/day) with incident T2D were assessed using Cox proportional hazards models with restricted cubic splines, adjusted for age, sex, BMI, education, smoking and diet. Four indices of between-day (i-iii below) and within-day (iv below) stepping pattern were modelled alongside total steps/day. These were: i. proportion of steps accumulated on the 2 most active days (%Active-2days), ii. between-day step count variability (BDV) and iii. inter-daily step count stability (IS), iv. within-day variability in stepping (WDV) (variability in steps/hour). Higher values in %Active-2days, BDV and WDV indicate greater variation in stepping between or within days. Higher IS values indicate greater uniformity in hourly stepping pattern between days.

Results: Over 30,336 person-years of follow-up (mean 6.6y), 178 incident cases of T2D were recorded. A non-linear association was observed between stepping volume and T2D risk, with steeper risk reduction earlier in the steps/day distribution. Relative to accumulating ≤ 5000 steps/day, adjusted hazard ratios (95% CI) were 0.57 (0.34, 0.96) for 5000-7500 steps/day, 0.60 (0.65-0.94) for 7501-10000 steps/day, 0.48 (0.25, 0.89) for 10001-12500 steps/day and 0.68 (0.37, 1.24) for >12501 steps/day. Notably, higher %Active-2days, BDV, and lower IS, cumulatively describing a variable activity pattern, were linearly associated with T2D risk independent of stepping volume. HRs per SD increase were: %Active-2days 0.70 (0.65, 0.97), BDV 0.69 (0.54, 0.89) and IS 1.32 (1.08, 1.63).

Conclusion: A greater daily stepping volume can reduce T2D risk. Further, accumulating steps in a pattern reflecting periodic larger doses of stepping may provide additional reductions in T2D risk. Future research regarding volume and optimum patterns of stepping could form the basis of the next generation of public health guidance and interventions to improve health through movement.

S.1.10-2

Step Accumulation Patterns and Cardiovascular and Mortality Risk among Suboptimally Active Adults

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S.1.10 Policies and environments: How as well as how much. Can evidence for the importance of physical behaviour micro-patterns inform future guidelines and policies? Evidence from the ProPASS Consortium.

Room 9, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Daily steps are an increasingly adopted metric in physical activity surveillance and public health guidelines. However, it remains unclear whether the way steps are accumulated—through short versus sustained bouts—modifies associations with major health outcomes. This study examined whether step accumulation patterns were associated with all-cause mortality and cardiovascular disease (CVD) incidence among suboptimally active adults.

Methods: We included 33,560 UK Biobank participants (mean age = 62 years; 41% men) with accelerometer-assessed physical activity between 2013–2015 and <8000 daily steps, free of CVD and cancer at baseline. Participants were categorized based on the stepping bout in which they accumulated most of their daily steps: <5 min, 5– <10 min, 10– <15 min, or ≥ 15 min. All-cause mortality and incident CVD were ascertained through national health registries up to 2022. Inverse probability weighting and modified Poisson regression estimated cumulative, relative, and absolute risk differences across categories.

Results: Over a mean follow-up of 7.9 years (266,283 person-years), 735 deaths and 3,119 CVD events occurred. Cumulative all-cause mortality at 9.5 years decreased across increasing bout durations: <5 min, 4.36% (95% CI 3.52–5.19%); 5– <10 min, 1.83% (1.29–2.36%); 10– <15 min, 0.84% (0.13–1.53%); and ≥ 15 min, 0.80% (0.00–1.89%). CVD incidence followed a similar gradient: 13.03%, 11.09%, 7.71%, and 4.39%, respectively. Compared with bouts <5 min, accumulating most steps in ≥ 15 min bouts was associated with 83% and 68% lower relative risk for mortality and CVD, respectively. Associations were strongest among sedentary participants (<5000 steps/day). Sensitivity analyses excluding early events, frailty, and poor health yielded consistent results.

Conclusion: Among adults engaging in fewer than 8000 daily steps, those who accumulated most of their steps in longer, continuous bouts had markedly lower risks of all-cause mortality and CVD. These findings suggest that not only *how much* we walk but also *how* we accumulate steps matters for health. Encouraging longer, uninterrupted walking bouts—especially among the least active—could enhance the preventive potential of step-based physical activity guidance and inform future public health recommendations.

SYMPOSIUM

S.1.10-3

Device-measured Sleep Characteristics, Daily Step Count, and Cardiometabolic Health Markers: Findings from the Prospective Physical Activity, Sitting, and Sleep (ProPASS) Consortium

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S.1.10 Policies and environments: How as well as how much. Can evidence for the importance of physical behaviour micro-patterns inform future guidelines and policies? Evidence from the ProPASS Consortium.

Room 9, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Sleep and physical activity (PA) are critical for cardiometabolic health, yet evidence on the independent and combined associations of device-measured sleep parameters and PA remains limited. We present two studies examining (1) the independent and joint associations of sleep duration, regularity, and efficiency with cardiometabolic health, and (2) joint association of sleep patterns (duration, regularity) and step count with cardiometabolic outcomes in adults.

Methods: Cross-sectional data from six cohorts (n=14,085 participants) from the Prospective Physical Activity, Sitting and Sleep (ProPASS) consortium were used. Total daily step count (steps/day), sleep duration (short: <7 h/day; adequate: 7-8 h/day; long: >8 h/day), sleep regularity index as a measure of day-to-day variability in sleep-wake patterns (regular: >87.3%; slightly irregular: 71.6-87.3%; irregular: <71.6%), and sleep efficiency as the ratio of total sleep time to total time in bed (high: >91.8%, medium: 85.3-91.8%, low: <85.3%). Cardiometabolic health markers included BMI, waist circumference, HDL and LDL cholesterol, glycated haemoglobin, systolic and diastolic blood pressure, and a composite cardiometabolic risk z-score was computed.

Results: In study 1 we show that short sleep duration (β : 0.05, 95%CI: 0.03-0.07), an irregular sleep pattern (β : 0.14, 95%CI: 0.11-0.18), and low sleep efficiency (β : 0.10, 95%CI: 0.07-0.13) were associated with a higher cardiometabolic risk compared to optimal sleep. The joint analysis shows that individuals with an irregular and low sleep efficiency, regardless of sleep duration, had worse cardiometabolic health (in long sleepers: β : 0.21, 95%CI: 0.15-0.28; in adequate sleepers: β : 0.23, 95%CI: 0.16-0.30; in short sleepers: β : 0.28, 95%CI: 0.22-0.35) compared to adequate, regular and highly efficient sleepers. In study 2 we show that lower PA (<8475 steps/day) combined with either lower sleep regularity or short sleep duration was associated with the least favourable cardiometabolic health. The corresponding z-scores were β : 0.34 (95%CI: 0.30-0.38) and β : 0.26 (95%CI: 0.22-0.31), compared to those with optimal sleep and high step count (>11553 steps/day).

Conclusion: Our findings suggests that sleep regularity and efficiency are important for cardiometabolic health beyond sleep duration, and low PA may worsen the adverse effects of irregular or short sleep. Future longitudinal studies should jointly evaluate multidimensional sleep indices and PA to better understand their combined health impacts across diverse populations.

S.1.11-1

Exploring the Role of Chamas in Economic Resilience, Food Security and Urban Foodsystems in Kenya

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S.1.11 Motivation and behavior change: Savings for Health: Informal Savings Groups as a Platform Promoting Economic Resilience, Food Security, Food Sovereignty and Healthy Food Consumption in Urban African Food Systems Multipurpose Room, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: To explore the complex role of chamas in household economic resilience, household food security and local food systems, and to understand the equity implications for disadvantaged groups, in an urban Kenyan setting.

Methods: In 2024/25 we conducted a mixed-methods cross-sectional study in Kisumu, Kenya, consisting of: a quantitative survey of 201 households; five focus groups with chama members (8-10 participants, predominantly

women); and 20 key informant interviews with local government and community stakeholders relevant to chamas.

Results: The household survey indicated that more than two thirds of households were severely food insecure. Food insecurity was more common in poor households and those with lower education levels. We found a small protective association between chama membership and lower food insecurity, but this was not statistically significant. However, in focus groups, chamas were seen as important catalysts for food security through collective food purchasing, food stocking and budget management, and through jointly developing and maintaining kitchen gardens. “In the same chama, we have a kitchen garden where we grow vegetables in containers. So, a member can volunteer to water the vegetables if there are no rains. So, when the vegetables are ripe, you can harvest because the garden is yours. In case you have surplus, you can sell. Every member has the kitchen garden.” More broadly, chamas were considered key social infrastructure that supported gendered empowerment. In interviews, stakeholders described how chamas directly strengthened local food systems through involvement in food production, value addition and distribution. Many groups collectively engaged in local, climate-resilient agroecology and agribusiness practices. Though chamas are an informal social innovation, stakeholders saw an important role for collaboration with the formal sector, particularly local government and business.

Conclusion: Chamas are not just savings schemes - they are living laboratories of social innovation. Our study indicated that chamas play a key role in household food security and sustainable local food systems, while being an important vehicle for financial inclusion and empowerment. With supportive policy, capacity building, research, and financing they could evolve into powerful engines for health equity and community transformation.

S.1.11-2

Ukongela Ubomi (Savings for Life): Women-led Informal Savings Groups Promoting Food Security and Healthy Food Consumption, A Novel Approach

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S.1.11 Motivation and behavior change: Savings for Health: Informal Savings Groups as a Platform Promoting Economic Resilience, Food Security, Food Sovereignty and Healthy Food Consumption in Urban African Food Systems Multipurpose Room, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Women from low-income communities are disproportionately affected by food insecurity and obesity. Informal savings groups (ISGs) are found in almost every LMIC (stokvels in South Africa), and through which the combined funds of monthly contributions help to address household food insecurity, but not healthy food procurement. We designed an intervention to mitigate barriers to access for fresh produce, through last-mile distribution (LMD) or nutrition education through a mobile application, with financial leveraging via collective purchasing with vouchers.

Methods: We recruited 24 stokvels, in three disadvantaged communities in Cape Town, South Africa, each with 8-12 members (N=165), allocated to one of three arms of this quasi-experimental study. All stokvels received vouchers for vegetable/fruit purchases (ZAR2000/month/3months). One group received support for transporting bulk purchases home (LMD); one received access to a bespoke, mobile application (MA) with bi-lingual information regarding nutrition, storage and cost-savings tips and recipes for fresh produce; and one received vouchers only (VO). Measurements included: BMI, household food insecurity (HFIAS), food choice decisions, food frequency (FFQ), and food environments, at baseline and over 3 months. Focus group discussions were held after one and 3 months, to explore impact of interventions on attitudes and priorities regarding vegetable/fruit consumption. We report preliminary findings on FFQ, HFIAS and food choice decisions.

Results: Mean age was 42 yrs, >85% had a high school education, 61% unemployed and >70% had a household (HH) income of 60%. Food choice was influenced by health (65%), tradition (67%) and “so that the family does not experience hunger” (77%). HFIAS decreased significantly ($P<0.003$) in all groups from baseline to the first month after receiving vouchers, however, effect size for this reduction was lowest (0.55 ± 0.29) in the VO group, compared to the MA (1.04 ± 0.20) and LMD groups (2.07 ± 10.24). Citrus intake increased in all groups, by as much as 80% in the LMD group. Tomato consumption nearly doubled in the LMD group, and potato consumption increased in all. There were no compensatory increases in sugary beverage intake.

Conclusion: By resolving logistical and financial barriers for access to healthy, affordable food, including as little as

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ZAR200/per HH/per month, or overcoming LMD, stokvels can drastically reduce HFIAS. These results may be used to inform policy and government initiatives.

S.1.11-3

Ukongela Ubomi (Savings for Life): Food Purchasing Behaviour of Women-led Savings Groups with Access to Fresh Produce, Last-mile Distribution or a Market To-table Mobile Application

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S.1.11 Motivation and behavior change: Savings for Health: Informal Savings Groups as a Platform Promoting Economic Resilience, Food Security, Food Sovereignty and Healthy Food Consumption in Urban African Food Systems Multipurpose Room, May 28, 2026, 8:00 AM - 9:00 AM

Purpose: Our quasi-experimental study explores how access to fresh food and knowledge influence food purchasing behavior (FPB). Building on work with informal savings groups, known as stokvels in South Africa, we designed an intervention to mitigate fresh produce barriers through last-mile distribution, nutrition education, and financial leveraging via collective purchasing with vouchers. We aimed to measure changes in practices and priorities for fresh produce procurement and consumption.

Methods: This 3-arm, quasi-experimental study recruited 24 women-led stokvels (WLS) comprised of 8-12 members each from three socio-economically disadvantaged communities in Cape Town, South Africa. In addition to having free access to fresh produce once/month for 3-months (ZAR2000/stokvel/month), the three interventions represented last-mile distribution (LMD), voucher only (VO), and access to a market-to-table mobile application (MA). Data on collective food purchasing behaviour (FPB) of fresh produce (fruits and vegetables only) in the market was obtained through an EpiCollect survey, during a monthly shopping trip for 3 months. The user-engagement metrics of those with access to the mobile application over this period were captured. Focus group discussions (FGD) explored how having access to fresh produce without an out-of-pocket expense, provision of LMD and exposure to the mobile application impacted FPB of WLS.

Results: Shopping lists were compiled by consensus, and the first market shop focused on affordable, starchy vegetables (>kcal/ZAR). Greater diversity, variety and some “experimentation” was noted for month 2, but reverted back to original patterns in the final shop. Nutrition analysis is ongoing, with some groups spending more, but achieving a lower nutrient density than groups who spent less. We found that the average kcal (energy from fresh produce) / per ZAR over a 3-month period was 70.8. The VO group purchased fresh produce with the highest energy value/ZAR (76.4) followed by the MA group (73.6), and lastly the LMD group (70.5), but differences were NS. FGD revealed that participants experienced an improved sense of food security, expanded dietary diversity with inclusion of new foods, hedging during times of scarcity, and perceived health benefits. Individuals with access to the MA primarily viewed the recipes, with greatest engagement following the last shopping experience (14% of active daily/monthly users).

Conclusion: Logistical, educational and financial mitigation strategies can impact on healthy food choices made via WLS.

S.1.12-1

Food Is Love: The Role of Emotions in Parent-child Feeding Relationships

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S.1.12 Children and families: Reframing Food Parenting: Emotion, Variability, and the Next Generation of Research Auditorium, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Avid eating behaviour, characterised by higher food responsiveness, emotional overeating, and surgent temperament, is an eating behaviour profile for 20% of 3–5-year-old UK children, conferring higher obesity risk and creating challenging feeding interactions. The multi-method APPETItE project (longitudinal cohort analysis, survey, qualitative interviews, ecological momentary assessment (EMA) and a laboratory study) developed the evidence base for developing appetite-tailored interventions. However, understanding the role of parent and child emotion in feeding is core to the development of interventions that have greater chance of efficacy.

Methods: After synthesizing findings from APPETItE, we conducted workshops with parents of children with avid eating behaviour to co-create guidelines for tailored digital intervention. We undertook behavioural diagnosis using the COM-B model and identified intervention options best suited to produce the desired behaviours based on COM-B components.

Results: Evidence synthesis showed that parent and child emotion were core determinants and consequences of eating and feeding practices. Qualitative work showed that food was perceived to be effective in regulating children's emotions, and EMA demonstrated that parents were more likely to use coercive or indulgent feeding practices when they experienced higher stress and when aiming to reduce conflict. Reflective and automatic motivation were key target components. Intervention guidelines focus on creating meal and snack structure; creating a protective home food environment (availability and portioning) and developing strategies for dealing with snack food requests in the moment (delay, distract, portion). In workshops, parents fed back on the challenges of dealing with their own emotional eating, their own emotions about feeding, and their children's emotions in response to feeding practices. Food was perceived as love; regulating access to preferred food was like withdrawing joy and comfort. Emotion is a substantial barrier for parents in changing their feeding practices and home food environments.

Conclusion: Tools to support parents to create a protective food environment cannot underestimate the importance of emotion in feeding and eating. Equipping parents with the skills to reduce stress/conflict without the use of food, and to manage their own emotional eating and emotions about feeding, is a substantial challenge, but necessary to tackle to improve intervention efficacy.

S.1.12-2

Feeding Is Fluid: How Parent Characteristics, Types of Meals, and Days Shape what Children Eat

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S.1.12 Children and families: Reframing Food Parenting: Emotion, Variability, and the Next Generation of Research Auditorium, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Recent research shows that parents use supportive and unsupportive food parenting practices in their daily routines, challenging assumptions that they rely on a single, consistent approach. This study aimed to: (1) characterize parent-level feeding approaches encompassing a broad range of practices, (2) identify distinct patterns at the eating-occasion and day levels, and (3) examine associations between these feeding approach clusters and children's dietary intake.

Methods: Parents (n=252) of preschool-aged children (3–5 years) reported on food parenting practices used at each eating occasion (n=6,281) shared with their child across multiple days (M=9.23 days, SD=9.23). Practices were categorized into four domains: structure, autonomy support, coercive control, and indulgence. Agglomerative hierarchical cluster analysis identified clusters at the parent, eating occasion, and day levels. For each eating occasion, a Healthy Eating Index (HEI)-like score was computed (Range: 0-18; M=7.16, SD=2.30) from parent-reported child dietary intake.

Results: Four parent-level approaches emerged: Highly Involved, Mixed Structure and Indulgence, Predominantly Structured, and High Structure with Autonomy Support. At the eating-occasion level, four clusters were identified: Indulgent Leaning, A Bit of Everything, Organized or Following a Plan, and Inviting Child Participation. Parents exhibited considerable variability in feeding approaches across meals and days. The High Structure with Autonomy Support approach was associated with the most healthful child dietary intake (HEI: 0.91 higher than the least healthful approach, p=0.14), and the A Bit of Everything approach with the most healthful intake at meals (HEI: 1.01 higher than the least healthful approach, p< 0.001). Clusters differed by eating occasion (meal versus snacks), with snacks

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generally yielding lower dietary intake scores.

Conclusion: Most parents use supportive and unsupportive food parenting practices, which cluster into distinct and meaningful patterns across parents, eating occasions and days. A High Structure with Autonomy Support approach was linked to the most healthful intake at the parent level, and an A Bit of Everything approach to meals was most favorable. These findings reveal that feeding is fluid—parents flexibly shift their approaches in response to daily contexts. Interventions that acknowledge and leverage this variability may better support healthy eating in early childhood.

S.1.12-3

Feeding Over Time: A Longitudinal Person-centered Approach to Understanding the Stability and Change in Patterns of Parents Feeding Practices

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S.1.12 Children and families: Reframing Food Parenting: Emotion, Variability, and the Next Generation of Research
Auditorium, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Prior research has utilised person-centred analytical approaches to examine how parents cluster into profiles based on their feeding practices. This research has identified distinct feeding profiles distinguished by use of controlling, structure and autonomy support feeding practices. However, little is understood about how these patterns of feeding practices evolve over time. This study aimed to examine stability and transition between feeding profiles over a two-year period.

Methods: Parents of children aged 3-5 years (M=4.1 years) from the UK took part in an online survey in 2022 (Time 1), and a follow-up survey in 2024 (Time 2). Parents (n=505) completed the Comprehensive Feeding Practices Questionnaire as part of the larger APPETiTE study. Latent Profile Analysis was used to identify profiles of parental feeding practices at both time points and Latent Transition Analysis was used to examine the probabilities of parents transitioning between profiles over the two-year period.

Results: Three profiles were identified at both time points, chosen based on theoretical consideration and fit indices. Profile 1 'controlling' (T1: 33.9%, T2: 28.7%) showed high use of controlling practices and low use of structure and autonomy support practices. Profile 2 'structured and supportive' showed low use of controlling practices and high use of structure and autonomy support practices (T1: 28.3%, T2: 30.3%). Profile 3 'using everything' (T1: 37.8%, T2: 41%) showed high use of all feeding practices. Most participants remained in the same profile between time points (91%, n= 460), with particularly high levels of stability in Profile 2 and 3. Profile 1 'controlling' displayed the most movement with 11% of parents moving to Profile 3 'using everything', and 7% of parents moving to Profile 2 'structured and supportive'.

Conclusion: The number and structure of parent feeding profiles is stable across a two-year period. The 'controlling' feeding profile showed the most transitions across time, which indicates some parents are including more structure and autonomy support practices as their children get older. Understanding potential predictors of transition from the 'controlling' profile could help uncover how to best support parents with using more responsive feeding practices.

S.1.13-1

Pillars, Doughnuts, Wedding Cakes: Multidimensional Models of Sustainability and their Implications for Physical Activity

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S.1.13 Policies and environments: Aligning Physical Activity Promotion with Planetary Health
Room 1, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Climate change becoming an increasingly pressing problem for global society. For physical activity, it poses a dual challenge: rising temperatures negatively impact our opportunities to be active, while our physical activity behavior contributes to global carbon emissions. This presentation aims to provide an overview of multidimensional concepts of sustainability and explore their implications for future physical activity promotion and research.

Methods: A synthesis of conceptual and theoretical frameworks of sustainability from both scientific and policy perspectives was conducted. Key models examined include the United Nations Sustainable Development Goals (SDGs) and theoretical approaches such as the pillars, doughnut, and wedding cake models. These frameworks were analyzed in relation to their potential application to PA promotion.

Results: The analysis demonstrates that sustainability in physical activity must be understood multidimensionally. Environmental sustainability requires reflection on the contributions of sport and physical activity to carbon emissions, which is challenging the current “more is better” and “do whatever you like” paradigms in physical activity recommendations.

Meanwhile, a deeper reflection of social sustainability may lead to the question of human rights in physical activity promotion and of how to achieve more equity in physical activity. Given the current state of global political affairs, this may include socially-economically disadvantaged groups but also migrants and the LGBTQ+ community.

Finally, from an economic perspective, active transport has rightfully been promoted as a type of physical activity that provides clearly measurable economic benefits to societies. Other aspects of physical activity promotion, however, continue to pose challenges, e.g. the low share of promising pilot projects that are successfully scaled up to a level where they generate actual public health benefits.

Conclusion: The findings highlight an urgent need to develop a coherent framework for sustainability in physical activity promotion, which integrates environmental, social, and economic dimensions. Such framework could navigate difficult strategic choices that have to be made in physical activity, e.g. whether to focus on adapting to climate change, to try and mitigate its impacts without harming the growth of the sport industry, or to urge the better-off members of society to limit certain physical activities for the benefit of others.

S.1.13-2

Moving More, Breathing Worse? Air Pollution Exposure and Physical Activity across Modes of Commuting in University Students

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S.1.13 Policies and environments: Aligning Physical Activity Promotion with Planetary Health

Room 1, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: This study aimed to (1) examine differences in total exposure to air pollutants (PM_{2.5} and PM₁₀) according to the mode of commuting to/from university (active vs. passive), (2) analyze the associations between minutes of moderate-to-vigorous physical activity (MVPA) and total exposure to air pollutants, and (3) compare device-measured sedentary time and physical activity (PA) levels (light PA [LPA] and MVPA) between modes of commuting.

Methods: This cross-sectional study was conducted under the MECA Project. A total of 108 university students (23.0 ± 3.9 years; 48.15% women) completed 208 valid trips to/from university. The commuting routes were tracked via GPS, as well as the mode of commuting was identified based on the mean speed of each commute recorded by the GPS. Pollutant exposure (PM_{2.5}, PM₁₀) were assessed with portable monitors, and device-measured sedentary time and PA were measured using accelerometers. Linear mixed models were conducted to analyze the differences between modes of commuting and individual exposure, sedentary time, PA levels, and to examine the association between MVPA and individual exposure. Models were adjusted for trip duration, socioeconomic status, and ambient air daily air pollutant levels.

Results: No significant differences were found in total exposure to PM_{2.5} or PM₁₀ between active and passive commuters (PM_{2.5}: active = 222 µg/m³ [95% CI: 103–340]; passive = 159 µg/m³ [95% CI: 54–264]; PM₁₀: active = 737 µg/m³ [95% CI: 198–1275]; passive = 952 µg/m³ [95% CI: 471–1432]). However, total air pollutant exposure increased

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significantly with greater MVPA during commuting. Each additional minute of MVPA was associated with a $6.54 \mu\text{g}/\text{m}^3$ (95% CI: 1.15–11.93) increase in total PM_{2.5} exposure and a $58.94 \mu\text{g}/\text{m}^3$ (95% CI: 27.62–90.27) increase in total PM₁₀ exposure. Finally, active commuters accumulated considerably more MVPA (63.9% vs. 25.7%) and less sedentary time (23.8% vs. 57.2%) than passive commuters, while differences in LPA were not statistically significant.

Conclusion: Active commuting did not increase total air pollutant exposure but was linked to higher MVPA and lower sedentary time, indicating clear health benefits. Promoting active commuting alongside measures to improve air quality could enhance both individual and environmental health, supporting healthier and sustainable lifestyles.

S.1.13-3

Regional, Seasonal, and with Little Equipment? The German Recommendations for Physical Activity Promotion Attempt to Integrate Aspects of Planetary Health

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S.1.13 Policies and environments: Aligning Physical Activity Promotion with Planetary Health

Room 1, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: International WHO recommendations for physical activity are grounded in the health-enhancing physical activity (HEPA) concept, which focuses primarily on human health. Growing evidence on the interconnections between physical activity and the environment (e.g., cycling offers environmental co-benefits, whereas some sports such as golf may involve high carbon emissions) suggests the need for a more holistic approach—one that encourages activities that do not unduly harm the environment.

Methods: An update of the Recommendations for Physical Activity and Physical Activity Promotion has been commissioned by the German Federal Ministry of Health. Although the update is ongoing, it provides an opportunity to introduce a paradigm shift towards a planetary HEPA concept. To inform this shift, eight semi-structured interviews were conducted with experts in nutrition (where guidelines already consider planetary-health aspects) and health ethics. Interviews explored facilitators and barriers to adopting a planetary-health perspective and, from an ethics standpoint, how such a shift can be justified.

Results: Experts emphasised that political backing is crucial for integrating planetary health into guidelines. National greenhouse-gas reduction targets were cited as important policy arguments for lowering emissions from consumption. Ethical frameworks centred on planetary health already exist and have been applied in public health and medicine. A feasible route for physical-activity recommendations would be to prioritise walking and cycling (rather than using cars) and to encourage sport and exercise that are regional (avoiding long car trips), seasonal (reducing energy demand for heating/cooling facilities), and use few equipment (minimising material impacts).

Conclusion: Integrating planetary-health considerations into physical-activity recommendations appears feasible. However, if and how to address sports with high environmental footprints remains an open question.

S.1.14-1

Prescribing Healthy Food: Results from a 12-month Randomized Controlled Trial of a Food Incentive Program for Adults with Type 2 Diabetes and Food Insecurity

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S.1.14 Cancer prevention and management: Food is Medicine Across Contexts: Clinical, Behavioral, and Implementation Evidence from International RCTs

Room 2, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: The high and escalating cost of food and other necessities prevents many lower income households from accessing sufficient nutritious food—a condition known as household food insecurity. Adults living in food insecure households have poorer diet quality than their food secure counterparts and are therefore at higher risk of morbidity and mortality due to diet-related conditions such as type 2 diabetes (T2DM). Healthy food prescription incentive programs may assist adults with T2DM to adhere to a healthy dietary pattern and thereby improve their blood glucose levels and reduce diabetes complications. However, very few randomized controlled trials have examined this question. This randomized controlled trial examined the impact of a 12-month healthy food incentive program on the glycosylated hemoglobin levels (A1C; primary outcome) and clinical health markers of adults with T2DM in Alberta, Canada.

Methods: 596 adults with T2DM (baseline A1C 6.5-12%) and food insecurity were randomized to healthy food prescription incentive program (n=298) or a healthy food prescription comparison group (n=298) for 12 months. Both groups received a healthy food prescription with a diabetes-appropriate dietary pattern. The incentive group also received a weekly incentive of CDN \$10.50/household member to purchase healthy foods in supermarkets for 12 months. A1C and clinical health markers (BMI, waist circumference, blood pressure, blood lipids) were assessed at baseline and 12 months. Mixed-effects linear regression assessed between-group differences in A1C and clinical health markers, adjusted for baseline values of each outcome, randomization stratification variables and age, ethnicity, education, number of children in the home, and diabetes duration. Dose-response analyses examined whether A1C at follow-up depended on the value of incentives redeemed. Analyses were intention-to-treat, with per protocol and as-treated sensitivity analyses. Qualitative semi-structured interviews explored participants' experiences during the program.

Results: 450 adults completed 12-month follow-up (76%). Between-group differences in A1C and clinical health markers will be discussed, along with qualitative findings on participants' program experiences.

Conclusion: This was one of the largest and longest RCTs of a healthy food prescription incentive program to date. Findings can inform the design and implementation of Food is Medicine interventions worldwide.

S.1.14-2

Behavioral Mechanisms of Dietary Change: Six-month Findings from the Delta GREENS Food Is Medicine Produce Prescription Randomized Controlled Trial

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S.1.14 Cancer prevention and management: Food is Medicine Across Contexts: Clinical, Behavioral, and Implementation Evidence from International RCTs

Room 2, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: This study examined the behavioral mechanisms over 6-months that influenced the adoption of and engagement with Delta GREENS, a 12-month Food is Medicine Produce (FIM) Prescription Randomized Controlled Trial in the Mississippi Delta. This investigation identified multilevel behavioral mechanisms shaping program adoption and resource utilization, an understudied area despite growing interest in FIM interventions.

Methods: This explanatory sequential mixed methods study enrolled 50 adults from the Delta GREENS intervention arm (study target n=300, enrollment ongoing). Eligibility included Delta Health Center patients in Bolivar, Sunflower, and Washington County, age ≥25, BMI ≥25, and HbA1c 5.7-8.5%. Participants received a culturally tailored cookbook and weekly boxes of local produce valued at ~\$25. This presentation focuses on the study's qualitative findings. Using Social Cognitive Theory (SCT) as a guiding framework, semi-structured interviews at 3 (n=50) and 6 months (n=46) explored how cognitive, behavioral, and environmental factors shaped dietary behavior change. Transcripts are being deductively coded in NVivo 14 using theory-informed codebooks organized within SCT domains, with 26% double-coding to establish inter-rater reliability at each time point.

Results: Interview completion was 100% at 3 months (n=50) and 92% at 6 months (n=46). Participants were predominantly female (80%), non-Hispanic Black (80%), middle-aged to older adults (80% aged 45+) with annual household income <\$30,000 (70%) and BMI ≥30 (82%). Most reported difficulty making ends meet (68%), nutrition insecurity (64%), and 48% experienced low or very low food insecurity. Mean baseline HbA1c was 6.4% (SD=0.8, n=47). Preliminary coding suggests that dietary behavior change involves interactions across SCT domains, with environmental factors (cost, availability, convenience) intersecting with cognitive factors (knowledge, self-efficacy) and behavioral practices (cooking skills, meal preparation) shaping outcomes. Participants described how the program's ability to address multiple barriers simultaneously facilitated sustained engagement and dietary change.

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Conclusion: Findings will elucidate behavioral mechanisms driving dietary change in FIM interventions, informing program optimization and scaling of produce prescription initiatives addressing diet-related chronic disease.

S.1.14-3

Acceptability of Medically Tailored Meals for Adults with Type 2 Diabetes in Australia: A Mixed Methods Evaluation

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S.1.14 Cancer prevention and management: Food is Medicine Across Contexts: Clinical, Behavioral, and Implementation Evidence from International RCTs

Room 2, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Though there is increasing rollout of medically tailored meals (MTM) interventions in the USA, their acceptability as a healthcare intervention in the Australian context is unknown. Assessing acceptability of novel interventions is crucial as it can influence their implementation and effectiveness. This interim study examined the acceptability of a 26-week MTM intervention (10 meals & ~300g nuts/week home-delivered with 3 dietitian consultations) within Australia's first MTM randomized controlled trial for adults with type 2 diabetes (T2D) and food insecurity.

Methods: Using a convergent mixed-methods design, we evaluated overall acceptability of the MTM intervention from the participants' perspective via the following outcomes: 1) perceived quality and 2) uptake of the intervention, and 3) contextual barriers and enablers influencing uptake. Between January 2023 - December 2024, quantitative (i.e. participant questionnaire and administrative records) and qualitative data (i.e. semi-structured interviews and routine monitoring questions) was collected and analysed using descriptive statistics and a deductive-inductive approach, respectively. Semi-structured interviews (n=18) provided insights on contextual factors influencing intervention uptake. Data was triangulated to gain a comprehensive understanding of acceptability.

Results: By 31 December 2024, 47 intervention participants had completed the trial. In preliminary analysis based on this sample, 74% were positive about the quality of the meals and the majority (>70%) of participants consumed an average of ≥8 (of 10) meals per week, citing convenience of the MTM intervention design as a key enabler to uptake. 70% of participants found the dietitian consultations useful, with most participants attending all three sessions (89%). Key contextual factors influencing intervention uptake included individual taste preferences and support from healthcare providers. The MTM trial was completed in October 2025. A mixed-methods process evaluation will assess the implementation, mechanisms of impact and scalability of the MTM intervention using data from the full cohort and program deliverers, with findings to be presented at the ISBNPA 2026 meeting.

Conclusion: MTM interventions are highly acceptable among individuals with T2D and food insecurity in Australia, warranting their further investigation as an innovative healthcare strategy. The upcoming process evaluation will help clarify the causal pathways and contextual factors that may influence the intervention's effectiveness.

S.1.15-1

Phase 1 of Developing a Core Outcome Set for Randomized Controlled Trials of Physical Activity Interventions for Older Adults: Knowledge Synthesis

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S.1.15 Ageing: A New Core Outcome Set for Randomized Controlled Trials of Physical Activity Interventions that Aim to Improve the Health of Older Adults

Room 3, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: To support development of a core outcome set (COS) for randomized controlled trials (RCTs) of physical activity (PA) interventions that aim to improve the health of older adults, the purpose of Phase 1 was to identify outcome domains and subdomains ('what' was measured) in previously published RCTs of PA interventions for older adults.

Methods: We conducted a rapid review and searched Ovid MEDLINE for recently-published (2015-2021), English language, RCTs of PA interventions for older adults (mean age 60+ yrs). We limited to articles published in Web of Science top-10 journals in general and internal medicine, geriatrics and gerontology, rehabilitation, and sports science. Two reviewers independently completed eligibility screening; two other reviewers abstracted trial descriptors and study outcomes. We classified study outcomes according to the outcome classification taxonomy endorsed by the Core Outcome Measures in Effectiveness Trials Initiative.

Results: Our search yielded 548 articles; 67 articles were eligible and included. Of these, 82% were efficacy/effectiveness trials, 85% included both male and female participants, and 84% recruited community-dwelling older adults. Forty percent of articles reported on interventions that involved a combination of group and individual PAs; 60% involved a combination of PA modes (e.g., aerobic, resistance). Trial sample size ranged from 14 to 2157 participants, with median (IQR) of 94 (57-517); 28,649 participants were included across all trials. We identified 21 unique outcome domains, spanning 4/5 possible core areas (physiological/clinical; life impact; resource use; adverse events). The five most commonly reported outcome domains were physical functioning (included in n=51 articles), musculoskeletal and connective tissue (n=30), general (n=26), cognitive functioning (n=16), and emotional functioning/wellbeing (n=14). Under these five outcome domains, we further identified 10 unique outcome subdomains (e.g., fall-related; body composition). No outcome domains or subdomains were reported consistently in all RCTs.

Conclusion: We found extensive variability in outcome domains and subdomains used in RCTs of PA for older adults, reflecting the broad range of potential health benefits of PA and interest to monitor possible adverse events. The inventory of outcome domains and subdomains generated by this study will inform development of a COS for RCTs of PA interventions for older adults.

S.1.15-2

Phases 2 & 3 of Developing a Core Outcome Set for Randomized Controlled Trials of Physical Activity Interventions for Older Adults: Knowledge User Perceptions

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S.1.15 Ageing: A New Core Outcome Set for Randomized Controlled Trials of Physical Activity Interventions that Aim to Improve the Health of Older Adults

Room 3, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Randomized controlled trials (RCTs) of physical activity have demonstrated benefits for older adults across a wide range of health outcomes. However, little attention has been given to whether the outcomes measured are meaningful to both older adults and the healthcare professionals who support them. To support the development of a core outcome set, this sequential mixed-methods study aimed to determine which outcomes older adults (Phase 2) and healthcare professionals (Phase 3) prioritize for future physical activity RCTs.

Methods: In Phase 2, we conducted semi-structured interviews with 12 older adults aged ≥ 65 years (mean 80.1 ± 9.5 years; 6 men, 6 women) and analyzed the data using reflexive thematic analysis. Findings informed Phase 3, an online survey of 225 healthcare professionals (160 women, 55 men), including 21 physicians, 99 physiotherapists, and 105 kinesiologists, who rated and ranked the importance of 24 candidate outcome domains.

Results: Phase 2 interviews with older adults generated five outcome themes—physical, clinical, social, psychological, and overarching—each containing multiple subthemes. Participants rarely described outcomes in isolation; instead, specific outcomes were often contingent, building toward broader, holistic outcomes, with independence and quality of life emerging as the root of older adults' priorities.

Phase 3 survey results from healthcare professionals indicated that the outcome domains most frequently rated as 'highly important' were falls (92.0%), quality of life (91.5%), independence (87.9%), balance (84.4%), and mobility (82.7%). Outcome domains most frequently ranked in the top four were quality of life (67.1%), independence (50.2%), risk and management of chronic disease (40.2%), mobility (33.3%), and falls (32.9%). Healthcare professionals identified that the five outcomes most important for supporting older adult independence were strength, mobility,

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balance, brain and cognitive, and falls, while the most important outcomes for supporting quality of life were social, psychological, mobility, brain and cognitive, and sleep.

Conclusion: Both older adults and healthcare professionals identified quality of life and independence as priority outcome domains for future research. These findings emphasize the importance of grounding physical activity RCTs in real-world impact and will help guide the development of a core outcome set that reflects patient- and provider-relevant outcomes.

S.1.15-3

Phase 4 of Developing a Core Outcome Set for Randomized Controlled Trials of Physical Activity Interventions for Older Adults: Consensus Generation

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S.1.15 Ageing: A New Core Outcome Set for Randomized Controlled Trials of Physical Activity Interventions that Aim to Improve the Health of Older Adults

Room 3, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: The purpose of Phase 4 was to generate consensus on a core outcome set (COS) for randomized controlled trials (RCTs) of physical activity (PA) interventions that aim to improve the health of older adults.

Methods: We administered a modified Delphi process involving three rounds of online surveys to a multidisciplinary, international, expert panel comprised of researchers, healthcare professionals, and older adults. In Rounds 1 and 2, participants rated the importance of measuring a list of 27 candidate outcome domains (generated from Phases 1-3 of this project) on a 9-point Likert scale. Consistent with COS development guidelines, the threshold for consensus was defined as at least 70% of participants rating the outcome domain as 'critically important to measure' and less than 15% of participants rating the outcome domain as 'not important to measure'. In Round 3, participants ranked the importance of the outcome domains that reached consensus after Round 2 to define the final COS. To inform participant responses and guide toward consensus, participants were provided with definitions of the candidate outcome domains, evidence summaries from Phases 1-3 of this project, and results from the previous Rounds.

Results: Ninety-two participants were initially enrolled; 77 (84%) completed Round 1, and 65 (71%) completed Round 2, including 33 researchers, 17 healthcare professionals, and 15 older adults (55% female, 52% living in North America). Following Round 2, 11 outcome domains reached the threshold for consensus: 1) balance (92% rated critically important); 2) fall-related (91%); 3) mobility (89%); 4) quality of life (89%); 5) adverse events (81%); 6) cognitive functioning (81%); 7) independence (81%); 8) muscle performance (77%); 9) emotional functioning/wellbeing (75%); 10) cardiovascular and cardiorespiratory (74%); and 11) risk and management of chronic disease (71%). Results from Round 3 and the final COS will be available in early 2026.

Conclusion: The final COS will provide PA researchers with clear guidance on a minimum and standard set of outcome domains to measure and report in RCTs of PA interventions that aim to improve the health of older adults. The COS will reflect shared outcome priorities of researchers, healthcare professionals, and older adults.

S.1.16-1

Workplace Co-creation to Develop Interventions to Address Sedentary Behaviour in Scottish SMEs

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S.1.16 Participatory Research in Health Promotion: The integration of co-creation, theory, and evidence in physical activity and sedentary behavior interventions: insights, recommendations, and future directions

Room 4, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Co-creation involves engaging stakeholders in developing and implementing solutions. Co-creation can produce tailored solutions that meet end-users' needs, making them more effective and sustainable. High levels of sedentary behaviour (SB) are linked to numerous health risks, with office workers particularly affected as they sit most of their workday. While participatory approaches show promise for reducing SB at work, many provide only tokenistic involvement, with researchers retaining decision-making power and limited organisational engagement. Furthermore, understanding the experience of participating in a co-creation process can enhance future experiences and engagement and help design better co-creation processes. The study aimed to advance planning, implementation and evaluation of workplace co-creation to address SB, and to explore the experiences of those engaged in the co-creation.

Methods: A co-creation process was implemented in three Glasgow small-to-medium-sized enterprises to each develop a context-specific solution for reducing SB, using a 7-step classic change management process to health (6-8 90-minute sessions per company). Sessions included creating a support base and consultation structure; mapping needs, requirements, and opportunities; drawing up and beginning action plan implementation; and evaluating and making adjustments. Evaluation involved workshop observations, co-creator evaluation forms, facilitator reflection logs, focus groups and interviews with co-creators. Both self-reported and device-based SB measures were collected. These data informed a process evaluation of the co-creation processes, including thematic analysis of focus groups, and a pre-post evaluation of SB changes. Interviews from each workplace were analysed separately using thematic analysis, and informed a cross-case comparison regarding co-creators' experiences.

Results: The study demonstrates how co-creation within SMEs can generate tailored solutions to reduce SB and foster a sense of responsibility and sustained engagement beyond formal sessions, supported by structured implementation plans. Co-creators reported a range of mostly positive experiences. Using interactive methods, skilled facilitation, and respecting co-creators' time and effort are likely to improve the co-creation experience. The implementation of the co-created solutions varied, influenced by organisational factors such as culture, managerial support, and workload pressures.

Conclusion: Co-creation can foster responsibility among employees and managers to take ownership of workplace health solutions, while cautioning against the assumption that participation automatically guarantees implementation.

S.1.16-2

Co-creation and Use of Theory for the Development of the Lifestyle Intervention Family FIT FC Targeting Football Fans and their Families

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S.1.16 Participatory Research in Health Promotion: The integration of co-creation, theory, and evidence in physical activity and sedentary behavior interventions: insights, recommendations, and future directions

Room 4, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: The effective European Football fans in Training (EuroFIT) lifestyle intervention showed how the power of football can be used to make a sustainable change in the lifestyle of male football fans. Following this success, football clubs expressed an interest in developing a lifestyle intervention for football fans and their families. Therefore, building on the theory of EuroFIT, and in co-creation with the club, coaches, children and their parents, a new intervention was developed and pilot tested: Family FIT FC.

Methods: First, a behavior change model was developed for both the children and their parents, guided by the Self Determination Theory. Next, this theory was translated into practical sessions, during many co-create sessions with the coaches of the clubs and club representatives. Next, three 2-hour taster sessions were organized to pre-test specific aspects of the intervention. Researchers observed the sessions to gather feedback from participants. After each session, a reflective group discussion was held with the participants and coaches to evaluate the activities of the sessions. Next, all feedback was used to develop the final materials for the pilot evaluation.

Results: The co-creation process has resulted in a 12-week intervention for children between 12-17 years and their parents. The co-creation guided the selection in age of children, as well as the target behaviors. For example coping with stress and sleep were added as targets behaviors. The initial theory of the program was 'simplified' by the

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coaches to tailor it to the available time, level of the participants, as well as feasibility to deliver. In total, 4 families participated in the pilot. The pilot delivery showed promising results on health behaviors, but also showed room for improvement towards the content of the program.

Conclusion: Building on the evidence of its processor EuroFIT, we were able to co-create and pilot a first draft of the Family FIT FC intervention. The synergy between researchers and coaches in the development has resulted in a theory-based intervention that is implementable in practice. The intervention was further adapted in co-creation with the coaches and is currently being evaluated in 2 clubs.

S.1.16-3

Recommendations and Best Practices for the Integration of Co-creation, Theory, and Evidence in Health Behavior Interventions: Results from Expert Interviews

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S.1.16 Participatory Research in Health Promotion: The integration of co-creation, theory, and evidence in physical activity and sedentary behavior interventions: insights, recommendations, and future directions

Room 4, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: School-going children and adolescents currently fall short of adhering to physical activity, sedentary behavior, and sleep guidelines, suggesting that current interventions are not sufficient. Research demonstrates that co-creation, theory, and evidence can bolster the effectiveness of interventions, but the integration of these approaches presents challenges. In previous studies, co-creation, theory, and evidence were used to develop interventions, but using disparate approaches. For example, some studies use a classic theory (such as Self-Determination theory) to generally ground the intervention, while others use an intervention planning approach (such as the Behavior Change Wheel) to structure the entirety of the intervention development. Even within studies that use similar approaches, researchers co-create with the target group at different steps of intervention development and report varying degrees of detail about the integration. Thus, there is a need for insights into how researchers can best combine co-creation, theory and evidence in health behavior interventions.

Methods: Expert interviews have thus far been conducted with 8 researchers—4 experts in behavior change theory, 2 researchers who have previously combined these approaches in intervention development, and 2 experts in co-creation. Interviews were transcribed and analyzed using semantic thematic analysis.

Results: All interviewed experts acknowledged the benefits of combining co-creation, evidence, and theory, but noted practical difficulties when combining a top-down and a bottom-up approach such as how to involve the target group in the more theoretical aspects of the respective approach. To fill this gap, all experts advocated for some form of guidelines and/or recommendations to guide future researchers who aim to integrate these approaches. In addition, experts emphasized the benefit of using an intervention planning approach such as the Behavior Change Wheel or Intervention Mapping (in which theory and evidence are included) to structure the co-creation sessions, but noted that recommendations should be applicable to different planning approaches. Finally, experts suggested the need for specific reporting guidelines when combining these approaches.

Conclusion: Based on the results of expert interviews, a draft of recommendations and best practices will be formulated to assist researchers, which will be recirculated to experts for feedback and presented at the ISBNPA 2026 conference.

S.1.17-1**Strategic Adaptation: Engaging Context to Strengthen Public Health Nutrition Impact****C. Byker Shanks¹**¹Center for Nutrition & Health Impact, N/A, Omaha, United States**S.1.17 Motivation and behavior change: Science or Strategy? Public Health Nutrition's Compass in a Polarized World****Room 5, May 28, 2026, 4:00 PM - 6:00 PM**

Purpose: Nutrition and health outcomes are shaped by food environments, including what foods are stocked in stores, served in schools, and promoted through marketing. These environments reflect cultural norms and policy choices that influence what is considered normal, affordable, and/or desirable to eat. Presenting evidence alone often does not shift dietary patterns or generate lasting support for nutrition policy. This presentation argues that adjusting communication, framing, and collaboration to reflect the priorities of the setting in which a public health nutrition initiative is being implemented can strengthen adoption and effectiveness. Here, strategic adaptation is presented as a practical approach for improving impact while maintaining scientific standards.

Methods: This argument draws on public health ethics principles including transparency (clearly stating evidence and uncertainty), role clarity (speaking as a public health practitioner versus political actor), and proportionality (aligning advocacy with the strength of evidence). Research on trust in nutrition communication shows that people interpret information through identity and values, and that messages gain traction when they connect with widely shared concerns. Two cases will be discussed: initiatives to limit ultra-processed foods in school meals and fruit and vegetable incentive programs through USDA GusNIP. These examples show how communication strategies and collaboration with established organizations influence understanding, support, and participation.

Results: Program experience indicates that nutrition efforts are more successful when framed around priorities such as children's growth, food costs, and familiar food practices. Working with organizations that already hold trust in a community increases acceptance and engagement. When public health does not adapt how it communicates, commercial marketing and competing narratives often fill the gap and shape eating behaviors in ways that undermine health. These patterns appear across regions and countries with varying cultural and political orientations, suggesting that strategic adaptation improves communication without requiring alignment with any stance.

Conclusion: Strategic adaptation helps public health improve the reach and sustainability of nutrition programs. When guided by ethical principles and clear communication of evidence, adaptation strengthens trust and supports effective implementation. To improve food environments and health outcomes, public health nutrition must participate in the conversations and decisions that shape everyday eating conditions.

S.1.17-2**Public Health Nutrition Must Defend Science, Institutions, and Democracy When Health Is Politically Undermined****A. Troen¹**¹The Hebrew University of Jerusalem, Institute of Biochemistry, Food Science, and Nutrition, Rehovot, Israel**S.1.17 Motivation and behavior change: Science or Strategy? Public Health Nutrition's Compass in a Polarized World****Room 5, May 28, 2026, 4:00 PM - 6:00 PM**

Purpose: This presentation argues that in an era of democratic backsliding and politicization of science, public health nutrition can no longer rely on neutrality and strategic communication alone. Across diverse contexts—including the United States, Israel, Hungary, Argentina, Brazil, and Turkey—science, surveillance systems, and academic institutions are being weakened or politicized. The purpose is to examine whether public health nutrition should remain strictly apolitical or adopt a principled, politically aware stance to

Methods: The argument draws on global case examples where public health and nutrition policy were shaped not by miscommunication, but by deliberate political interference. These include: repeal or obstruction of sugar-sweetened beverage (SSB) taxes in the USA and Israel; cancellation of the USDA Food Security Survey and weakening of NHANES; political debates on withdrawal from WHO; Hungary's takeover of its Academy of Sciences. These examples are

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analyzed through public health ethics—scientific rigor, transparency, equity—and democratic theory concerning the role of institutions, accountability, and the public good.

Results: These cases reveal that “Adaptation” is not enough. The central challenge is not failure to communicate evidence but the erosion of foundational assumptions of modern public health, and in particular public health nutrition. Evidence is cynically dismissed as ideological, uncertainty is weaponized, and health becomes a partisan identity marker. Remaining neutral can mean silence while institutions are dismantled. Yet full political alignment risks partisanship, loss of trust, and moral overreach. The key insight: the risk is not being political—the real risk is being partisan, opaque, or self-righteous.

Conclusion: Adaptation and cultural sensitivity remain important, but they are insufficient when science and democracy are under attack. Public health nutrition must learn to engage as a principled civic actor—defending evidence, democratic institutions, and human dignity—without becoming partisan. This requires naming when science is misused, when vulnerable populations are harmed, and when institutions are weakened, while remaining grounded in transparency, humility, and service to all. Only by doing so can public health and public health nutrition uphold its role in a free and truth-based society.

S.1.18-1

From System Mapping to Systemic Action: Building the Food System Transformation Solution Bank Tool

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S.1.18 Systems Science: Catalyzing System Change: From Understanding Complexity to Taking Action

Room 6, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: There is a proliferation of research, policy and practice activity taking place, trying to identify ‘what can we do’ to address food systems challenges, including complex public health problems. Often such projects begin with a system mapping exercise to identify key challenges or leverage points for targeted actions, and methods to do this are well developed and increasingly implemented. However, methods for solution identification and selection are less well developed, and potential solutions are fragmented, in silos related to a particular system activities, outcomes and type of lever. Because this presents a barrier to taking systemic action, we developed a tool to aid solution scanning, based on an approach pioneered in the field of conservation science.

Methods: A two-stage workshop co-design process, involving participants from multiple academic disciplines and areas of food system expertise, was developed and delivered. Sources of solutions were harvested, and a classification scheme co-designed and tested. Solution sources were reviewed and data extracted and coded, supported by a taxonomy, which was iterated during data coding and in pilot applications. A review of additional classifications was conducted, to provide users with a menu of further classifications which could be built into any solution scanning process.

Results: From 277 sources, including reports, academic literature and policy databases, we extracted 3,485 potential solutions for transforming the food system. Every solution was tagged according to five classifications. To facilitate use we developed an open access online interface with search functionality.

Conclusion: The Food System Transformation Solution Bank contributes a practical tool, a method for solution scanning, and knowledge of the types of sources, classifications and solutions which exist. The database is freely available for use by researchers, policymakers and practitioners, and can be used to create long-lists of solutions - categorized with descriptive tags - for further analysis, and application of additional criteria. What started life as a simple database project resulted in a package of tools: the database itself - in excel and web form - a food system solution taxonomy, a review and typology of potential criteria which can be applied, and a method for harvesting and coding sources.

S.1.18-2

From Insights to Action: Using Systems Archetypes to Transform Hospital Food Environments

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S.1.18 Systems Science: Catalyzing System Change: From Understanding Complexity to Taking Action

Room 6, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Despite growing commitment to healthy and sustainable food environments, many hospital food environments for staff and visitors remain dominated by unhealthy and unsustainable options. Systems archetypes may help explain why well-intended interventions often fail and reveal leverage points where strategic action can shift system behaviour. This study applies systems archetypes within a Group Model Building approach to identify recurring patterns that hinder change and to co-develop leverage-based strategies for lasting improvement in hospital food environments.

Methods: Two Group Model Building workshops were conducted with 36 representatives from key stakeholder groups at a major Dutch university hospital. In the first workshop, stakeholders collaboratively mapped factors sustaining the current food environment. Researchers then constructed a Causal Loop Diagram, used systems archetypes to identify recurring patterns, and identified leverage points from the systems archetype literature. In the second workshop, these prescribed leverage points guided the co-development of stakeholder-informed action strategies.

Results: Three recurring patterns emerged; (1) *Shifting the Burden*: reliance on short-term solutions limiting structural change; (2) *Success to the Successful*: unequal playing field among food providers limiting the growth of healthier offerings; and (3) *Limits to Success*: stagnant demand for healthy and plant-based foods constraining further investment and adoption. *Shifting the Burden* appeared as the central dynamic, while the other systems archetypes depended on its structural conditions. Accordingly, the resulting action strategies prioritized (1) addressing root causes by strengthening organizational structures and capacities, then (2) levelling the playing field for food providers, and finally (3) addressing underlying constraints to shift demand.

Conclusion: Systems archetypes provide an innovative, structured approach to move from understanding systemic frictions to identifying actionable strategies. By revealing where and how to intervene, they help accelerate the transition toward healthy and sustainable hospital food environments. The insights and methods presented here can guide similar food environment transitions across healthcare and other institutional settings.

S.1.18-3

The Qualitative Systems Exploration Model (QSEM): Helping Practitioners and Policy-makers Move from Causal Loop Diagrams to Actionable Insight

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S.1.18 Systems Science: Catalyzing System Change: From Understanding Complexity to Taking Action

Room 6, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Causal Loop Diagrams (CLDs) are increasingly used to depict and understand complex systems driving the major public health issues of the 21st century.

Challenges often arise when moving from understanding [the system] to action. The Qualitative Systems Exploration Model (QSEM) provides a semiquantitative framework for interpreting and analysing CLDs to help identify points of interest for action. We draw on its application in a commissioned project exploring population dietary intake in Wales.

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Methods: We worked with Welsh Government stakeholders to test and refine QSEM via facilitated in-person and online workshops. A base CLD of the Welsh food system was created through a synthesis of nine existing maps, refined through one in-person group model building workshop and 10 smaller online workshops. A final workshop with 17 policy officials provided impact- (i.e. the influence one variable has on another) and control- (i.e. Welsh Government ability to influence) values for all interconnections within the CLDs, referred to as System Factor Classification (Phase 1). The research team used QSEM to analyse these values, and identify Loops of Interest (Phase 2) and System Archetypes (Phase 3). Given the extensiveness of the Welsh food system, the food production sub-system illustrates the utility of QSEM.

Results: The food production sub-system included 29 factors. We noted six pertinent feedback loops (four reinforcing and two balancing) which explain how the environmental impact of food production and consumer demand can facilitate farming practice diversification, how increased food production may increase food waste, and how the volume of food produced in Wales is limited by its processing capacity. QSEM highlighted that Just in Time processing and consumer demand were important factors to focus on, whilst the cost of food, farming practice diversification, and environmental impact were factors to measure progress against. Phase 3 revealed a 'shifting the burden' archetype.

Conclusion: QSEM provides a systematic, transparent process for interpreting and analysing CLDs. In this proof-of-concept testing, QSEM enabled stakeholders to critically examine their CLD and generate tangible, actionable insights. Since finalising this project, QSEM now has a dedicated software solution to expand its utility in qualitative systems dynamics modelling.

S.1.19-1

Monitoring Physical Fitness in Preschoolers: An Essential Step for Early Health Promotion

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S.1.19 Motivation and behavior change: From Playground to Adulthood: The Lifelong Impact of Physical Fitness
Room 7, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: To examine the longitudinal associations between physical fitness at preschool age and cardiometabolic and mental health outcomes during adolescence, within the PREFIT-UP study.

Methods: The PREFIT-UP project builds upon the Preschoolers' Fitness Test (PREFIT) project, which primarily aimed to develop a standardized battery to assess physical fitness in preschool children aged 3–5 years. A total of 3,169 preschoolers (47.2% girls) were initially evaluated between 2014 and 2015. Preschoolers were assessed by using the PREFIT battery: i) anthropometry: weight, height, and waist circumference, ii) cardiorespiratory fitness (PREFIT 20m shuttle run test), iii) muscular strength: upper-limbs muscular strength (handgrip strength) and lower-limbs muscular strength (standing broad jump), and iv) speed-agility (PREFIT 4x10m shuttle run test). In 2024–2025, we are conducting a follow-up assessment approximately 9–10 years later, expecting to include around 1,000 adolescents. At follow-up, cardiometabolic health outcomes include intermuscular fat quantified via ultrasound at the thigh level, body fat mass (bioimpedance), arterial stiffness by using the assessed using a validated non-invasive oscillometric system, and continuous glucose monitoring (24h/day for 7 consecutive days). Mental health outcomes include behavioral and emotional problems and perceived stress levels via validated questionnaires for adolescents.

Results: Preliminary analyses in a subsample indicate no significant longitudinal association between preschool fitness levels and continuous glucose profiles during adolescence. However, data collection and analyses are ongoing, and broader associations with other cardiometabolic and mental health indicators will be explored as follow-up assessments progress.

Conclusion: Monitoring fitness from early childhood provides valuable insight into the developmental origins of health and disease. PREFIT-UP uniquely bridges preschool and adolescent stages, highlighting the relevance of early-life fitness as a potentially modifiable factor for long-term cardiometabolic and psychological well-being. This study will contribute critical longitudinal evidence to inform early prevention and health promotion strategies.

S.1.19-2

Exploring Lifelong Physical Fitness Journey with SLOfit

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S.1.19 Motivation and behavior change: From Playground to Adulthood: The Lifelong Impact of Physical Fitness
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Purpose: This study's primary purpose is to leverage Slovenia's unique, national SLOfit physical fitness monitoring system to investigate the pathway of fitness from childhood into adulthood and explore causal relationships between longitudinal fitness trajectories and adult health outcomes. The research innovation lies in utilizing data collected since 1987 through the SLOfit Students program (ages 6–18) and integrating it with new tracking from the SLOfit Adults program, providing an unprecedented, decades-long, cohort-based dataset for lifespan health analytics.

Methods: This is a quantitative, retrospective cohort study built upon the SLOfit national fitness monitoring infrastructure. The system incorporates a citizen science approach and is supported by the My SLOfit web application (275,000 registered users = 14% of Slovenian population), which provides individualized health risk/benefit feedback based on evidence-based centile curves and health benefits associated with scores in certain fitness components.

Participants: A sample of approximately 1,000 SLOfit members will be analyzed, focusing on individuals currently aged 35–55 years.

Measures: Childhood/Adolescent Fitness: historical data collected via the Sport Educational Chart battery; Adult Fitness: current fitness levels measured using the Physical Fitness of Adults' battery; Lifestyles: historical and current lifestyles identified through validated questionnaires; Health Outcomes: identified health outcomes in adulthood.

Results: The data collection and merging with previous testing are currently underway, and results are forthcoming. The analytical plan focuses on advanced statistical modeling (e.g. LMMs, MSMs, GMM) to map the trajectory of fitness components over the lifespan and to explore the causal effect of fitness levels during key developmental periods (childhood, adolescence, young adulthood, mid-age adulthood) on later-life fitness and established health outcomes. Preliminary analyses will focus on establishing the direct and indirect predictive power of childhood fitness scores on measured adult fitness and health indicators, controlled for lifestyles characteristics.

Conclusion: Specific findings are expected to elucidate crucial critical periods in the lifespan where interventions on physical fitness offer the greatest protective benefits against adverse health outcomes in middle age, providing evidence-based support for public health policy and the continuous use of the SLOfit system.

S.1.19-3

Health-related Physical Fitness Test Battery in Adults: The ADULT-FIT Study

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S.1.19 Motivation and behavior change: From Playground to Adulthood: The Lifelong Impact of Physical Fitness
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Purpose: Physical fitness is a well-established predictor of morbidity and mortality in adults, highlighting its value as an indicator for public health monitoring. Several field-based physical fitness test batteries have been proposed for adults; however, none of them meet the essential measurement quality criteria, including health-related predictive validity, criterion validity, reliability, feasibility, safety, and responsiveness. The aim of the ADULT-FIT study was to propose a health-related field-based physical fitness test battery for adults based on scientific evidence.

Methods: The ADULT-FIT research team reviewed the scientific evidence on the health-related predictive validity, criterion validity, reliability, feasibility, and safety of field-based physical fitness tests in adults, and conducted six systematic reviews and two meta-analyses. The research team also conducted several methodological studies to determine the criterion validity and reliability of various field-based fitness tests in a sample of 410 adults aged 18–64 years, homogeneously distributed by sex, age, and physical activity level. Moreover, the feasibility and safety items identified in the scientific evidence were evaluated for the selected tests. Finally, the research team examined the responsiveness of the selected tests after a 12-week multicomponent exercise training program involving 62 inactive participants aged 18–64 years, who were randomly assigned to either an intervention ($n=31$) or control group ($n=31$).

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Results: The selected health-related field-based physical fitness tests for adults (18-64 years) that met the essential measurement quality criteria were: (1) the 20mSRT (as high priority) to assess cardiorespiratory fitness, the 6-minute walk and 2-km walk tests could be an alternative in adults whose fitness level is low or who find it difficult to run; (2) the handgrip strength (as high priority) and sit-to-stand (i.e., 30-seconds/5-repetitions) tests to assess muscular strength; (3) the 6 meter walk test to assess motor fitness; and (4) body mass index and waist circumference (as high priority), and skinfold-based equations to measure body composition. This proposal could be adapted according to age group.

Conclusion: The ADULT-FIT health-related field-based fitness test battery is valid, reliable, feasible, safe, and responsive for assessing physical fitness in adults (18-64 years), and can be effectively used for health monitoring purposes.

S.1.20-1

Current Approaches to Physical Activity Policy Evaluation: A Comparative Analysis of International Tools

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S.1.20 Policies and environments: From Monitoring to Action: Advancing Knowledge on Physical Activity Policy Practice and Implementation

Room 8, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: In policy evaluation research, the limited attention of decision makers and the insufficient use of evaluation results have been described as key problems. To address these issues, various tools have been developed in the field of physical activity to support the translation of research evidence into policy. This study analyses established international tools for monitoring or evaluating physical activity policies and compares their strategies for influencing policy processes.

Methods: A two-step data collection approach was employed. First, relevant tools were identified through existing systematic reviews and targeted hand searches of the scientific literature. Second, twelve semi-structured interviews were conducted with experts involved in the development or application of these tools. Thematic analysis was used to explore key aspects of policy monitoring and evaluation.

Results: Eight international tools for monitoring and evaluating physical activity policies were identified. Thematic analysis revealed two distinct evaluative approaches: deficit-based strategies, which emphasize identifying gaps and shortcomings in policy, and strength-based strategies, which focus on showcasing good practice and fostering cross-country learning. These approaches differ in their intended use of evaluation results and in their communication strategies.

Conclusion: This study highlights the diversity of evaluative strategies in the field of physical activity policy. While the relevance and applicability of individual tools may vary across national and cultural contexts, reflecting on the strengths and limitations of different approaches can enhance their utility. Promoting interdisciplinary collaboration and tailoring evaluation strategies to specific policy contexts may improve the uptake of evidence and increase the impact of evaluations on policy development.

S.1.20-2

PA-EPI Evidence Documents: A Comprehensive Account of Physical Activity Policy in Six European Countries

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S.1.20 Policies and environments: From Monitoring to Action: Advancing Knowledge on Physical Activity Policy Practice and Implementation

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Purpose: Effective policy action is vital to promote population-level physical activity. European governments have introduced dozens of policy initiatives that potentially impact the activity levels of their citizen populations but the extent of policy implementation across Europe remains poorly understood. This study aims to provide a comprehensive overview of national physical activity policies and their implementation in six European countries by developing 'evidence documents' that detail government actions across multiple domains.

Methods: An audit of national-level physical activity policies was undertaken by research teams in Germany, Ireland, Lithuania, Poland, the Netherlands and Romania. In four of these countries information on policies, surveillance and funding was available from a prior audit using the HEPA PAT. All research teams accessed government websites to identify evidence of policies. Policy documents were read and specific actions were mapped onto the 45 indicators of the PA-EPI framework. The audit was followed up with extensive snowballing to identify evidence of policy implementation. Researchers conducted internet searches and contacted professionals with domain-specific expertise to identify whether any further evidence was publicly available. Researchers then shared draft evidence documents with policymakers across different government departments via online questionnaires for validation and held in-person meetings to gather feedback.

Results: Validated evidence documents were completed for all six countries. Policymaker engagement during validation enhanced evidence document accuracy and comprehensiveness, and final documents are being prepared for dissemination to national stakeholders. The descriptions of policy implementation suggest considerable variation in policy implementation across the domains of the PA-EPI.

Conclusion: This study delivers the first multi-country collation of evidence of policy implementation using the PA-EPI framework enabling holistic policy assessment and cross-country comparison. This research fits into a broader process of coalition formation, policy assessment and advocacy that has the potential to support improved policy effectiveness.

S.1.20-3

The Added Value of a Subnational Pa-EPI: Reflections Based on a Review of Existing Subnational Physical Activity Policy Monitoring Tools

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S.1.20 Policies and environments: From Monitoring to Action: Advancing Knowledge on Physical Activity Policy Practice and Implementation

Room 8, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Physical activity (PA) policies operate across multiple levels of governance and sectors, and subnational actors (e.g., regions, municipalities) are predominantly responsible for implementation. The Physical Activity Policy Environment Index (PA-EPI) provides a tool to assess the extent of implementation of national-level PA policies. However, it remains unclear whether and how the PA-EPI should be adapted for subnational contexts. This study analyses existing subnational PA policy monitoring tools and discusses whether their characteristics support the need for a subnational adaptation of the PA-EPI.

Methods: A systematic gray literature review was conducted, as government-developed monitoring tools are often not described in peer-reviewed publications. Steps included: (1) reference screening of existing reviews, (2) gray literature search in the data bases OpenGrey and Startpage, and (3) expert consultation. Tools were included if they were explicitly designed to collect data on PA-related policies at subnational levels. The following data were extracted: governance level targeted (regional/local), domains and indicators covered (e.g., education, sport), data collection

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methods, evidence sources, frequency of monitoring, number of items, stakeholder involvement, and output.

Results: This review identified 17 tools that monitor, assess or benchmark PA policies at subnational level. Nine were developed by researchers, while eight can be described as government-driven. The methodology of data collection differs; while the majority of tools are based on surveys, some utilize desk-research in combination with expert consultation. Moreover, most tools were sector-specific (e.g., active transport, urban design) and primarily descriptive, documenting the presence of policies or environmental aspects rather than systematically assessing the extent of implementation in comparison to best practice. None of them is based on a comparable set of indicators and/or a comparable process as the PA-EPI.

Conclusion: The review indicates clear gaps in existing subnational PA policy monitoring approaches, particularly regarding comprehensiveness, assessment of implementation, and structured stakeholder involvement. While the PA-EPI is a validated tool for evaluating PA-related government action at the national level, a direct transfer to the subnational level may require adaptation, capacity building, and dedicated resources. The development of a subnational PA-EPI may be beneficial to complement strategies to support PA policy implementation at subnational levels.

S.1.21-1

Socioeconomic Inequalities in Exposure to Neighbourhood Environments for Physical Activity: A Systematic Review

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S.1.21 Policies and environments: Environmental correlates of physical activity in Europe: an OBCT symposium
Room 9, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: To systematically review and synthesise the evidence on socioeconomic inequalities in neighbourhood environmental resources that promote physical activity (PA) across different life stages in high-income countries.

Methods: In February 2024, we systematically searched Medline, Embase, Web of Science Core Collection, and Scopus. Eligible studies were quantitative primary research articles published in English that examined objectively measured neighbourhood PA-promoting environments in relation to at least one individual- or area-level socioeconomic indicator. Titles and abstracts were screened with ASReview, and full texts were screened manually in duplicate. Data were extracted with a predefined form, and risk of bias was assessed with an adapted version of the AXIS tool. We synthesised our findings narratively and by reported proportions of associations indicating disadvantaged exposure, advantaged exposure, or no statistically significant difference for people with lower SEP.

Results: A total of 250 studies were included. Overall, people with lower SEP were more likely to live in areas with (components of) walkable and bikeable infrastructure, and to have playgrounds nearby, but less likely to have access to formal sports and PA facilities. For other PA-promoting environments, findings were largely null. Patterns varied across age groups, study regions, statistical approaches, and SEP indicators.

Conclusion: Populations with lower SEP were more exposed to walkability components, bikeability, and playgrounds, but less exposed to sports and PA facilities. Advantages and disadvantages for populations with lower SEP vary by PA resource and SEP indicator, and also by country, age group, and unit of analysis. Throughout both the main analyses and stratified analyses, null results remain common. Overall, these findings imply that socioeconomic inequalities in exposure to PA environments are nuanced rather than uniform. This complexity highlights the need to consider multiple environmental features together and to tailor equity-focused interventions to local contexts.

S.1.21-2

Data Source Availability and Validation of Sports Facilities Across Socioeconomically Diverse Areas in Europe: A Geographic Information Systems-based OBCT Study

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S.1.21 Policies and environments: Environmental correlates of physical activity in Europe: an OBCT symposium
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Purpose: Reliable geospatial data are essential to assess physical activity and obesogenic environments, yet ensuring data consistency across multinational projects remains challenging. Research has traditionally relied on administrative datasets, which are often incomplete or unavailable in some regions, undermining data comparability. The recent expansion of geospatial big data has introduced alternative sources that may help reduce socioeconomic gaps in data availability and coverage. However, these sources still differ in collection methods, purposes, and spatial scope. Using Geographic Information Systems (GIS), we aim to identify relevant data sources on sports facilities and evaluate their agreement across socioeconomically diverse neighbourhoods in Madrid (Spain).

Methods: We obtained data on the location of sports facilities from three sources: administrative records (AR), commercial data from Google Maps (GM), and volunteered data from OpenStreetMap (OSM). We assessed agreement between GM or OSM and AR (reference) using container- and gravity-based approaches. The container-based approach compared the number and location of facilities per census tract/postcode, estimating sensitivity, positive predictive value, and concordance. The gravity-based approach used GIS techniques to generate density surfaces of facility availability for each source, which were then compared to identify spatial discrepancies. Finally, multilevel regression models examined differences in agreement across socioeconomic strata within each case-study area.

Results: The number of facilities varied markedly by data source, with GM generally reporting higher volumes than OSM. OSM better captured outdoor facilities, while GM performed better for indoor and private ones. Agreement varied spatially, and therefore socioeconomically, since outdoor facilities often concentrated in urban outskirts and low-density, green neighbourhoods. Associations between agreement and SES were mixed, depending on the data source. For instance, GM sensitivity varied from 0.55 in low-SES to 0.70 in high-SES tracts. However, OSM showed higher sensitivity across low SES than high-SES areas (0.46 vs 0.21).

Conclusion: Commercial and volunteered datasets may complement administrative data where lacking, but structural and socioeconomic biases must be carefully considered. These biases may distort analyses of sport facility access and associations with health outcomes, potentially misleading evidence for equitable policy-making. Robust validation is therefore crucial. Ongoing work is expanding this preliminary study to additional regions in Europe.

S.1.21-3

Objective Neighbourhood Walkability and Device-measured Physical Activity in Adults: An OBCT Study Using Multiple Cohorts across Europe

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S.1.21 Policies and environments: Environmental correlates of physical activity in Europe: an OBCT symposium
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Purpose: To determine the association between objectively measured neighbourhood walkability and device-measured physical activity (PA) behaviours in adults across Europe.

Methods: This cross-sectional study uses data from multiple cohorts, including UK Biobank (UK), NNPAS2 (Norway), NAKO (Germany), SCAPIS (Sweden), and the Portuguese PA and sports monitoring systems. In total, approximately 170,000 adults aged 18 years and older will be included. These cohorts are enriched with individual-level information on a high-resolution walkability index recently developed for Europe.

Walkability index was calculated within a 15-minute street-network buffer for each participant using their residential address, based on 100 m × 100 m grids. The index components are street walk length, street intersections, green space, slope, public transport stops, land use mix, 15-minute walking isochrones, and daily amenities. The index is calculated separately for each country and ranged from 0-100 (least to most walkable).

PA behaviours were measured with accelerometers. The primary outcome was step count (steps/day). Secondary outcomes included total PA, light PA, and moderate- to- vigorous PA, and sedentary time (minutes/day).

Multivariable linear regression models were used to assess the cohort-specific associations between neighbourhood walkability and PA, adjusting for age, sex, education level, employment status, household income, degree of urbanisation, and timing of PA measurement as putative confounding sources. Next, the effect estimates will be pooled via random-effect meta-analysis.

Results: Preliminary results from Portuguese (n= 2,554) and Norwegian (n= 4,661) cohorts:

In Portugal, the mean residential walkability score was 67.1 (SD=21.5), and participants' mean step count was 7,950 (SD=3,830) steps/day. In Norway, the mean walkability score was 61.1 (SD=21.6), and step count was 8,310 (SD=3,140) steps/day. Higher walkability was positively, though not statistically significant, associated with step counts in both countries, Portugal: $\beta = 8.1$ (95% CI = -4.0; 20.2), Norway: $\beta = 2.53$ (95% CI = -3.83; 8.89).

Conclusion: Higher neighbourhood walkability indicated higher step count per day in two medium-sized cohorts. Future analyses will incorporate larger-sized cohorts from UK, Germany, and Sweden; exploring secondary PA outcomes, assessing potential effect modifiers, and evaluating varying walking distance buffers. This Europe-wide multi-cohort study provides evidence linking standardised and objective neighbourhood walkability to device-measured PA behaviours across diverse populations.

S.1.22-1

Foodways of the Urban Poor in South Africa: A Pathway to Dietary Interventions

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S.1.22 Socio-economic inequalities: What it takes to address food insecurity, improve nutrition, and address diet-related chronic disease: Innovative global perspectives

Multipurpose Room, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Unhealthy diets and urbanisation, influenced by various social determinants of health, are key contributors to the rising prevalence of non-communicable diseases (NCDs) and obesity in South Africa, especially among the urban poor. Food is fundamental to life and health, and has social, cultural, and personal meanings which may vary and impact on health. Recognizing and understanding the *foodways*, i.e. the cultural, physical, environmental, social, and economic practices that impact food choices and habits is critical to inform the development of context-specific interventions that promote food as medicine. The objective of this study was to use the lived experience exploration to better understand the factors that influence *foodways* of the urban poor.

Methods: Thirty-four adults (21-45 years old) of both genders residing in a South African, low-income community, and who were primarily responsible for food decisions in their households, were purposively recruited for this ethnographic cross-sectional study. We conducted in-depth interviews, and participants completed a Neighbourhood Discovery Walk, using the Our Voice Citizen Science method, to characterise the local food environment that shaped their food choice decisions. Data were audio-recorded, downloaded, and transcribed and thematically analysed.

Demographic characteristics and anthropometric measurements were also collected.

Results: Participants were mostly women (>75%) with a moderate-high prevalence of overweight/obesity (>50%), food insecurity (>50%) and hypertension (45%). We identified four primary themes with sub-themes that highlight physical, behavioural, socio-cultural and economic constraints that were associated with participants' foodways. Our study suggests that economic limitations, household and cultural norms (such as large food portion size, hospitality, food brands, and preference for meat-based "proper" meals) are important factors to consider in developing sustainable interventions to promote healthy eating. Food sourcing and procurement were beyond logistical decisions; issues of personal safety and the provision of credit influenced food procurement. While participants spoke about healthy food meaning, food quality and nutritional labelling were often not taken into consideration, whereas the expiry dates did warrant attention.

Conclusion: Understanding these foodways relationships are essential for designing equitable, culturally responsive, and sustainable urban food systems, especially in low and middle income countries.

S.1.22-2

Feasibility and Acceptability of Personalised Medical Nutrition Therapy Plus Food Prescription to Those with a Diabetes-related Foot Ulceration - A Pilot Randomised Controlled Trial (RCT)

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S.1.22 Socio-economic inequalities: What it takes to address food insecurity, improve nutrition, and address diet-related chronic disease: Innovative global perspectives

Multipurpose Room, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Diabetes-related foot ulcers (DFU) are a major diabetes complication with inadequate nutrient intakes adversely impacting wound healing. DFU complications place substantial physical, emotional and financial burden on individuals and their families. These individuals are more likely to experience socioeconomic disadvantage, food insecurity and live with multiple comorbidities. Previous trials have utilised nutrient supplements. However, the role of medical nutrition therapy (MNT) delivered by dietitians, supplemented with a food prescription has not been evaluated in this population. Furthermore, food items that contain key nutrients needed for wound healing can be expensive or unfamiliar for people living with DFU.

Methods: A 6-week pilot RCT was conducted at two high-risk foot clinics. Diet quality was assessed pre-post RCT using the Australian Eating Survey food frequency questionnaire. MNT was provided to the intervention group at baseline, and weeks 2 and 4 with food boxes provided at baseline and week 4. Both groups received a (AU)\$25 grocery voucher at each time-point. Food security was assessed using the United States Department of Agriculture six-item Food Security Module.

Results: Ten intervention participants and seven control participants completed the pilot trial. Significant between group differences were identified for protein, vitamin A and vitamin B12. Significant within group differences were found for the intervention group with an increase in protein, fibre, dairy serves, vitamin A and magnesium. One-third of participants reported low or very low food security, with the mean index of relative socioeconomic advantage and disadvantage of 3.41 (SD 2) indicating most participating lived in areas classified as disadvantaged. All intervention participants reported the food boxes helped manage their overall living expenses, increased their knowledge of foods important for wound healing, while liking the items provided in the food box.

Conclusion: Personalised MNT and food prescription was acceptable for those with DFU, and improved some aspects of diet quality, which may have onward effects including addressing food insecurity, improving wound healing and overall health.

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S.1.22-3

Designing, Implementing, and Evaluating Food Is Medicine to Improve Food Security, Diet, and Diet-related Conditions in Diverse Communities in the US

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S.1.22 Socio-economic inequalities: What it takes to address food insecurity, improve nutrition, and address diet-related chronic disease: Innovative global perspectives

Multipurpose Room, May 28, 2026, 4:00 PM - 6:00 PM

Purpose: Over 18 million households in the US can be classified as food insecure, defined as a lack of consistent access to nutritious food for an active and healthy life. Those that experience food insecurity are disproportionately impacted by diet-related chronic conditions like heart disease and diabetes. Food is Medicine, refers to nutrition interventions that are implemented in healthcare to address the interrelated challenges of food insecurity, suboptimal diet, and diet-related chronic conditions. We will describe lessons learned about design, implementation, and evaluation from three Food is Medicine studies that were tailored to different patient populations.

Methods: The three studies used a participatory research orientation. First, we will describe the design phase of CART (Cancer Survivor Nutrition Assistance Research Trial), an intervention for cancer survivors that included nutrition education and vouchers for home-delivered medically supportive groceries. We conducted four focus groups (n=34) and a pilot test (n=40) with cancer survivors to design the intervention. Second, we will describe the implementation phase of Vida Sana y Completa, an intervention tailored for Latina women at risk for diabetes (n=412) that included a culturally tailored behavioral lifestyle intervention and medically supportive groceries provided by the local food bank. Third, we will share evaluation outcomes from Recipe4Health (n=4271), a produce prescription program for primary care patients with diet-related chronic conditions.

Results: Lessons learned in the design phase for CART included the importance of social support for eating healthy, need for trusted and tailored nutrition education, and high acceptability of home delivered groceries. In the implementation phase for Vida Sana y Completa, we learned the importance of cultural tailoring of groceries and nutrition information for Latina women and flexibility in delivering the intervention including via telehealth. Evaluation of Recipe4Health underscored the need to triangulate electronic health record data, surveys, and qualitative interviews to understand impact.

Conclusion: Building on lessons learned in the individual projects, we identified common themes across projects including the importance of tailoring for specific patient populations, matching the intensity of the Food is Medicine program to the acuity of patient needs, and the importance of nutrition education to maximize effectiveness.

S.2.23-1

Designing Places *for and with* Children and Adolescents

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S.2.23 Children and families: Designing outdoor play spaces *for and with* children: integrating participation, green design, and municipal processes

Auditorium, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: The majority of children and adolescents are not meeting physical activity recommendations. Part of the reason for this is the lack of suitable outdoor spaces for children and adolescents aged 9-15 to meet, play and be active together. We pose that truly listening to children and adolescents and actively involving them in designing outdoor spaces will increase their use of outdoor spaces, and with that, increase their physical activity and well-being.

Methods: We have compiled our knowledge and evidence from six studies in Denmark. In each of the mixed-methods studies, we looked at changes in the use of outdoor space by 9-15-year-olds. We used different types of co-creation processes in each study to re-design the outdoor spaces based on the wishes and ideas from the 9-15-year-olds. Using structured observations as well as combined accelerometer and GPS data, we identified which type of features

were used for different behaviours. Based on go-along interviews, we identified different types of children, as asked them about their respective outdoor spaces feature and activity preferences.

Results: To stimulate (active) use by 9-15-year-olds, outdoor spaces should contain a variety of features. They should include secluded social areas where they can hang out with each other, preferably younger children should not have access to these areas, and teachers and other adults should not directly look out on them. Furthermore, there should be areas with age-appropriate physical challenges such as high climbing frames, or other equipment that is physically challenging and creates a feeling of risk-taking.

Sports features such as ball game areas, as well as features for non-competitive activities are also important. Finally, it is important that there is a good balance between paved and more natural, vegetated surfaces.

Conclusion: If outdoor spaces include secluded hang-out areas for social activities, areas with age-appropriate physically challenging features that are experienced as risky, as well as sports area, and areas for non-competitive activities, 9-15 years-olds are likely to use them actively, which positively influences their well-being and total daily physical activity levels.

S.2.23-2

Integrating Co-creation into Municipal Design Processes for Public Playgrounds: Lessons from 24 Dutch Municipalities

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S.2.23 Children and families: Designing outdoor play spaces for and with children: integrating participation, green design, and municipal processes

Auditorium, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Co-creation in the design of public playgrounds is essential to ensure that these spaces meet the needs of children, parents, and neighbours, thereby stimulating their use. Although the benefits of co-creation are well known, integrating it into the design processes of public playgrounds remains challenging. This difficulty arises from conflicting structures and practices between co-creation approaches and traditional municipal design procedures. In this project, we developed a co-creation process for stimulating outdoor play and supported 24 municipalities in the Netherlands in implementing this process. We evaluated the implementation of the co-creation process in these municipalities and the experiences of the involved stakeholders.

Methods: We conducted several interviews with local project teams during and after the project. In addition, we analysed project documents, such as project plans and meeting minutes, and collected additional observations through regular meetings with the project managers who supported the local project teams. We deductively analysed data from each municipality to identify successes, barriers, and lessons learned, and subsequently performed a cross-case analysis to reveal patterns and differences across municipal contexts.

Results: Preliminary results show that the level of co-creation varied across municipalities. Openness of local stakeholders to learn, and the involvement of all relevant municipal actors from the start, contributed to a more comprehensive co-creation process. In contrast, limited time availability among project teams and pre-existing neighbourhood planning and policy procedures constrained the co-creation process. Contextual factors influencing the course of the project included the size of the municipality and the department in which the local project leader worked. Overall, local project teams reported that the co-creation process was highly valuable, as it was more inclusive and participatory than their usual practices. Despite the project being designed to align with municipal procedures, some teams experienced the process as time-consuming and were hesitant to integrate it into standard practice.

Conclusion: Having a co-creation process that aligns with municipal procedures supports successful co-creation in the design of public playgrounds. However, fully embedding such processes within municipal practices requires time, learning, and firsthand experience of the benefits of co-creation.

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S.2.23-3

Assessing the Impact of Greening Updates in Primary Schools on Physical Activity and Play: A Systematic Review

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S.2.23 Children and families: Designing outdoor play spaces for and with children: integrating participation, green design, and municipal processes

Auditorium, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Children spend large amounts of time at school yet many school yards lack green space such as trees and gardens. Retrofitted school greening may positively impact play and physical activity. This review aimed to examine the effects of primary school greening interventions on student's physical activity and school-based free play. It is part of a larger "Green Schools" study that is examining the impact of adding new green spaces in four mainstream and specialist primary schools in Melbourne Australia on physical activity and well-being compared to control schools.

Methods: The review was conducted in accordance with the PRISMA guidelines. An electronic search of databases including Scopus, EBSCOHost (via MEDLINE Complete, GREENFile, ERIC, and Environment Complete) and EMBASE was conducted in December 2024. Key inclusion criteria: interventional or experimental study design at a primary school with or without a control group, greening installations explicitly stated as part of the intervention/experiment, quantitative pre- and post-greening measurement of student's school-based free play or physical activity. Resultant articles from the final search were imported into Covidence. Quality assessment was performed using the McMaster Quality Assessment tool. The "Green Schools" methodology will be described as part of this presentation.

Results: Out of a total of 14,770 screened articles, nine studies met the eligibility criteria. They were conducted in three countries (US, UK and the Netherlands) and published between 2014-23. Four studies had more than one intervention school and eight studies had a control school. A range of greening interventions were included, including greening installations only, greening + interactive components (e.g., gardening lessons), and greening + play structure renovation. Follow-up periods ranged from 3-months to two years post baseline, and 55% were rated as strong quality. MVPA increased at follow-up at intervention schools in four studies, with stronger effects reported among girls compared with boys in three studies. Only one study examined play behaviours.

Conclusion: Methodological variations were observed between the studies. Further research is required to examine the impacts of pre-and-post greening interventions on physical activity in primary school-aged children in Australia.

S.2.24-1

Strategies Facilitating the Adoption of Policies for Healthy Food Environments: A Systematic Review and Best-fit Framework Synthesis

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S.2.24 Policies and environments: Advancing Equity in Food and Physical Activity Policy: Strategies, Participatory Approaches, and Evaluation

Room 1, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: 'Upstream' policies addressing unhealthy food environments, such as marketing restrictions on unhealthy products, are known to prevent non-communicable disease more effectively than 'downstream' policies targeting individual behaviours. Proposals for such policies, despite their effectiveness, often meet significant resistance, including by industry actors. This systematic review aims to identify strategies and tactics that have been successfully

employed by non-commercial actors to facilitate the adoption of policies for healthy food environments.

Methods: We undertook a systematic review and best-fit framework synthesis based on a pre-registered protocol (<https://osf.io/hcgs4/>). We searched five databases (Medline, Embase, Web of Science, PsycINFO, and the International Bibliography of the Social Sciences) for qualitative studies examining processes and factors leading to the adoption of public policies for healthy food environments at local, regional, national, or supranational levels, in high- or middle-income countries. We screened 20% of abstracts in duplicate in Rayyan and the remainder using ASReview's machine learning algorithm. We assessed all full-texts in duplicate and drew on the WCRF NOURISHING framework to categorise policies. Data analysis used our previously developed *a priori framework* as the initial coding frame. This was subsequently revised and expanded through inductive thematic analysis.

Results: We included 68 articles which covered 79 distinct policy processes in 37 countries. Policies adopted in North America (n=26), the Western Pacific region (n=18) and Latin and South America (n=14) were most commonly examined, in particular SSB taxation (n=37) and front-of-pack labelling (n=10). The adoption of sugar taxation in Mexico was covered in five articles. We identified five principal strategies facilitating adoption: political advocacy, intra-political tactics (i.e. tactics only available to political actors), coalition-building, media advocacy and community mobilisation. Across these five principal strategies, framing, using and generating evidence, resources and capacity-building, and analysis and deliberate action were employed as cross-cutting strategies. For example, political context analysis and information about possible opposition to policy proposals informed both political and media advocacy.

Conclusion: Our work intends to inform public health advocates about strategies and concrete tactics that have positively influenced policy adoption of policies promoting healthy food environments.

S.2.24-2

Systemic Change for Equitable Healthy Diets: A Participatory Systems Approach with Citizens and Stakeholders in Lower-income Neighbourhoods in Four European Countries

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S.2.24 Policies and environments: Advancing Equity in Food and Physical Activity Policy: Strategies, Participatory Approaches, and Evaluation

Room 1, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Socioeconomic inequalities in health and diet persist and have widened across Europe, with lower-income groups facing disproportionate risks of poor health outcomes. These disparities are not only ethically concerning but also represent a significant economic burden, with EU estimates suggesting up to €72 billion in annual efficiency gains from reducing health inequalities. Unhealthy diets are a key contributor to these health disparities, shaped by broader social determinants such as poverty, discrimination, and unequal access to resources. This study aimed:

1. To gain insight into the complex system of factors that influence dietary behavior among people living on a low income, - from the perspective of both citizens with experiential knowledge and professionals in four European communities.
2. To identify systemic leverage points and policy actions to promote healthier dietary behaviour among people living on a low income, based on insights from both citizens with experiential knowledge and professionals in four European communities.

Methods: This study adopts a systems-based participatory approach to map the complex drivers of dietary behaviour among people living on low incomes in four European communities: the Netherlands (Ede, Veldhuizen), Ireland (Togher, Ballyphehane, Cork City Southside), Poland (Zabrze), and Belgium (Ghent). Group Model Building sessions were conducted with citizens with lived experience and professionals from health and social sectors, resulting in country specific causal loop diagrams that were integrated into one causal loop diagram that identifies nine interconnected domains: government and policy, food industry, socio-cultural factors, food environment, living conditions, socio-demographic determinants, wellbeing, individual behaviour, and macro-level structural drivers.

Results: Four key dynamics emerged: (1) framing, power, and policy; (2) socioeconomic disadvantage and wellbeing;

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(3) food environment; and (4) socio-cultural context. These dynamics interact, thereby increasing the susceptibility to unhealthy dietary behaviours among people living on a low income and perpetuating cycles of inequality. By integrating experiential and professional insights, this study identifies systemic leverage points and policy actions to promote healthier dietary behaviours among low-income populations.

Conclusion: The findings offer a European food policy perspective on the structural and systemic roots of diet-related inequalities, highlighting the need for multi-level, inclusive interventions to address the root causes of health disparities.

S.2.24-3

Systematically Integrating Equity in Physical Activity Policy Recommendations

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S.2.24 Policies and environments: Advancing Equity in Food and Physical Activity Policy: Strategies, Participatory Approaches, and Evaluation

Room 1, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Physical activity (PA) policies are increasingly recognized as essential to improving population health, and many countries have established formal PA policies. However, major gaps remain in how equity is addressed in PA policy processes, with few practical and systematic methods or tools available to embed and evaluate it. Building on the Physical Activity Environment Policy Index (PA-EPI), this study aims to explore and test approaches to systematically integrate equity considerations into PA policy, enabling the identification of policy recommendations that are both relevant, feasible and equitable.

Methods: During a workshop with a diverse group of Dutch equity experts forming a PA-EPI equity council (n=11), two potential ways of integrating equity in the formulation of policy recommendations were explored: (1) Problem and solution tree analysis to identify structural drivers of inequities and link them to actionable solutions within existing structural domains of the PA-EPI (finance, governance, etc); and (2) Prioritisation and reformulation of prior policy recommendations from a PA-EPI council of PA experts in the Netherlands to incorporate an equity lens. Subsequently, we performed a process evaluation, based on a structured questionnaire, examining facilitators and barriers in integrating equity as part of the PA-EPI process.

Results: 1) Identified problems included fragmented policies, limited policymaker insight on vulnerable groups, poor cross-sector integration, difficult access to subsidies, lack of policy continuity, and insufficient inclusion skills among PA professionals. Broader system-level drivers were identified as root causes of inequities, e.g. outcome-driven policies focusing on easily measurable results (e.g. participation numbers), rather than equitable outcomes. 2) Prioritising and reformulating PA-EPI recommendations by equity experts indicated strong alignment with priorities identified in the earlier PA-EPI expert council, enhanced the inclusiveness of the recommendations, and helped identify key themes to inform the integration of equity considerations across policy recommendations. The process evaluation indicated that equitable facilitation, clear goals, structure through framework, expertise diversity were facilitative. Barriers included building from pre-existing recommendations (semantics, perceived lack of comprehensiveness), and substantial time investment.

Conclusion: This study produces equity-integrated policy priorities for the Netherlands and methodological insights to systemically integrate equity in PA policy evaluation.

S.2.25-1

Why Physical Activity Micropatterns? Concept, Epidemiological Evidence, and Bespoke Research Framework

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S.2.25 Motivation and behaviour change: Physical activity micropatterns: A stealth lifestyle factor with the potential to support sustainable habit formation interventions?

Room 2, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Traditional physical-activity research and guidelines have focused on total weekly volumes of moderate-to-vigorous activity, derived from self-report data that capture mostly amounts of structured exercise and other long physical activity sessions. With the advent of high-resolution wearable devices and machine-learning analytics, it is now possible to examine micropatterns, defined as brief, incidental bouts of moderate-to-vigorous intensity (10 seconds – 3 minutes each) embedded in daily life. This presentation addresses three linked aims: (1) describe the conceptual basis for focusing on physical-activity micropatterns; (2) summarise the emerging epidemiological and evolutionary evidence linking these micropatterns to health outcomes; and (3) propose a micropatterns research framework that can guide future measurement, epidemiology, intervention and translation work.

Methods: Evidence is drawn from recent large-scale, device-based prospective studies using 10-second resolution accelerometry (e.g., UK Biobank, NHANES). These analyses quantify associations between intensity-specific micropatterns and major health outcomes (cardiovascular disease, cancer, all-cause mortality). This work is complemented by a consortium of cohorts that compare high-resolution physical activity patterns between modern hunter gatherers and western high income populations.

Results: Across multiple studies, even small daily amounts of incidental vigorous activity were associated with substantially lower risk of CVD and cancer. These effects persist among adults who report no structured exercise. Observational evidence from modern hunter-gatherer populations suggests that frequent short bursts mirror evolutionarily normal movement behaviour, offering a biologically and behaviourally congruent model for sustainable activity promotion. Considering the nascent nature of this work, a bespoke research framework is required.

Conclusion: Wearables-revealed micropatterns represent a shift in physical-activity science, broadening how we conceptualise, measure, and prescribe movement. They hold promise for reaching the 80–85% of adults who remain insufficiently active, by reframing health-enhancing movement as brief, opportunistic, and universally attainable. Integrating micropattern evidence into future guideline updates, behavioural interventions, and digital-health platforms could yield a more inclusive, scalable, and evolutionarily aligned approach to chronic-disease prevention and population wellbeing.

S.2.25-2

Understanding Vigorous Intermittent Lifestyle Physical Activity (VILPA) in Physically Inactive Midlife Women: Insights from Co-creation, Accelerometry, and Qualitative Inquiry

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S.2.25 Motivation and behaviour change: Physical activity micropatterns: A stealth lifestyle factor with the potential to support sustainable habit formation interventions?

Room 2, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Vigorous Intermittent Lifestyle Physical Activity (VILPA) represents short bouts of vigorous movement embedded in daily life, such as stair climbing or brisk walking uphill. Although epidemiological evidence demonstrates strong protective health effects, little is known about how inactive populations perceive and engage in VILPA. This study explored behavioural determinants of VILPA among Danish midlife women to inform the design of a mobile health intervention.

Methods: A mixed-methods, theory-informed co-design was conducted. Data comprised:

- (a) two rounds of co-creation workshops with 42 physically inactive women aged 40–65 years;
- (b) seven-day accelerometer measurements in 20 women with no prior knowledge of VILPA; and
- (c) post-measurement focus-group interviews (5 interviews, 2–7 participants per group).

Data were thematically analysed using a critical-realist approach and mapped to the COM-B model and Behaviour Change Intervention Ontology (BCIO).

Results: Co-creation workshops revealed strong preferences for interventions that are simple, time-efficient, and identity-congruent, with digital prompts and habit-supporting features. Accelerometer data indicated that most participants already engaged in spontaneous VILPA bouts, typically 1–4 episodes per day lasting 30–119 seconds. Focus-group interviews identified key barriers (low perceived capability, uncertainty about intensity, fear of injury)

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and motivators (convenience, reframing everyday movement, social reinforcement, and sense of achievement).

Conclusion: Findings highlight that VILPA is both feasible and appealing for inactive midlife women when framed as purposeful, achievable movement. Interventions should emphasise habit formation, contextual prompts, safety reassurance, and positive identity alignment to enhance uptake and sustainability.

S.2.25-3

Multi-centre Randomised Controlled Feasibility Testing of a Wearable-based Micropatterns Intervention and International Adaptation

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S.2.25 Motivation and behaviour change: Physical activity micropatterns: A stealth lifestyle factor with the potential to support sustainable habit formation interventions?

Room 2, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: This randomised controlled study evaluated the feasibility, acceptability and potential effectiveness of a co-designed wearable-based micropatterns intervention aimed at increasing moderate-to-vigorous physical activity (MVPA) among socioeconomically diverse women.

Methods: A multi-centre 6-week randomised controlled feasibility study was conducted among women from Sydney, Australia and Glasgow, UK aged ≥30 years who self-reported no leisure time physical activity and could comfortably participate in activities of daily living. To ensure socioeconomic diversity, we used quota-based recruitment with area-level and individual-level indicators of socioeconomic status. Participants were randomised to one of three intervention arms; 1) Smartphone application only (APP); 2) smartphone application combined with a wearable device (Fitbit Inspire 3; W-APP); and 3) smartphone application and wearable device, supplemented by a social community component that included two in-person workshops and online forums (W-APP-C). Feasibility was assessed as completion rates of the study and follow-up surveys were conducted to assess the acceptability of the intervention. Wrist-worn accelerometry was collected at pre- and post-intervention to assess the potential effectiveness of the intervention.

Results: Forty-three participants (mean age (SD); 54.8 (10.7) years) were recruited across both sites (APP n = 13; W-APP n = 17; W-APP-C n = 13). When taking into consideration individual-level indicators of socioeconomic status including income, number of dependents, and educational attainment, there was diverse representation across low (20.9%), medium (48.8%), and high (30.2%) socioeconomic groups. Completion of the 6-week intervention was high across both intervention sites and all three trial arms (86%). Qualitative feedback from both trial sites indicated high satisfaction, the majority of the participants thought the intervention was enjoyable (97.9%), user-friendly (69.9%), the wearable technology increased motivation to do activity (87.5%), and the community workshops were beneficial (75%). Across all participants, there was an average daily increase of 9.8 (27.8) min/day MVPA following the intervention. The greatest increase in MVPA was observed in the W-APP-C group (15.5 (23.1) min/day), followed by the APP group (11.4 (25.5) min/day), and the W-APP group 2.6 (32.1) min/day.

Conclusion: This multi-centre randomised controlled feasibility trial highlights the feasibility and acceptability of a wearable-based micropattern intervention in women from socioeconomically and culturally diverse backgrounds.

S.2.26-1

Participatory Research with Key Stakeholders in Urban and Rural Areas: Lessons Learned from Applying a System Dynamics Approach to Promote Healthy School Environments in Ecuador

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S.2.26 Participatory Research in Health Promotion: Participatory research with children and stakeholders: challenges and lessons for promoting healthy eating in Latin America

Room 3, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Designing health promotion strategies for complex problems requires the active involvement of all relevant stakeholders. We conducted participatory workshops with key stakeholders in urban and rural communities in the Andean region of Ecuador, using systems thinking to (1) develop causal-loop diagrams (CLD) of the causes and consequences of unhealthy school food environments, and (2) prioritize relevant and feasible interventions.

Methods: Four participatory workshops were conducted between April and May 2025 in both urban and rural communities in Ecuador, following a predefined script based on group model-building techniques. Thirty-six participants, including representatives from the ministries of health and education, school officials, teachers, mothers, fathers, school kiosk staff, NGO representatives, researchers, and local government members, with support from the research team, created a CLD of the causes and consequences of unhealthy school food environments. Afterwards, potential intervention sites were identified, and the participants proposed prioritized health promotion strategies.

Results: In both urban and rural areas, stakeholders agreed that unhealthy family habits are reinforced by a lack of nutrition education and aggressive marketing for ultra-processed products. This impacts children's preferences and fosters unhealthy school environments. Rural participants highlighted that a deterioration of community networks also affects family habits and children's preferences. Urban stakeholders emphasized the importance of advocacy and citizen involvement, particularly with academic support, to promote healthy school food policies. Rural participants highlighted the role of local governments in supporting school gardens. Stakeholders agree that poor school food environments increase the risk of malnutrition, mental health issues, chronic diseases, and learning disorders.

In rural areas, strategies focused on improving farming techniques, encouraging healthy eating habits, and conserving local culinary traditions were emphasized. Urban stakeholders prioritized regulating the marketing of ultra-processed products, promoting nutritional education, and supporting healthy eating marketing campaigns.

Conclusion: This research offers insights for implementing culturally relevant strategies tailored to the local context, incorporating social, individual, and environmental factors, with a focus on families, to prevent the marketing of ultra-processed products and promote knowledge and healthy habits. These should be supported by policies developed in collaboration with the community and academic input, involving local governments.

S.2.26-2

From Children's Ideas to National Impact: A Co-designed Front-of-Pack Warning Label Campaign with Measurable Effects among Mexican Youth

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S.2.26 Participatory Research in Health Promotion: Participatory research with children and stakeholders: challenges and lessons for promoting healthy eating in Latin America

Room 3, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: In 2020, Mexico implemented front-of-pack warning labels (FOPWLs) to help consumers identify and reduce purchases of products high in added sugars, sodium, and saturated fats. We co-designed a communication campaign to promote FOPWL use among Mexican children and youth, which was later implemented by UNICEF and the Ministry of Health. This presentation describes the co-design process, the resulting campaign and implementation, and its impact in controlled and real-life settings.

Methods: A communication campaign was co-designed with children and adolescents, grounded in the COM-B model to promote FOPWL use and healthy food choices. A randomized experiment with 1,028 parent-child dyads (ages 5–17) compared three groups: 1) Control (no labels or campaign), 2) FOPWL (warning labels only), and 3) FOPWL+C (warning labels plus communication strategy). Outcomes included the percentage of products with warning labels, number of labels per product, overall nutritional quality, and understanding of labels. Real-life impact was evaluated in 2022 using data from a national sample of 4,153 adults and 1,603 youth. Logistic regression models assessed associations between campaign awareness and healthy behaviors.

Results: The resulting “*Héroes por la Salud*” (Heroes for Health) campaign was adopted by UNICEF Mexico and later expanded by the Ministry of Health, which added materials and the jingle “Natural food is pure life: eat like us and get healthy.” Launched nationally in 2022, the campaign used multiple media channels, including social media, television, radio, SMS, and printed materials. In the online shopping simulation, participants in the FOPWL+C group

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selected 3.4% fewer products with warning labels, 0.2 fewer labels per product, and healthier options overall (all $p < 0.05$). Real-life evaluations showed that adults and youth aware of the campaign reported greater engagement in healthy behaviors related to label use and food choices.

Conclusion: The co-designed communication campaign with children and adolescents produced culturally relevant messages that strengthened Mexico's FOPWL policy. The "Héroes por la Salud" campaign improved understanding and use of the labels, promoted healthier selections, and was associated with real-life behavior change, underscoring the value of youth-centered, theory-informed communication strategies for public health impact.

S.2.26-3

Child-centered Participatory Policy Development for Healthy Habits in School Settings: The Reactiva Tu Escuela Experience in Chile

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S.2.26 Participatory Research in Health Promotion: Participatory research with children and stakeholders: challenges and lessons for promoting healthy eating in Latin America

Room 3, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: The Reactiva Tu Escuela project aimed to improve children and adolescents' wellbeing in Temuco, Chile, by promoting healthy eating and physical activity habits through a child-centered participatory approach. This study focuses on the project's specific objectives: to develop relevant and scalable public policy recommendations at local and national levels through participatory processes that centered children's voices in policy dialogue.

Methods: Reactiva tu escuela was implemented in 2023 across six schools. The project established representative committees in each institution, including children, adolescents, families, educators, and administrators. Participatory methodologies (photovoice, world café, flowcharts, and reflective analysis) enabled collaborative situational diagnoses and action plan development. Children's perspectives, needs, and solutions informed the design and implementation of contextualized interventions. The final stage included two technical-community working tables that brought together 72 participants, including 19 students and 53 adults, alongside institutional representatives and civil society organizations to elaborate policy recommendations through structured dialogue processes that validated children's voices as central to decision-making.

Results: The participatory process successfully elevated children's voices in policy dialogue, generating differentiated recommendations at local and national scales. Local policy recommendations emphasized: optimizing physical spaces in schools and communities; increasing and diversifying school programming; strengthening educational community capacities in healthy habits promotion and socioemotional education; and improving quality and handling of school meals. National policy recommendations focused on: strengthening intersectoral coordination of initiatives and budgets; promoting family involvement strategies in school activities; improving school food environments; and evaluating time distribution between academic activities and children's integral development with a non-competitive approach. Working tables effectively translated grassroots experiences and children's perspectives into actionable policy proposals spanning multiple governance levels.

Conclusion: Child-centered participatory methodologies successfully positioned children as legitimate stakeholders in policy development, demonstrating that meaningful youth participation generates relevant, contextually appropriate, and scalable recommendations. This approach challenges traditional top-down policy formulation by validating children's lived experiences as essential evidence for decision-making. The technical-community working tables bridged educational communities and policymakers, enabling children's voices to inform local and national policy agendas. This model offers a replicable framework for participatory policy formulation in educational health promotion contexts.

S.2.27-1

A Virtual Intervention Trial with Video Feedback Coaching to Support Healthy Growth and Responsive Feeding: The Mother's and Caregivers Investing in Children (MAGIC)-FEED Program

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S.2.27 Childrend and families: Feeding the future: novel trial design approaches to advance nutrition during postpartum period and beyond

Room 4, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Most behavioral interventions to prevent early childhood obesity have demonstrated limited effects, and new approaches are needed. We designed and implemented a virtual intervention incorporating video feedback coaching that aimed to foster responsive feeding and caregiving with the goal of supporting healthy growth, dietary quality, and responsive feeding practices.

Methods: The Mothers and other careGivers Investing in Children (MAGIC) 1.0 study (NCT04177472) randomized 135 families with infants in Central Texas USA to a virtual complementary feeding intervention with video feedback coaching on responsive feeding (MAGIC-FEED) or an attention control arm focused on infant safety (MAGIC-SAFE) in English or Spanish led by trained staff. Coaching combined immediate and delayed feedback using video clips from prior feeding sessions to reinforce responsive behavior. Visits included baseline (4-5 months), intervention (6, 7, 8, and 10 months), and outcomes (13-months). Modified food frequency questionnaires were used to assess dietary intake and quality, and feeding videos were assessed and objectively coded across infancy for infant and caregiver responsive feeding behaviors with Chatoor Feeding and Hazen Sensitivity scales. At 13 months, anthropometry was measured and WHO z-scores were calculated. Intervention arm differences were evaluated through bivariate analyses and covariate adjusted linear regression models.

Results: MAGIC-FEED implementation was refined during piloting. For example, responsive feeding feedback originally planned to be in the moment was shifted to be delayed due to infant distraction. Of the 135 randomized families, 112 were measured at 13-months. In adjusted models, FEED was associated with 0.47 units lower weight-for-age Z-scores at 13-months (95% CI: -0.87, -0.08), compared to SAFE, but not BMI Z-scores or infant dietary quality. Among families with coded videos, FEED was associated with higher scores for caregiver sensitivity and reciprocity at 10 months and lower scores for conflict and missing cues.

Conclusion: MAGIC-FEED, a virtual complementary feeding intervention with video-feedback coaching, is associated with lower infant weight at 13-months and improved responsive feeding behaviors. These results highlight a novel, accessible approach for supporting healthy growth in young children. Further research is needed to evaluate program effectiveness across populations, and to understand longer-term impact on childhood development, growth, and obesity risk.

S.2.27-2

A High Intensity Controlled Crossover Feeding Trial with Mothers and Infants: The Study of nUtrition in Postpartum and Early Life (SUPER)

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S.2.27 Childrend and families: Feeding the future: novel trial design approaches to advance nutrition during postpartum period and beyond

Room 4, May 29, 2026, 8:00 AM - 9:00 AM

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Purpose:

During the postpartum period, many parents are motivated to adopt a healthful diet while simultaneously facing the barriers of this major life transition. Some make dietary swaps that they perceive to be healthier and easier, such as substituting plant-based analogues for meat; but how these changes might contribute to maternal and infant health is unknown. Controlled feeding trials are needed to provide causal evidence of how dietary changes contribute to health, particularly in the context of breastfeeding. Our objective was to evaluate if swapping beef for its ultra-processed plant-based analogue in otherwise identical meals affects breastmilk fatty acid composition in a 24-day controlled feeding trial beginning at 6-12 weeks postpartum.

Methods:

We conducted a double-blind randomized crossover feeding trial (n=23) with two 6-day diet phases during which all food was provided, separated by a 6-day washout period. Meals were prepared in a metabolic kitchen, and each meal contained 4 oz of beef or plant-based analogue, depending on the diet condition. Participants collected 3 post-feed breastmilk samples daily. Participants received ongoing support via phone and text. We analyzed beef, plant-based substitute, and breastmilk samples collected on day 6 of each condition for 27 fatty acids using standard biochemical procedures. T-tests compared fatty acids in intervention foods and breastmilk samples, maternal weight, palatability and satiety ratings.

Results:

17 participants completed the trial per protocol, with over 95% dietary compliance and at least 1ml breastmilk at each sample timepoint. While maternal weight, palatability, and satiety did not differ between conditions, we observed differences in 13 breastmilk fatty acids (e.g., a 15% reduction in arachidonic acid during the analogue diet, $p < .001$), directly mirroring the experimental foods.

Conclusion:

Controlled feeding trials during the postpartum period enable objective assessment of how dietary changes affect postpartum biomarkers. Our intensive trial protocol with multiple touch points resulted in high quality data and provided the first evidence that swapping just one food item results in rapid breastmilk changes without affecting maternal weight or satiety. Differences in breastmilk composition have implications for infant development, highlighting the need to consider the dynamic role of maternal diet in breastmilk composition in postpartum dietary guidance.

S.2.27-3

Using an Innovative Fusion Design to Test the Effects of a Novel Healthy Corner Store Model to Improve Postpartum Food and Nutrition Security and Weight

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S.2.27 Children and families: Feeding the future: novel trial design approaches to advance nutrition during postpartum period and beyond

Room 4, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Over one in four single-mother United States households experience food insecurity. While government benefits provide essential financial support, they cannot overcome barriers such as lack of time to cook, inadequate cooking skills, or insufficient equipment. Current policies prohibit using benefits for hot, prepared meals—perpetuating barriers. The Community Grocer (TCG), a new community-run corner store in a low-food access neighborhood (Philadelphia, Pennsylvania) offers a novel solution: nutritious meal kits that can be purchased with benefits and taken home or exchanged at no cost for hot meals at a neighboring community-run kitchen. Our objective is to investigate whether this model improves postpartum food and nutrition security and health.

Methods: The NOURISH Postpartum Study employs a novel fusion design combining a randomized controlled trial (RCT) with a non-randomized cohort. We are enrolling food-insecure pregnant individuals and following them through 24 weeks postpartum. RCT participants (n=125) are randomized (2:2:1) to: 1) weekly \$40 TCG grocery credits for 12 weeks postpartum (n=50); 2) weekly \$40 unconditional cash transfer for 12 weeks (n=50); or 3) usual postpartum care (n=25). The RCT addresses a key limitation: we cannot randomize where people shop, rather, we incentivize behavior change through grocery credits. Given high RCT costs, it is paired with an augmentation cohort (n=125)

that completes identical measures without randomization to enhance generalizability and increase power. Primary exposure is shopping at TCG (n=250); secondary exposure is the RCT arm, distinguishing grocery credits versus cash alone (n=125). Primary outcomes are household food and nutrition security and postpartum weight.

Results: Our community needs assessment (n=184) identified obstacles to healthy eating: lack of time to cook (49.6%), cooking skills (21.9%), and stove/oven (10.6%), refrigerator (14.3%), or utensils (10.0%). Experiencing multiple barriers was associated with food (aRR=2.51; 95% CI: 1.14-5.55) and nutrition (aRR=2.09; 1.10-4.00) insecurity. The NOURISH study is ongoing; we will discuss this innovative strategy for implementing and studying behavior change, the application of this novel fusion design and how to analyze the data, and challenges and successes in participant enrollment in a fusion study.

Conclusion: This study tests whether reducing structural barriers to healthy eating improves postpartum food and nutrition security and health.

S.2.28-1

Lessons Learned from the Implementation of the SI! Program over the World: A 15-year Global Review of Health Promotion in Children and Adolescents

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S.2.28 Motivation and behavior change: Fifteen Years of the SI! Program: Lessons, Innovations, and Global Impact of a School-Based Health Promotion Intervention

Room 5, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Over the past 15 years, our research has focused on identifying and refining strategies to optimize a school-based intervention that promotes lifelong healthy habits from early childhood through adolescence. The SI! Program (Salud Integral) is a comprehensive, multicomponent, and multilevel educational initiative addressing diet, physical activity, emotional well-being, and knowledge of the human body and heart. This work summarizes findings from a long-term, multi-country research effort evaluating the implementation, effectiveness, and sustainability of the SI! Program across diverse cultural and socioeconomic contexts.

Methods: Over its 15-year trajectory, the SI! Program has been implemented in more than 235 educational institutions, engaging over 37,000 students aged 3 to 16 years and providing formal training to more than 2,250 teachers to ensure effective program delivery. The program has been evaluated through randomized controlled trials conducted in Colombia, Spain, and the United States, encompassing Preschool, Elementary, and Secondary education levels. Standardized instruments assessed knowledge, attitudes, behaviors, and psychosocial factors, as well as physical parameters including body mass index, skinfold thickness, waist circumference, blood pressure, glucose, and cholesterol. Contextual factors such as socioeconomic background and exposure to the intervention were analyzed to determine their influence on program outcomes and sustainability.

Results: Across all sites and age groups, the SI! Program demonstrated significant improvements in children's health knowledge, attitudes, and behaviors, although the magnitude of effects varied by developmental stage and context. Adherence to the curriculum and institutional commitment were identified as key determinants of success. Socioeconomic background influenced both baseline health indicators and responsiveness to the intervention. Findings also revealed that benefits declined over time without periodic reintervention and that active involvement of teachers, families, and the broader school community enhanced engagement for a long-term impact.

Conclusion: The SI! Program provides strong evidence that structured, school-based, and community-supported interventions can effectively foster cardiovascular health from early childhood through adolescence. Long-term sustainability requires reintervention strategies, contextual adaptation, and active participation of families and educators. Scaling such initiatives globally could meaningfully contribute to reducing the future burden of cardiovascular disease by establishing healthy lifestyles early in life.

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S.2.28-2

The New SI! Program Model: Implementation and Evaluation of an Integrating Collective Action and Socio-emotional Learning

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S.2.28 Motivation and behavior change: Fifteen Years of the SI! Program: Lessons, Innovations, and Global Impact of a School-Based Health Promotion Intervention

Room 5, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: The revised SI! Program builds upon insights from earlier trials to enhance adherence and promote long-term healthy behaviors in children. This updated model integrates a reintervention on socio-emotional learning (SEL) with collective action, engaging the school community and families to promote lasting healthy habits. We are conducting a 6-year process evaluation to analyze the association between implementation quality and program effectiveness within a cluster-randomized controlled trial comparing a reintervention group and a single-intervention group.

Methods: The trial enrolled 977 children (mean age 6.2 years, 51.6% girls) from 50 schools in Madrid and Barcelona, Spain. The revised program retains the original components (healthy diet, physical activity, body and heart awareness, and emotional management) while introducing a strengthened implementation strategy. This includes 16 SEL classroom sessions and a comprehensive school environment component designed to promote self-assessment, planning, and collective improvement. Schools received a welcome pack with educational materials, access to an interactive Healthmeter tool for monitoring health-promoting routines, and guidance for organizing an annual Healthy Day event. The research team provided formal training for teachers and staff and ongoing support throughout the implementation process. Data collection included implementation questionnaires (n=61), satisfaction questionnaires (n=80) and Healthmeter usage statistics.

Results: Implementation has begun in 18 schools in Madrid, involving over 10,000 students and more than 800 teachers. During the first year, 119 teachers were trained, with an average satisfaction score of 8.5 (scale 0–10). Schools implemented a mean of 12 SEL sessions in the first year. Use of school environment resources ranged from 11% (fatigue tracking logs) to 89% (posters and infographics). Only five schools (22%) used the Healthmeter, and half of the schools organized a Healthy Day (22% involved families). Teachers' satisfaction with the research team averaged 8.7 (1.5), and satisfaction with educational resources ranged from 6.8 (2.1) (Healthmeter) to 9.6 (0.6) (welcome pack).

Conclusion: Findings from the first year of implementation demonstrate high satisfaction and strong adherence to program components. As implementation continues, complete process evaluation data will enable analysis of the association between implementation quality and program effectiveness, contributing to evidence on sustainable health promotion in school settings and providing insights.

S.2.28-3

Challenges and Innovations in Evaluation Tools: Introducing a New Lifestyle Index to Assess Program Impact in Children Aged 6–13 Years

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S.2.28 Motivation and behavior change: Fifteen Years of the SII Program: Lessons, Innovations, and Global Impact of a School-Based Health Promotion Intervention

Room 5, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: There are several scientific challenges to measuring the efficacy of a school-based intervention. One of the main challenges, particularly for research on children and adolescents, is the nature of the assessment tools. The American Heart Association developed the Life's Essential 8 (LE-8) score to assess cardiovascular health (CVH). However, blood-related metrics remain stable especially in young people and short-term studies, which can attenuate or mask the observed effect of lifestyle changes on overall CVH. Drawing on evidence from earlier trials, we present the SII-Child score, a straightforward and reliable measure of lifestyle-related CVH in children and adolescents.

Methods: The SII-Child score adapts the individual lifestyle-related metrics of the LE-8 score, covering diet, physical activity, nicotine exposure, sleep health, and body mass index. Differences in 4-year changes of the overall LE-8 and the SII-Child scores in the participants from the SII Program for Secondary Schools trial in Spain were assessed. Bland Altman plots were used to measure the agreement between the LE-8 score and the overall and individual metrics of the SII-Child score.

Results: In total, 796, 760, and 683 participants were included in the analysis at baseline (≈ 12 years of age), 2-year follow-up (≈ 14 years), and 4-year follow-up (≈ 16 years), respectively. Mean LE-8 and SII-Child scores (range 0-100 points) at baseline were 77.5 ± 8.0 and 74.8 ± 8.9 , respectively. The change in the SII-Child was significantly greater than in the LE-8 at 2-year (between-score change difference, -2.45 [95%CI: -3.00 ; -1.90]) and 4-year follow-up (-5.19 points [95%CI: -5.80 ; -4.58]). The SII-Child classified fewer adolescents in ideal CVH and more in poor CVH, and both scores classified most adolescents in intermediate CVH. The SII-Child showed good agreement with the overall and the individual lifestyle-related metrics of the LE-8.

Conclusion: The SII-Child is a simple and reliable tool for the assessment of lifestyle-related CVH changes. Blood parameters usually remain within the ideal range during childhood and adolescence, potentially masking changes in overall CVH. Lifestyle-related CVH scores may better discriminate changes in lifestyle and consequently may be more suitable for monitoring CVH in the context of surveillance studies and health promotion interventions in children and adolescents.

S.2.29-1

Physical Activity and Health-related Physical Fitness among Children and Adolescents and the United Nations Sustainable Development Goals

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S.2.29 Systems Science: Physical activity as a catalyst for planetary health and global health equity

Room 6, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Physical activity (PA) and health-related physical fitness (HRPF) underpin child and adolescent health and equitable, resilient societies. Beyond direct health gains, PA supports safer, greener communities, while fitness both reflects these environments and predicts future health and participation. These pathways align with Sustainable Development Goals (SDGs), notably Good Health and Well-Being (SDG 3), Gender Equality (SDG 5), Industry, Innovation and Infrastructure (SDG 9), Sustainable Cities and Communities (SDG 11), Climate Action (SDG 13), Life on Land (SDG 15), and Peace, Justice, and Strong Institutions (SDG 16). We examined country-level associations between SDG performance and youth indicators of PA and HRPF.

Methods: This was a country-level ecological study. We analyzed PA indicators for 57 countries/jurisdictions from Global Matrix 4.0 and HRPF components for 17 countries in the WHO European Region. SDG metrics came from the SDG Transformation Center (country-specific scores across all 17 Goals). We focused on SDGs 3, 5, 9, 11, 13, 15, and 16. Associations between SDG scores and PA indicators and HRPF components were tested using Spearman's rank correlation.

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Results: Countries/jurisdictions with high or moderate performance on SDGs 3, 9, 11, and 16 achieved higher grades in key PA indicators, specifically Organized Sport and PA, Community and Environment, and Government Investments and Strategies. In contrast, those performing well on SDG 13 (Climate Action) tended to have lower grades on these indicators. For HRPf, strength, coordination, and speed showed positive associations with SDGs 3, 5, 9, 11, and 16, whereas inverse associations were observed with SDG 13.

Conclusion: National progress on health, gender equity, infrastructure, urban planning, and institutions aligns with more favorable PA systems and youth fitness profiles, whereas higher performance on climate action was inversely related to these indicators. These patterns highlight the need to integrate PA promotion and explicit HRPf targets into SDG implementation and monitoring.

S.2.29-2

Physical Activity as a Key to Advancing Planetary Health: A Synthesis of Evidence from Two Systematic Reviews

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S.2.29 Systems Science: Physical activity as a catalyst for planetary health and global health equity

Room 6, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: As the climate crisis increasingly shapes global health and well-being, physical activity (PA) emerges as both a protective behavior and a potential pathway for advancing planetary health. This paper synthesizes findings from two systematic reviews examining:

- (1) the interrelationships between climate change indicators, PA, and health; and
 - (2) the associations between ambient environmental conditions and active outdoor play across the lifespan.
- Intended for policymakers, public health practitioners, and researchers, this presentation highlights PA promotion as a promising and under-utilized strategy to build healthy, resilient individuals and communities amid environmental shifts.

Methods: This presentation draws evidence from two recently published systematic reviews. In the first review, eligible studies examined linkages between indicators of climate change, PA, and health outcomes. The second review was based on studies assessing associations between meteorological, atmospheric, and/or land-use factors and active outdoor play. Narrative synthesis and meta-synthesis approaches were applied to characterize associations, directionality, and evidence strength.

Results: Across both reviews, 123 studies encompassing over 6.7 million participants were analyzed. In the first review (n=79 studies), 34.7% of studies supported PA as a mediator, where adverse climate indicators were associated with lower PA and, in turn, associated with worse health outcomes. PA also favorably modified the negative association between climate change and health in 28% of studies, highlighting its potential buffering role. The second review (n=44 studies) found that ambient environmental conditions shape active outdoor play. Specifically, while meteorological factors often showed null associations, unfavorable associations were observed for atmospheric and land-use conditions, particularly in urbanized or polluted settings. This review also found adaptive strategies individuals and communities employ to maintain active outdoor play with emerging climate challenges and the role of active outdoor play in fostering resilience, potentially contributing to SDGs.

Conclusion: These reviews provide converging evidence that PA and active outdoor play are integral to building health and climate resilience. However, most studies were from high-income countries, and the evidence base remains limited, particularly for vulnerable populations. Strengthening empirical research and integrating PA promotion within climate adaptation, mitigation, and resilience policies are essential next steps to advance healthy movement behaviours, planetary health and global health equity.

S.2.30-1

Decreasing Sweetened Beverages and Increasing Tap Water Consumption among Primary School Children Aged 8-10 Years: Contextual Insights from the DRINK Trial (Belgium, 2021-2023)

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S.2.30 Motivation and behavior change: From implementation to analysis: methodological insights and results from school-based interventions to improve beverage consumption (DRINK Trial, Belgium, 2021-2023)

Room 7, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: The DRINK trial, initiated in 2021 across 46 French-speaking schools in Belgium, was developed to evaluate interventions aimed at reducing sweetened beverages (SB) and increasing tap water consumption among 8-to-10-year-old children. Its conclusions must be interpreted considering the post-pandemic context and the specific population in which it was implemented.

Methods: Baseline data were obtained from children, their parents, and school staff in schools previously selected through a stratified random sampling. Children completed a self-administered questionnaire covering living conditions, beverage-related behaviours, and health-related aspects. They also completed a 4-day booklet adapted to their age, from which usual intake was derived (SPADE method). Parents supplied complementary information regarding components considered too complex for children in this age group. Lastly, dietitians interviewed school staff to document health promotion activities related to nutrition and sustainability implemented within schools. Descriptive analyses were carried out using the maximum number of observations available for each surveyed population.

Results: The theoretical number of children across the 46 participating schools was 4,437, of whom 3,128 completed their questionnaire, and 2,747 provided a valid 4-day booklet. Moreover, 2,680 questionnaires were available from their parents. Participation rate was lower than expected in schools with low socioeconomic status and in the Brussels region. The population was predominantly composed of girls, born in Belgium, living in moderately affluent families, with siblings, and two working parents. Usual intake of total beverages was 1,109 ml/day (95% CI: 1,092-1,132), including 677 ml/day of water (660-699), 345 ml/day of SB (331-359), and 60 ml/day of milk (56-64). Most schools provided recommendations for healthy snacks (n= 41 over 46), including guidance on soft drinks (n= 33), water (n= 26), and fruit juices (n= 17). Nearly all schools offered access to plain water (n= 44) and implemented a waste reduction or recycling initiatives (n= 41). However, even fewer than half of the schools facilitated and encouraged water consumption specifically.

Conclusion: The DRINK trial provides valuable insights into the implementation of school-based interventions aimed at improving dietary behaviours among children. The available data will help assess the intervention's efficiency, considering key sustainability factors.

S.2.30-2

Methodological Challenges in Cluster-randomized Trials Regarding Dietary Behaviour: Insights from the DRINK Trial (Belgium, 2021-2023)

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S.2.30 Motivation and behavior change: From implementation to analysis: methodological insights and results from school-based interventions to improve beverage consumption (DRINK Trial, Belgium, 2021-2023)

Room 7, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Although cluster-randomised trials provide high levels of evidence, they remain subject to methodological challenges such as high attrition rates and group imbalance. In nutrition research, additional analytical challenges arise, including appropriate data collection and estimates of usual dietary intake. For the first time, these critical points are jointly addressed to robustly assess intervention effects on usual sweetened beverage (SB) intakes two

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years after implementation of the DRINK trial.

Methods: In 2021, forty-six primary schools were randomized into: (i) control; (ii) nutrition-based intervention; (iii) sustainability-based intervention; and (iv) both interventions. Children completed 4-day diaries. Estimating SB intakes presented several challenges: consumption was episodic and exhibit high within-person variability. The cluster design, including missing information at the individual level after the follow-up period, required the selection of an appropriate statistical approach.

Results: The National Cancer Institute (NCI) method is used to estimate the usual consumption, accounting properly for the within-individual variability and zero-inflated distributions. The primary outcome is defined as the relative change in usual beverage consumption between baseline and two-year follow-up. Following some adaptations of the NCI method, simulated usual beverage intake values is generated at baseline and at two-year follow-up within intervention group and for each participant, using identical between-person deviates. Relative changes in usual intake are computed for each simulated individual and combined using Rubin's rule to derive a single estimate of change per participant. Further, a two-stage Targeted Minimum Loss-Based Estimation (2S-TMLE) framework, combining machine-learning flexibility with statistical efficiency, is implemented. First, missing outcomes are modelled within each cluster (schools), with age included as a predictor of missingness. Second, relative changes in BS consumption are estimated at the cluster level. This approach leverages information from 1,643 participants with missing outcome after intervention to refine predictions from 445 participants with complete data. Sensitivity analyses further incorporate consumption at one-year follow-up as an additional missingness predictor.

Conclusion: By combining the NCI and 2S-TMLE methods, this innovative work illustrates how recent advances in modelling can strengthen the evaluation of complex nutrition trial. This approach enhances precision, reduces attrition-related bias, and supports valid estimation of changes in usual intake.

S.2.30-3

Decreasing Consumption of Sweetened Beverages among 8-to-10-year-old Children in Primary Schools: Main Results of the DRINK Trial (Belgium, 2021-2023)

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S.2.30 Motivation and behavior change: From implementation to analysis: methodological insights and results from school-based interventions to improve beverage consumption (DRINK Trial, Belgium, 2021-2023)

Room 7, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: The DRINK trial was developed to evaluate interventions aimed at decreasing sweetened beverages (SB) (principal criterion) and increasing tap water consumption (secondary criterion) in French-speaking primary schools in Belgium. One of its novelties lies in testing nutrition-based and environmental sustainability-based interventions using a factorial plan for school randomisation.

Methods: Baseline data were collected in 2021 from children, parents and school staff in 46 primary schools. Recruitment procedures were adapted due to the ongoing impact of Covid-19 on school organization, and 22 of the 46 schools were eventually included in autumn 2021. Then, schools were randomized into four groups: (i) control; (ii) nutrition-based intervention; (iii) sustainability-based intervention; and (iv) both interventions. Carried out from early 2022 to July 2023, interventions included scheduled water breaks and provision of posters, leaflets, reusable cups and bottles. In 2021, 2022 and 2023, a 4-day diary adapted to the participants' age was provided, from which usual beverage intake was derived for each wave (NCI method). The main analyses are underway under blinded allocation of schools into groups, a condition that will be lifted before spring 2026. Given the cluster randomisation design and the presence of missing data from children in the participating schools, the two-stage targeted minimum loss estimation (2S-TMLE) method is selected. Imbalance in baseline characteristics between intervention groups will be accounted for in the final model.

Results: Among the 46 schools initially included (n=3,664 children), 13 withdrew before the final wave of data collection (n= 1,155 children). Due to missing information either from protocol adaptation (notably, 1,760 children without data in 2023) or invalid records (e.g., 135 children with invalid 4-day booklets or 105 classified as over-reporters), the main analyses will be based on 445 children from 26 schools. However, the 2S-TMLE method will allow incorporating observations from 1,643 children from the same 26 schools to improve estimates of the intervention effect on usual SB intake.

Conclusion: The DRINK trial combined school-based interventions designed to ensure feasibility with a sophisticated analytical strategy. Its primary findings on changes in SB usual intake will be complemented with analyses of secondary objectives and stratified analysis.

S.2.31-1

The pathways between climate change, food and water insecurity, diet quality, and disease risk: a review

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S.2.31 Policies and environments: Policies for planetary diets: the nexus of climate change, nutrition, and health
Room 8, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Food and water security are foundational to good nutrition and increasingly threatened by climate change. Half of the world's food-insecure population resides in the Asia Pacific region, where rising temperatures, erratic rainfall, and extreme weather events compound vulnerabilities driven by gender inequities and fragmented systems. This abstract presents outcomes from the inaugural FoodWISE Asia Pacific workshop (17–19 September, Sydney), which aimed to catalyse action on improving food environments by integrating experiential tools that capture lived experiences of food and water insecurity to inform policy and practice.

Methods: The workshop convened 50 participants from 14 countries, including researchers, policymakers, Indigenous leaders, and community advocates. Experiential tools such as the Water Insecurity Experiences Scales (WISE) and Household Food Insecurity Access Scale (HFIAS) were showcased to demonstrate their utility in generating policy-relevant, gender-sensitive, and community-driven data, and using this evidence to inform action and drive policy change.

Results: Participants affirmed the urgent need for integrated, community-led approaches to address food and water insecurity. The workshop culminated in the co-creation of the FoodWISE Asia Pacific Network and a draft manifesto to guide collective action. Key themes included:

- Addressing food and water insecurity concurrently
- Elevating Indigenous knowledge
- Harnessing lived experience data
- Strengthening cross-sector collaboration

Four seed grant initiatives were funded to scale community-led solutions across Southeast Asia, Timor-Leste, Australia, and the Pacific. A joint review paper on experiential measures was initiated, and a regional platform to support ongoing collaboration was launched.

Conclusion: Improving food environments to ensure food and water security is essential for advancing nutrition and health equity—particularly in the context of climate-related shocks. The FoodWISE Asia Pacific Network offers a timely and inclusive platform to embed experiential tools into policy and practice. By centring lived experiences and Indigenous knowledge and fostering regional collaboration, this initiative aims to drive transformative, climate-resilient solutions that promote sustainable and equitable food systems.

S.2.31-2

Evaluating the Effects of Different Climate Impact Menu Labels on Meal Selections in Two Fast Food Restaurants: An Online Randomized Controlled Trial

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S.2.31 Policies and environments: Policies for planetary diets: the nexus of climate change, nutrition, and health Room 8, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Promoting a healthy, sustainable diet is an urgent priority due to the dual threats of diet-related chronic diseases and climate change. Evidence suggests that climate-focused menu labels may promote healthy and sustainable food choices, but how label effects differ by restaurant type is unknown.

Methods: We conducted an online randomized controlled trial (N=6,294) in a nationally representative sample of United States (US) adults, recruited via the AmeriSpeak survey panel in April 2025, to test the effects of different climate menu label designs on hypothetical meal selections in two fast food restaurants: one focused on burgers and one on sandwiches. Participants were randomized to view and order from menus displaying one of five label conditions: 1) control (QR code), 2) low impact label on sustainable items, 3) high impact label on unsustainable items, 4) traffic light label (TLL), and 5) grade (A-F) label. The primary outcome was healthfulness of the meal (modified Nutrient Profile Index [NPI] score). Secondary outcomes included greenhouse gas emissions (GHGE), calories, macronutrients, and total cost of selected meals; selection of a sustainable main item; label noticeability; and the perceived message effectiveness (PME) of the labels.

Results: Compared to the control, the TLL led to significantly healthier meal selections from the burger but not the sandwich restaurant. The TLL promoted the most sustainable (lower GHGE) meal selections in both restaurants and led to the highest likelihood of selecting a sustainable main item in both restaurants. Across all conditions, participants viewing the TLL were most likely to report noticing the label and reported the highest PME. There were no differences in the cost of the selected meals across label conditions. Calories and macronutrients of selected meals did not differ across label condition in the burger restaurant, and there were few differences in the sandwich restaurant.

Conclusion: A traffic light style climate impact menu label shows the most promise for promoting healthier and more sustainable food choices in two different fast food restaurant settings. However, effects on healthfulness of selected meals were inconsistent across restaurant type, and more research is needed to investigate climate label effects in real-world settings.

S.2.31-3

Public Procurement for Biodiversity and Equity: Changes in Sociobiodiversity Food Purchases for School Feeding in the Brazilian Amazon

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S.2.31 Policies and environments: Policies for planetary diets: the nexus of climate change, nutrition, and health Room 8, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Public food procurement plays a key role in advancing healthy, sustainable, and inclusive food systems. In Brazil, the National School Feeding Program (PNAE) mandates purchases from family farmers, including foods from sociobiodiversity—native species, traditional crops, and products from sustainable extractivism. This study fills an important gap in the literature that links food procurement to sustainability to analyze changes in the procurement of sociobiodiversity foods using national transfers for local governments to procure foods for PNAE across 772 municipalities in Brazil's Legal Amazon from 2015 to 2022.

Methods: We used the Brazilian Ministry of Agriculture definition of foods from Brazil's legal Amazon sociobiodiversity and tracked their local procurement using procurement accountability reports from the National Fund for the Development of Education (FNDE). We compared the share of these procured foods using regular bidding processes and the simplified direct procurement instrument available to family farmers.

Results: Procurement of foods from Brazil's legal Amazon sociobiodiversity increased from 3.1 to 7.6 % of the overall share of the national transfers for municipalities to procure foods to PNAE in the region between 2015 and 2022. Most of this increase was through the simplified direct procurement instrument available to family farmers, which had an increase in their share from 9.3% to 18.0%. Less than 0.1% of the share of purchases done through regular bidding was used to procure foods from Brazil's legal Amazon sociobiodiversity throughout the study period. Top procured foods included manioc, pineapple, guava, passion fruit, and cashew.

Conclusion: These results highlight public procurement's potential to strengthen sociobiodiversity markets and promote culturally sensitive and sustainable rural development.

S.2.32-1

Park Planning with Young People Using Design Thinking and Artificial Intelligence

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S.2.32 Participatory Research in Health Promotion: How to apply participatory health research with emerging approaches and priority populations

Room 9, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Parks can support physical activity, socialising, and nature connection. However, parks are underutilised by young people (16-21 years), possibly due to current park planning being led by adult experts without active involvement from end-users. Conducting participatory research provides an avenue for engaging young people to problem-solve barriers to park use and develop preferred park designs.

Methods: This study developed and piloted the feasibility of an approach for designing, prototyping, and testing parks with young people, using design thinking and artificial intelligence, which have been used in landscape architecture in cities and may be beneficial to community engagement in park planning. Phase 1 involved an in-person workshop with young people (n=15), where they applied design thinking exercises. This involved empathy mapping to capture their thoughts, feelings, and emotions concerning visiting parks, and journey mapping to visualise their park use including barriers and enablers. Phase 2 entailed another in-person workshop with the same young people, where they prototyped park designs using text-to-media artificial intelligence tools. Phase 3 involved virtual focus groups with park planners (n=30) to explore their perceptions of the feasibility of this new park planning approach with young people for translation into park planning practice. Young people and park planners were recruited through social media, snowballing, and partner organisations. Qualitative content analysis was used to analyse the data (workshop transcripts, empathy maps, journey maps, park design images and videos, focus group transcripts) from all phases.

Results: This presentation will describe a novel approach for park design, prototyping, and testing with young people using design thinking and artificial intelligence and detail the methods and procedures to inform participatory research projects in related contexts. As Phases 1-2 will occur between November 2025-April 2026, preliminary findings will be shared.

Conclusion: This project will identify young people's park preferences and provide a potential new approach for actively engaging them in park planning practice. If feasible this new approach can be adapted for other population groups and settings to ensure that park planning caters to end-users. The learnings from this research will inform the methodology for future research using design thinking and artificial intelligence.

S.2.32-2

How to Combine Youth-centered Participatory Action Research with Systems Dynamics in a Youth-friendly Way? Insights from Two Projects

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S.2.32 Participatory Research in Health Promotion: How to apply participatory health research with emerging approaches and priority populations

Room 9, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: An alarmingly low number of children and adolescents meet physical activity guidelines. Interventions aimed at promoting physical activity have had disappointing effects, potentially because they were 1) implemented top-down, overlooking the specific context and needs, and 2) insufficiently addressing the complex mechanisms driving physical inactivity. This presentation provides insights in how to combine youth-centered participatory action research (YPAR) combined with methods from systems dynamics in a youth-friendly way to develop interventions

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that tackle the complex issue of physical inactivity.

Methods: We critically reflected on the methods and outcomes of two projects (LIKE & YoPA) that applied a YPAR x system dynamics approach aimed at developing 1) system maps that provide insights in the mechanisms driving youth's physical inactivity and 2) systemic actions that tackle these mechanisms, in collaboration with youth themselves. For both projects, reflections were gathered from reflection meetings with facilitators, discussing the activities that were conducted with youth, and the experiences of both the facilitators and youth.

Results: In both projects, youth were trained to conduct peer-research. Within LIKE, youth were guided in developing system maps and co-creating actions at different levels of the system. Participating youth experienced the phase of conducting peer-research and developing system maps as too long and boring. Facilitators stressed the challenge of developing and explaining systems-related activities to facilitate the development of system maps and actions. Within YoPA, youth were guided in developing stories explaining the (lack of) physical activity and co-creating actions necessary to change these stories. In the background, facilitating researchers developed system maps and prompting questions to develop systemic actions. Youth experienced the sessions as productive and facilitators mentioned the collected stories provided a rich source of data that enabled them to develop system maps.

Conclusion: To apply a YPAR x systems dynamics approach in a youth-friendly way, youth should not be bothered with understanding and applying all steps required in a system dynamics approach. Alternatively, facilitators should prepare easy-to-understand and fun activities, that guide the youth in understanding the mechanisms underlying physical inactivity and co-creating actions that tackle these mechanisms.

S.2.32-3

Co-creation of a Physical Activity and Sedentary Behavior Intervention with People with Severe Mental Illness: The INCREASER-study

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S.2.32 Participatory Research in Health Promotion: How to apply participatory health research with emerging approaches and priority populations

Room 9, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: People with severe mental illness (SMI) have a life expectancy 10–20 years shorter than the general population, largely due to increased rates of cardiovascular disease, type 2 diabetes and metabolic syndrome. Low physical activity (PA) and high sedentary behaviour (SB) are crucial risk factors contributing to this disparity. Enhancing PA and reducing SB are therefore essential to improving health outcomes and reducing premature mortality in this population.

However, traditional interventions often fail to engage people with SMI, as they rarely address the specific barriers and daily realities these people face. This study aims to develop an accessible, engaging and effective PA and SB intervention for residents with SMI living in sheltered housing facilities, using a co-creation approach. Both residents and nurses will be involved to ensure the intervention aligns with lived experiences and professional practice. This participatory approach is innovative, as co-creation has not previously been applied to this population and in the specific context of sheltered housing.

Methods: The co-creation approach will be guided by the Intervention Mapping Protocol. First, a preparatory group discussion with key partners will be conducted to explore practical considerations and identify suitable methods for engaging participants. Subsequently, five to ten co-creation sessions will be organized, involving approximately 8–12 participants per session, including both residents with SMI and nurses working in sheltered housing. These sessions will address the first five steps of Intervention Mapping, focusing on needs assessment, defining objectives, intervention design and planning implementation. The discussion and co-creation sessions will be audio-recorded and transcribed for analysis.

Results: The co-creation sessions will produce a tailored intervention, which will later be implemented and tested for (cost-)effectiveness in a cluster-randomized controlled trial. During the symposium, we will present the activities and preliminary outcomes from each co-creation session.

Conclusion: This study will generate a context-sensitive intervention that reflects the experiences of people with SMI and the professionals who support them. It contributes to developing more effective, acceptable, and sustainable strategies to increase PA and reduce SB, and thereby supports healthier lives for people with SMI.

S.2.33-1

A Systems Approach to Food Security among Flemish Primary School Children: Identifying Drivers and Co-creating Actions

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S.2.33 Socio-economic inequalities: Schools as complex food systems: systemic insights and actions to advance food equity among children

Multipurpose Room, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: Food insecurity among children and families is an increasing concern in Belgium. Addressing this challenge requires a systems dynamics approach to design and implement coordinated actions across multiple levels of the school food system. This study aims to deepen the understanding of food insecurity in Flanders and co-create a systemic action plan targeting the school food system to strengthen food security among primary school children.

Methods: A participatory systems approach will be applied in two Flemish municipalities. In each, three Group Model Building workshops will be held with up to 25 school stakeholders (e.g. local government, schools, social organisations). Stakeholders will build a causal loop diagram identifying drivers of food insecurity and leverage points for change. Actions will then be co-developed using the Action Scales Model. In parallel, interviews with 10–15 food-insecure families will provide essential context for the systems map.

Results: Co-creation in the first municipality took place in 2025. The resulting causal loop diagram included 64 factors and revealed six subsystems explaining the persistence of food insecurity: 1) socio-economic challenges reduce prioritisation of healthy food; 2) limited accessibility and complexity of aid services increase vulnerability; 3) absence of structural policy for school meal support; 4) school meal programs are not accessible; 5) social expectations and stigma influence food-related behaviours; and 6) an unhealthy food environment further undermines efforts to achieve food security. Based on these subsystems and the identified leverage points within, actions were developed (e.g. automatic granting of financial or food support, flexible meal pricing at schools, culturally adapted school menus, loyalty card to get reduction in supermarkets) and a transition agenda in collaboration with the municipality was set up. Findings will be finalised in spring 2026 with input from the second municipality.

Conclusion: Food insecurity is a systemic challenge that requires coordinated action across multiple levels. Building on the transition agendas co-created with the two municipalities, the next phase will focus on implementing these actions and establishing a framework for monitoring and evaluation over the coming years. This process aims to generate evidence on how systemic change can sustainably reduce food insecurity among children.

S.2.33-2

Understanding the Dynamics of Implementing the Norwegian School Fruit Programme – The FRESKO-project

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S.2.33 Socio-economic inequalities: Schools as complex food systems: systemic insights and actions to advance food equity among children

Multipurpose Room, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: The FRESKO-project aimed to generate new knowledge on adoption, implementation and impact of school-based primary prevention interventions through combining implementation science and system dynamics using the Norwegian School Fruit Programme as a case. One sub-study aimed to investigate how the No Parental Payment version of the Programme (NPPP) was implemented and how it dynamically interacted with the school system. The resulting dynamic interactions were compared with the determinants of the Consolidated Framework for Implementation Research (CFIR).

Methods: Data were collected through a series of group model building (GMB) workshops at four schools offering the NPPP. Facilitated discussions between pupils and school personnel based on GMB scripts were held to elicit their perceptions of the NPPP's implementation dynamics and to create maps illustrating how implementation determinants interact with each other and each school's unique context. The four school maps were compiled into a

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single map including all possible factors, which was overlaid by CFIR.

Results: Lack of communication with pupils about the program, the availability of food stores outside schools, and the NPPP's design (i.e. variation, quality of the fruit) weakened the reinforcing mechanism that fostered pupils' eating of fruit. Fruit not being eaten resulted in higher perceived implementation costs for schools having to manage leftovers and litter. Implementation processes, like reflecting, engaging, and adapting to reduce the implementation costs were tried by the schools. The design of the NPPP and mechanisms related to the goals and priorities of the schools, limited or constrained the success of these processes.

Conclusion: This study embedded implementation determinants within feedback processes that shape implementation dynamics, moving beyond a binary, linear understanding of determinants and implementation. Mapping CFIR onto systems' map was an innovative approach to facilitate an interdisciplinary communication. Lack of communication with pupils, the food stores outside schools, and the NPPP's design reduced its reach and inflated its costs. Moreover, schools' goals and priorities hampered the success of processes implemented to mitigate these issues. System dynamics tools, concepts, and insights proved useful for cultivating causal thinking and uncovering mechanisms, which are much needed to address pressing research questions in implementation research.

S.2.33-3

Understanding the Implementation of the National School Meals Programme in Amsterdam: A Systems-informed Qualitative Study

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S.2.33 Socio-economic inequalities: Schools as complex food systems: systemic insights and actions to advance food equity among children

Multipurpose Room, May 29, 2026, 8:00 AM - 9:00 AM

Purpose: In 2023, the Dutch government launched the National School Meals Programme (NSMP) to address growing concerns about child poverty and children attending school without lunch. The programme provides subsidies for primary schools with many low-income students to offer meal support. This qualitative, systems-informed study explored how schools in Amsterdam implemented the NSMP, how it met their needs, and its perceived impact on children's nutrition, wellbeing, and school environments. By examining the interplay of beliefs, goals, and institutional structures that shaped local implementation, the study offers insight into how social, organisational, and policy factors interact within complex systems.

Methods: We conducted a qualitative evaluation of primary schools in Amsterdam. Participation and implementation models were mapped, followed by semi-structured interviews with 38 education professionals from 25 schools (principals, teachers, parent liaisons, and coordinators) and three focus groups to interpret and validate emerging themes. Data were analysed thematically using a grounded theory and systems-informed approach, focusing on implementation processes, perceived outcomes, and the underlying logics guiding schools' choices.

Results: Of the 97 eligible schools, 82% participated in the program. Implementation models included daily school-provided meals, externally delivered lunches, food packages, and grocery cards. Participants described the programme as vital for addressing (hidden) poverty and improving children's nutrition, wellbeing, and social inclusion. Daily in-school meals had the most visible effects, enhancing dietary intake, classroom equality, and student wellbeing, while fostering parental engagement and community cohesion. Externally delivered meals reduced staff workload but offered limited coverage, while food packages and grocery cards mainly alleviated financial stress. Schools' choices were strongly shaped by system-level factors such as beliefs about parental responsibility, perceived stigma, staff capacity, and alignment with educational values.

Conclusion: The NSMP has been widely adopted in Amsterdam and shows strong potential to enhance child nutrition, wellbeing, and inclusion. However, its effectiveness and sustainability depend not only on resources and logistics but also on deeper cultural, organisational, and policy dynamics. A systems approach that recognises and addresses these underlying structures is essential to embed meal provision as a structural and equitable component of the education system.

S.2.34-1

Improving Sleep among Infants: Development, Implementation and Evaluation of the ‘Sleep on Number 1!’ Program

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S.2.34 Children and families: Promoting Sleep in Youth and Young Adults: Development, implementation and Evaluation of Sleep programs Targeting Sleep in Infants, Adolescents and Young Adults

Auditorium, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Sleep problems are common among young children, and parents often struggle to manage their infant’s sleep. Although sleep problems may have serious consequences, programs that sustainably promote sleep among infants remain scarce. The ‘Sleep on Number 1!’ program was developed for Dutch Youth Health Care (YHC). The program was based on science-based methods, needs assessments among parents and YHC professionals, and was co-created with stakeholders. It provided materials (e.g. communication cards), training and education for YHC professionals, and web-based educational materials for parents.

Methods: Several study designs were combined to evaluate the *Sleep on Number 1!* Program: (1) a process evaluation of the implementation in intervention regions (REAIM), (2) a quasi-experimental child record study comparing 6,000 pre- and post-intervention child records from intervention and control regions, with outcome variables being the number of sleep notes and advices provided by YHC professionals, and (3) a quasi-experimental sleep-monitoring study comparing sleep-related data (e.g. night awakenings) from 300 parents and infants between intervention and control regions at 10 weeks, 6 months, 9 months, 14 months and 24 months.

Results: The *process evaluation* showed that the training, symposium and e-learning module were followed by 65%, 66.5%, and 77%, respectively, of the YHC professionals. The professionals sent the webpage link with sleep information 715 times to parents; these webpages had 9,960 unique visits. A total of 320 sets of communication cards were distributed among YHC professionals.

Preliminary analyses of the *child records study* showed that the number of sleep notes per consultation almost doubled from pre- to post-test in the intervention regions ($M_{\text{pretest}} = .21$, $M_{\text{posttest}} = .40$), but not in the control region ($M_{\text{pretest}} = .42$, $M_{\text{posttest}} = .42$; $F(1,5979) = 321.735$, $p < .001$). Furthermore, the probability that parents received sleep advice from the YHC professional increased more in the intervention regions than in the control region ($OR = 1.96$, 95% CI [1.58–2.43], $p < .001$).

Data from the *sleep monitoring study* are currently being analyzed, and will be presented at the symposium.

Conclusion: The program was well implemented and used by YHC professionals and parents. Furthermore, it seems to lead to increased sleep-related communication and advice from YHC professionals.

S.2.34-2

Charge Your Brainzzz: Development, Implementation and Evaluation of a Whole-school Action Program Promoting Sleep among Secondary School Students

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S.2.34 Children and families: Promoting Sleep in Youth and Young Adults: Development, implementation and Evaluation of Sleep programs Targeting Sleep in Infants, Adolescents and Young Adults

Auditorium, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Sleep deprivation is a growing concern among adolescents, negatively affecting their mental, physical, and brain health. Many school-based interventions promoting sleep health have shown limited effectiveness, possibly because they overlook the complexity of sleep. Systems thinking is acknowledged as a promising approach to

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understand and respond to complex health problems. This study aimed to systematically develop, implement, and evaluate *Charge Your Brainzzz*, a scientifically grounded, whole-school action program designed to promote healthy sleep among secondary school students.

Methods: A systems thinking approach was applied in developing the whole-school action program *Charge Your Brainzzz*, guided by the Intervention Mapping protocol to integrate theory- and evidence-based behavior change methods. Adolescents, parents, education- and health professionals were actively involved through co-creation sessions to ensure contextual fit. The program includes classroom lessons for first-year students, parent-focused components (e.g. interactive parental evening), a screening and discussion tool for care coordinators, and school policy recommendations (e.g. no evening communication and later school start times).

A mixed-methods pilot study among first-year pre-vocational students from eight Dutch secondary schools evaluated both the implementation process and preliminary effectiveness. Quantitative analyses used mixed models in Stata to assess changes in sleep outcomes over time. Qualitative interviews with key stakeholders were analyzed using directed content analysis in MAXQDA (2018), following the Determinants of Innovation model.

Results: Students ($N = 762$, 56% boys; age 12.6 ± 0.6) showed significant improvements in sleep duration ($b = 12.8$; 95%CI: 6.8–18.8), sleep-related knowledge ($b = 0.10$; 95%CI: 0.07–0.12), and attitudes towards sleep ($b = 0.14$; 95%CI: 0.05–0.23) after implementation. No changes were observed in sleep hygiene practices. The program was generally well-received; however, some components, particularly school policy and care coordination, were not fully implemented.

Conclusion: Preliminary findings suggest that Charge Your Brainzzz is a promising systems-based program to improve adolescent sleep. A large-scale controlled trial is currently underway, and short-term findings from this study will also be presented at the conference. These insights into the program's development, impact, and implementation process provide valuable guidance for scientists applying systems thinking, as well as for schools and public health organizations aiming to promote sleep.

S.2.34-3

Development and Evaluation of a Program Promoting Sleep Health among University Students

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S.2.34 Children and families: Promoting Sleep in Youth and Young Adults: Development, implementation and Evaluation of Sleep programs Targeting Sleep in Infants, Adolescents and Young Adults
Auditorium, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: University students are at increased risk of developing sleep problems, which can impair health, mental wellbeing, and academic performances. Sleep health as defined by Buysse (2014), is a multidimensional concept not focusing only on harmful symptoms but offering a broader perspective and target for prevention initiatives. Although promoting sleep health might be a strategy to prevent students from reaching clinical thresholds, interventions targeting it remain scarce for this group. Thus, the aim of this study was to develop and evaluate a program for improving sleep health and its targeted psychosocial determinants for university students.

Methods: A randomized trial ($N = 82$) with a waitlist control group evaluated a program combining behaviour change techniques (BCTs), motivational interviewing (MI) principles, and inspired content from cognitive behavioural therapy for insomnia (CBT-I). It was delivered in small groups and lasted three weeks with 90-minutes sessions each week. Instruments used were sleep diaries validated questionnaires such as RU-SATED for sleep health and SHPS for sleep hygiene, questionnaires about beliefs underlying sleep hygiene (i.e. drawn from the Theory of planned behaviour), about self-efficacy (i.e. task, maintenance, and recovery) in behaviour change, and a qualitative process evaluation tool. Data were collected between January 2024 and July 2025 at pretest, posttest, and 3-month follow-up, and analyzed with multilevel mixed models.

Results: Significant interaction of time and groups indicated that the experimental group showed greater improvements of intention for good sleep hygiene $F(1,76) = 10.991$, $p = .001$, $d = .92$, sleep duration $F(1,73) = 7.943$, $p = .006$, $d = .52$ and sleep efficiency $F(1,76) = 7.885$, $p = .006$, $d = .58$ compared to the control group. In addition, a model including the three time points and all participants who received the program revealed significant main effects of time across several outcomes (all $p < .05$), showing improvement for sleep health, duration, efficiency, hygiene, behavioural control and intention, and self-efficacy.

Conclusion: These findings support the use of BCTs, MI principles, and CBT-I content to improve students' sleep health. Further replication with larger sample and greater student involvement in the program process is recommended to strengthen and extend these findings.

S.2.35-1

Assessing Spatial and Policy Indicators for Healthy and Sustainable Cities: Insights from the Application of the GHSCI Framework in Spain

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S.2.35 Policies and environments: Advancing Global Evidence for Active, Healthy, and Sustainable Cities: Cross-Regional Insights from the Global Observatory of Healthy and Sustainable Cities

Room 1, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Implementing urban policies that enhance accessibility, sustainability, and active mobility is fundamental to promoting healthier cities. Such policies require high-quality, evidence-based data to inform their design, implementation, and evaluation. This study assesses the extent to which the ten largest cities in Spain support healthy and sustainable urban environments through spatial and policy indicators.

Methods: The Global Healthy and Sustainable City Indicators (GHSCI) framework, an evidence-based and open science toolbox, was used to analyze a set of spatial and policy indicators in the cities of Barcelona, Bilbao, Las Palmas de Gran Canaria, Madrid, Málaga, Murcia, Palma, Sevilla, Valencia and Zaragoza, housing over 14 million residents. Spatial indicators included standardized measures of accessibility and urban design (i.e. access to daily destinations and public open spaces, public transport, and walkability). The GHSCI policy checklist was used to assess the integration of health and sustainability objectives in urban and transport planning frameworks in Barcelona, Las Palmas de Gran Canaria, Palma, Valencia and Zaragoza.

Results: Spanish cities are generally aligned with healthy and sustainable urban design principles, derived from compact, mixed-use neighborhoods with medium to high population and intersection densities. About 60% of residents have walking access to daily amenities such as food stores and kiosks, while 90% live within walking distance of public open spaces, although access to large green areas remain scarcer due to compact urban morphology. Walkability peaks in historic centers but declines toward the urban contours; notably, Barcelona and Bilbao lead with over 60% of residents in highly walkable neighborhoods. Cities performed high in relation to policy presence that support health and sustainability. However, these policies have room for improvement in terms of the inclusion of evidence-informed standards and measurable targets.

Conclusion: Applying the GHSCI framework in Spain demonstrates the feasibility and value of standardized spatial and policy indicators for large-scale, cross-city comparisons. The experience highlights the need for local engagement to ensure data accuracy and policy relevance. Spatial and policy indicators offer valuable insights for local and regional planners to assess inequalities in access to health-promoting environments and to design and evaluate more equitable, active, and sustainable cities.

S.2.35-2

Brazilian Observatory of Healthy and Sustainable Cities: Integrating Local Indicators with a Global Healthy Cities Network

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SYMPOSIUM

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S.2.35 Policies and environments: Advancing Global Evidence for Active, Healthy, and Sustainable Cities: Cross-Regional Insights from the Global Observatory of Healthy and Sustainable Cities Room 1, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: The Brazilian Observatory of Healthy and Sustainable Cities (OCSS) was created to integrate Brazilian cities into a global network of cities that address the determinants of active living while applying local lenses to inform policy action. We aim to develop and test locally relevant urban health indicators that are globally comparable. Our approach included applying Community-Based System Dynamics (CBSD) to map the macro-determinants of physical activity via a conceptual model and causal loop diagrams, leveraging artificial intelligence (AI) to analyze street-level imagery for built environment inequities, and building capacity through multi-city collaborations.

Methods: In four Brazilian cities (Curitiba, Florianópolis, Pelotas, and Rio de Janeiro), local teams compiled urban policy documents and built environment data. A CBSD workshop produced CLDs illustrating factors influencing physical activity. GIS-based indicators (intersection and population density, public transit access, and open space access) were calculated to assess walkability using global observatory tools. An AI-based analysis of Google Street View images was piloted to quantify built environment features. Additionally, researchers participated in training workshops and a hybrid international course to standardize data collection and analysis methods.

Results: The CBSD process yielded a conceptual model with six priority areas for physical activity promotion in urban contexts. Policy mapping identified numerous relevant policies but revealed fragmented sources and a lack of measurable policy targets. Baseline spatial indicators showed differences in walkability and amenity access between cities, and an AI-based assessment of street images illustrated disparities in built environments across socio-economic contexts, though few studies explicitly address spatial equity. Local capacity was strengthened through training researchers, but limited data availability and difficulties in harmonizing indicators across cities remained challenges.

Conclusion: OCSS demonstrates an innovative multi-city collaboration that bridges research and policy for healthy, sustainable cities. Integrating locally tailored indicators within a global observatory framework provides actionable evidence to guide urban planning and public health interventions. The combination of participatory system dynamics and AI-enhanced spatial analysis yields a comprehensive perspective on how urban environments affect physical activity and health. This cross-city partnership and capacity-building model offers a scalable approach for advancing active, equitable urban environments in Brazil and beyond.

S.2.35-3

Evaluating City Planning Policies in Lower-middle and Upper-middle Income Countries

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S.2.35 Policies and environments: Advancing Global Evidence for Active, Healthy, and Sustainable Cities: Cross-Regional Insights from the Global Observatory of Healthy and Sustainable Cities Room 1, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: The urban growth projected by 2050 will mainly occur in lower- and middle-income countries (LMICs), which face high disease burdens, severe climate vulnerabilities, and often have fewer resources than high-income countries

(HICs) to provide infrastructure and services for their rapidly growing populations. Reducing health inequities is a priority, yet most evidence on health-enhancing city planning comes from HICs, highlighting crucial gaps in how LMICs integrate public health. This study assessed the extent to which LMIC city planning policies align with evidence-based indicators for health and sustainability goals. We explore policy analysis challenges and institutional and governance barriers to policy implementation.

Methods: A comparative policy content analysis was conducted across twelve cities in seven LMICs, using the indicators from the Global Observatory for Healthy and Sustainable Cities. Urban and transport planning documents were systematically reviewed using a framework of evidence-based indicators related to integrated city planning, walkability and destination access, public open space, public transport, and air quality. Chinese cities' policies were assessed against additional indicators, including traffic safety, nature-based solutions, healthy food environments and climate disaster risk reduction. Policies were assessed for measurable targets, alignment with public health evidence, and institutional mechanisms for implementation and monitoring.

Results: Most planning frameworks acknowledged the importance of health and sustainability but lacked operational, measurable targets to support active mobility. Policy coverage across the indicators varied widely: São Paulo (Brazil; 69%) and the six Chinese cities (72-75%) performed relatively well, whereas other cities—Maiduguri (Nigeria; 23%), Bangkok (Thailand; 29%), and Hanoi (Vietnam; 33%)—exhibited the largest policy gaps. Key shortcomings were observed in integrating land-use and transport planning, ensuring equitable access to destinations, and prioritising walking, cycling, and public transport. Institutional fragmentation, limited technical capacity, and competing economic priorities further hindered implementation. However, select cities incorporated measurable targets to improve public transport accessibility and walkability.

Conclusion: Urban planning policies in LMICs are at a critical juncture. Strengthening their capacity to embed measurable, health-oriented indicators within planning frameworks is essential for reducing rising health inequities. Investing in cross-sectoral governance, data systems, and local capacity building can help operationalise global evidence into locally relevant policy actions.

S.2.36-1

Effectiveness of a Peer-volunteer-led Active Ageing Programme in Preventing Physical Decline among Older Adults: Results from the Active, Connected, Engaged (ACE) Randomised Controlled Trial

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S.2.36 Ageing: Innovative Approaches to Promote Physical Activity and Prevent Mobility Decline in Older Adults: Evidence from Pragmatic Randomised Controlled Trials in the UK and Australia

Room 2, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Mobility limitations escalate with age, contributing to loss of independence, increased fall risk, progression to frailty, and reduced quality of life. The ACE trial—the largest study of its kind—aimed to evaluate the effectiveness of a six-month, peer-volunteer-led intervention designed to help older adults at risk of mobility disability become more physically and socially active, with the goal of slowing or reversing functional decline associated with ageing.

Methods: This two-arm, pragmatic randomised controlled trial was conducted with 528 community-dwelling older adults aged 65+ (mean age 77.5; 65% female; 55% with multiple long-term conditions), at risk of mobility disability (Short Physical Performance Battery [SPPB] score 4–9) and 227 peer volunteers aged 55+ (59% female). Participants were randomly allocated to either the ACE intervention (n = 265) or control arm (n = 263) across four UK sites: Bristol, Cardiff and the Vale of Glamorgan, Manchester, and Stoke-on-Trent. The ACE intervention is a 6-month programme underpinned by behaviour change theory, whereby peer volunteers are paired with participants and offer them individually tailored support to engage them in local physical and social activities, aiming to improve lower limb mobility and increase their physical activity. The primary analysis used a linear mixed model including group allocation, site, baseline, 6- and 18-month SPPB scores (the primary outcome).

Results: The difference between the two groups, was statistically significant and clinically meaningful at 18 months (SPPB adjusted mean difference 0.6 points, 95%CI: 0.2 to 1.0; p=0.005). The difference at 6 months (post intervention) was also significant (SPPB adjusted mean difference 0.4 points, 95%CI: 0.0 to 0.8; p=0.031).

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Conclusion: For older adults at risk of mobility disability, the ACE randomised controlled trial demonstrated that a six-month peer volunteering programme delivered sustained, clinically meaningful improvements in lower limb physical function. A multi-level mixed methods process evaluation, incorporating systems mapping, will unpack the mechanisms behind this success. Mobilising peer-volunteers could be a scalable approach to promote active ageing in community settings.

S.2.36-2

Physical Activity Coaching for Adults with Walking Limitations: Results of the Comeback Hybrid Type 1 Effectiveness-implementation Randomised Controlled Trial

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S.2.36 Ageing: Innovative Approaches to Promote Physical Activity and Prevent Mobility Decline in Older Adults: Evidence from Pragmatic Randomised Controlled Trials in the UK and Australia

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Purpose: Walking limitations are a form of disability that is particularly common in individuals with chronic health conditions and older adults, leading to high rates of physical inactivity and negative physical and mental health and quality of life consequences in these traditionally underserved populations. The ComeBACK trial aimed to evaluate the effectiveness of two scalable physical activity interventions, telephone-based health coaching (*Coaching to ComeBACK*) and unidirectional text messaging (*Texting to ComeBACK*), compared to a *waitlist control group* in adults with self-reported walking limitations.

Methods: This three-arm, pragmatic randomised controlled trial was conducted with 512 community-dwelling adults in Australia (mean age 69 years; 76% women; 51% reporting multimorbidity). Participants were randomly assigned to *Coaching to ComeBACK* (n=172), *Texting to ComeBACK* (n=171) or *waitlist control* (n=169). The primary outcome was device-measured average daily steps over one week at six months. Secondary outcomes included physical function, mental well-being, quality of life, goal attainment and falls. Between-group differences were estimated using linear regression and longitudinal models.

Results: At six months, participants in the *Coaching to ComeBACK* group had higher average daily steps (mean 7256, SD 3736) than both *waitlist control* (mean 6526, SD 3003; adjusted between-group difference 931 steps, 95%CI: 409 to 1452; $p=0.001$) and *Texting to ComeBACK* (mean 6529, SD 3029; between-group difference 571 steps, 95%CI: 58 to 1084, $p=0.03$). *Coaching to ComeBACK* also led to greater improvements in goal attainment and reductions in walking limitations due to lower limb or back pain.

Conclusion: Health coaching is a more effective intervention than texting or no intervention for improving physical activity in adults with walking limitations. Its tailored, person-centred approach supports equitable access to physical activity opportunities for populations often excluded from physical activity research, informing future models of care that can prioritise diversity and inclusion of people with disability.

S.2.36-3

The Efficacy of Strength and Tai-Chi Exercise Snacking on Older Adults Physical Function: A 12-week Randomised Controlled Trial

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S.2.36 Ageing: Innovative Approaches to Promote Physical Activity and Prevent Mobility Decline in Older Adults: Evidence from Pragmatic Randomised Controlled Trials in the UK and Australia

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Purpose: Preventing frailty in older age is crucial for reducing fall-risk and maintaining independence, community engagement and a good quality of life. In the UK just 20% of adults aged 65 years or older meet the recommended muscle strength and balance guidelines to maintain physical function, with common participation barriers being low-self efficacy for exercise and dislike of leisure settings, lack of time, and fear of injury. Having established feasibility and acceptability of home-based strength and tai-chi 'exercise snacking' as simple and engaging option for older adults, this research aimed to explore its efficacy of on improving physical function.

Methods: Mobility impaired, inactive, older adults (n=90) were randomised to undertake either 12-weeks of progressive twice-daily exercise snacks, consisting of 5-minutes of strength and 5-minutes of tai-chi exercises, or a waitlist control. Participants physical function was assessed using the strength and balance components of the Short Physical Performance Battery (SPPB), single leg standing balance, and 60s sit-to-stand test remotely via videoconferencing at baseline, 4-, 8-, and 12-weeks. A subset of intervention participants (n=26) underwent semi-structured interviews to discuss their experiences. Quantitative data were analysed using linear mixed models, and qualitative data were analysed using a deductive framework analysis based on the theoretical framework of acceptability.

Results: Intervention participants improved their SPPB-measured strength (estimated mean difference in week 4: 1.05; week 8: 0.79; and week 12: 0.79) and balance (week 4: 0.71; week 8: 0.57; and week 12: 0.65) relative to the control group. Timed-up-and-go (week 4: 1.94; week 8: 1.58; and week 12: 1.1) and total SPPB scores (week 4: 2.24; week 8: 1.79; and week 12: 1.76) were also improved in the intervention group compared to the control group in a lab subset participants (n=40). The qualitative findings indicated the programme was accessible and personally beneficial, and in many cases raising their self-efficacy for future physical activity.

Conclusion: Just 10-minutes per-day of progressive strength exercise and tai-chi snacking programme may lead to clinically meaningful improvements in physical function over 12-weeks, presenting a low-cost, scalable, way to safely increase strength and balance at home amongst older adults with mobility limitations.

S.2.37-1**Voices from Within: How the Built Environment Supports Physical Activity in Youth and Adult Inmates**M. Giné-Garriga¹, C. Palma², R. Romeva², S. Signo², M.C. Isanta², M. Cortés³, E. Sebastiani²

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S.2.37 Participatory Research in Health Promotion: Addressing Key Community Physical Activity Program Needs in Spanish-speaking Nations through Participatory Citizen Science

Room 3, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: The prison population in Europe has increased by 5% since 2020, despite efforts to reduce inmate numbers. In Spain, youth incarceration rates are rising faster than those of adults, with many young detainees spending extended periods in preventive detention. Incarceration is often associated with unhealthy behaviours including smoking, substance use, sedentary lifestyles, and irregular diets that contribute to higher rates of acute and chronic physical and mental health conditions. Physical activity (PA) levels among inmates are significantly lower than those of the general population. To develop strategies promoting PA among incarcerated youth and adult males, we applied the *Our Voice* citizen science method to explore how the built environment can support increased PA.

Methods: Twenty-six adult (mean 39.5 ± 12.3 years) and 31 youth (mean 15.3 ± 3.2 years) male inmates from one adult and one youth prison in Catalonia, Spain, participated. Multiple recruitment strategies ensured diverse representation. We implemented the four-step *Our Voice* method to identify how common prison spaces could be modified to promote movement. Participants collected data using the Discovery Tool mobile app, including geotagged photographs, audio-textual narratives, and simple positive/negative ratings via emojis. Two discussion groups were held to organize findings and develop strategies to leverage local assets and address barriers. The process culminated in a facilitated, participatory action planning session, subsequently shared with prison administration and a policymaker from the Department of Justice.

Results: Participants identified built environment features influencing PA engagement, including the availability and condition of outdoor spaces, safety concerns, accessibility of exercise equipment, and social support from peers.

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Both youth and adults emphasized flexible schedules, supervised yet autonomous access to activity areas, and motivational cues such as signage and designated exercise zones. Youth valued engaging, game-like spaces, whereas adults emphasized privacy and quiet areas. The collaborative process fostered empowerment and generated feasible, participant-driven recommendations for environmental modifications to support PA.

Conclusion: Engaging incarcerated populations in citizen science provides insights into environmental factors that facilitate or hinder physical activity. Participatory approaches like *Our Voice* can enhance inclusion, agency, and tailored interventions, informing strategies to promote PA behaviour change among vulnerable populations.

S.2.37-2

Citizen Science in Active Mobility to School Programs in Bogotá, Colombia: Empowering the Voices of Children and Young People

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S.2.37 Participatory Research in Health Promotion: Addressing Key Community Physical Activity Program Needs in Spanish-speaking Nations through Participatory Citizen Science
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Purpose: The study applied the *Our Voice* citizen science method to capture students' perceptions of routes, highlight facilitators and barriers, and strengthen their agency in advocating for solutions

Methods: Active School transport represents a promising strategy to promote healthy lifestyles. In Bogotá, Colombia, two large-scale programmes, Ciempiés Caminos Seguros (CCS) and Al Colegio en Bici (ACB), encourage students to commute to school on foot or by bicycle. A total of 42 students aged 8–13 years from four public schools enrolled in CCS and ACB were included in the study. Citizen scientists described their routes using the Stanford Discovery Tool app, accompanied by photos and audio narratives. Their contributions were analysed through a socio-ecological lens to examine built environment, social, and behavioural factors shaping mobility.

Results: Citizen scientists identified positive features such as the presence of trees, clean and shaded sidewalks, and safe walking and cycling infrastructure that made their trips more enjoyable. They particularly valued the sense of safety, care, and companionship provided by the programme guides, who fostered trust and community along the way. Students also appreciated the friendships formed and the fun of travelling together. They also reported barriers including litter, poorly maintained pavements, defective traffic signage, aggressive behaviours from pedestrians, and risks of crime and collisions.

Two community meetings gathered students, guides, school staff, local authorities, and mobility and safety officials, illustrating the diverse governance and stakeholder structures supporting CCS and ACB. In these meetings, the citizen scientists presented findings through interactive activities, engaged in roundtable discussions to co-create solutions, and defined responsibilities, actions, and timelines for follow-up. This process fostered accountability and collaborative local governance.

Conclusion: Citizen scientists expressed strong enthusiasm to continue with CCS and ACB. The process led to concrete actions, including removing a dangerous tree near a school, increasing the presence of safety authorities, and collaborating with Local Bicycle Councils to extend programmes to other schools and districts. Crucially, the initiative promoted intersectoral dialogue between students, schools, and local authorities to strengthen active school mobility. Findings underscore the transformative potential of participatory approaches to advance equity-centred urban planning and mobility policies for students in Latin America.

S.2.37-3

Citizen Science to Address Interpersonal Violence and Support Safeguarding in Sport: An *Our Voice* Study Among Elite Female Athletes in Lima, Peru

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S.2.37 Participatory Research in Health Promotion: Addressing Key Community Physical Activity Program Needs in Spanish-speaking Nations through Participatory Citizen Science

Room 3, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Interpersonal violence (IV) exists across individual/interpersonal and contextual levels in sport. Recent examinations of IV and safeguarding (all proactive measures to prevent and respond to IV) in sport have emphasized the value of using a socioecological approach to examine the relationships between sportspeople and their environments. Including athlete voices has become increasingly relevant, yet existing research often fails to capture the complexity of their experiences within their environments. The *Our Voice* method blends citizen science and mobile technology to enable audiovisual and geotagged data collection and narrative documentation by athletes, and includes collective review of data to generate deeper understandings and holistic solutions.

Methods: The purpose of this study was to use the *Our Voice* method to examine the collective experience of elite female athletes living in Lima, Perú, as it relates to IV and safeguarding in sport. The study team used a community-engaged research approach, collaborating across universities, a grassroots organization, and the Peruvian National Softball Federation to recruit athletes to engage in the *Our Voice* method. Data collection included pre-post surveys, geotagged photos and qualitative narrative comments collected through the Stanford Discovery Tool mobile app, and qualitative data through group forums where athletes reviewed their own collective data to generate thematic findings based on barriers, facilitators, and recommendations for solutions and action.

Results: Elite female athletes (N=18) participated in the *Our Voice* method, including a pre-intervention relationship building session, a mobile data collection period yielding 55 data points, and 14 facilitated group meetings. The qualitative data were organized into six categories that related to IV and safeguarding across socioecological levels: safety, infrastructure, sanitation, street harassment, transportation, and outreach. For each category, athletes identified examples, recommendations for improvement, and an action plan for change. Athletes presented findings to stakeholders in an advocacy presentation.

Conclusion: This study examined IV and safeguarding among elite athletes living in Lima, Perú, using a community-engaged citizen science approach. Findings align with recent consensus recommendations to encourage sport that is athlete-centered, and to engage with unheard voices and integrate global perspectives into safe sport.

S.2.38-1

Scaling up a Co-created School-based Sleep Intervention through School-led Co-adaptation

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S.2.38 Participatory Research in Health Promotion: Why don't you ask us? Co-creating and co-adapting school health promotion for, with and by students, teachers and professionals

Room 4, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Adequate sleep is essential for adolescents' mental, cognitive, and physical health, yet recent trends show declining sleep duration and quality among young people. To address this, a school-based healthy sleep intervention was previously co-created with students and teachers and evaluated in a participatory research project. The next step is to scale up this intervention across schools, while ensuring that it remains contextually relevant. Therefore, school-led co-adaptation is required, in which diverse people at school (including students) tailor the intervention to their specific school setting. This study aims to evaluate the process of school-led co-adaptation of the healthy sleep intervention using qualitative research.

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Methods: Five secondary schools (focusing on students aged 12–14) in Flanders, Belgium, were already recruited. Between November 2025 and January 2026, a team of school members (teachers, other staff, and students) will independently adapt the intervention using a structured online step-by-step support manual. This process includes assessing the local context and adapting the previously co-created intervention materials and implementation strategies. Schools will then implement their adapted intervention. After the co-adaptation phase, semi-structured focus groups/interviews will be conducted with all participating co-adapters in each school. Data will be analysed thematically using MAXQDA.

Results: During the ISBNPA conference, we will present findings on how the diverse collaborators within the schools navigate this autonomous co-adaptation process, the challenges encountered, and the conditions that facilitate successful local ownership of the healthy sleep intervention.

Conclusion: This study will provide insight into the feasibility of autonomous co-adaptation of complex school health interventions, which is a necessary step to scale up previously co-created interventions.

S.2.38-2

Co-creation Process in YOU BEAT 'M: An Integral Lifestyle Approach for Dutch Vocational Students

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S.2.38 Participatory Research in Health Promotion: Why don't you ask us? Co-creating and co-adapting school health promotion for, with and by students, teachers and professionals

Room 4, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Adequate dietary intake and physical activity can prevent non-communicable diseases such as type 2 diabetes and different forms of cancer. Targeting students in Dutch vocational schools (mbo's) through lifestyle interventions can support these behaviours but effective lifestyle interventions are currently missing for this group. In the YOU BEAT 'M project four existing effective interventions for other groups are adapted for vocational schools in a process of co-creation with, for and by vocational schools as building blocks of an integrated approach. These interventions are Good Affordable Food, Up for Cooking, Power Food and Focus on Strength. This study presents the findings of the co-creation process with students.

Methods: From April to July 2025, 18 co-creation sessions were conducted with students and teachers in vocational schools, in which adapted elements of the existing interventions in new working formats were tested. Additionally, two co-creation sessions with professionals were organised on the preliminary results of the student sessions and how these could be translated into YBM.

Results: Most of the content of the original interventions was relevant, but adaptations were required in working formats. Working in small groups, short clear instructions followed by active working methods, and diversity in topics with competitive elements works well for students. Professionals and teachers preferred a flexible program with choice activities to fit the needs of their groups.

Conclusion: Co-creation with students, teachers and professionals is a valuable method to adapt existing interventions for a new setting. While intervention content could be kept equal to the original interventions, working formats changed a lot. Next steps are to evaluate YOU BEAT 'M in a real-world setting.

S.2.38-3

Co-creating Implementation Tools to Support Schools in Navigating their Unique and Dynamic Context: A Dutch Case Study with Healthy School-coordinators and Healthy School-advisors

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S.2.38 Participatory Research in Health Promotion: Why don't you ask us? Co-creating and co-adapting school health promotion for, with and by students, teachers and professionals

Room 4, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Whole-school approaches that focus on health education, policies and creating a healthy school environment are increasingly being adopted in many countries. Implementing such a system-wide change can be challenging, because schools are dynamic organizations with constantly interacting and evolving circumstances. In the Dutch context, schools are stimulated to work with the (whole-school) 'Healthy School' (HS)-approach. To support schools implementing this approach, several co-created implementation tools recently have been developed. We share two examples.

Methods: Two types of implementing stakeholders are of particular importance in the HS-approach: a) Healthy School-coordinators (HSC): professionals working in schools and responsible for coordinating implementation, b) Healthy School-advisors (HSA): professionals working at regional Public Health Services and responsible for expertise and support to HSC. A co-creation process enabled by participatory research between HSC, HSA, national representatives and researchers was used, following several phases:

- 1) identifying needs and wants,
- 2) co-creations of tools,
- 3) pilot-testing, and
- 4) embedding on a national level.

Results: The HSC-project developed an online implementation tool in which stakeholders can monitor their progress and get tailored information for next implementation steps based on their unique context. Currently, national implementation is monitored by a group of national representatives and stakeholders in schools in order to optimize usability and integrating the tool in daily practice. The HSA-project identified five roles to better support schools during implementation processes: a central navigator role, and four adjacent roles (linking pin, expert in the field, critical friend and ambassador). These roles provided the basis for development of a training on how to work in a context-oriented manner to support schools with unique context. This training was well received and is now embedded in the regular professional development offered to HSAs nationwide.

Conclusion: Co-creation in both projects proved essential to develop tools suitable for implementing stakeholders. Through collaboration between practice, policy and research, tools could be developed based on scientific insights as well as the reality of daily practice of implementing stakeholders and the momentum of national structures of the Dutch HS-approach. Simultaneously, maintaining a balance between fidelity and adaption remains challenging when starting from co-creation processes.

S.2.39-1

From Alliance to Action: Identifying Problems and Co-creating Solutions for Childhood Obesity Prevention in a Low-socioeconomic District of Madrid

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S.2.39 Motivation and behavior change: Co-creating a toolbox to improve the implementation of childhood obesity prevention policies in low socioeconomic municipalities – the OBCT Project

Room 5, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Despite Spain's national plan for childhood obesity reduction, its local implementation remains challenging. This study used a co-creation process with multisectoral stakeholders in Villa de Vallecas, a low-socioeconomic district of Madrid, to identify key barriers to implementation and collaboratively develop locally relevant solutions.

Methods: In fall 2025, as part of the Horizon Europe OBCT project, a participatory co-creation process was conducted, guided by the PRODUCES+ framework and the Participatory and Appreciative Action and Reflection approach. An alliance was established with *Madrid Salud*, the city's on-the-ground public health institution, to facilitate community engagement and participant recruitment through existing relationships and continual follow-up. Ten participants representing public health, healthcare, sports, social services, community organisations, national government, and research took part in four workshops. The first two workshops focused on identifying implementation barriers and generating solutions through iterative discussions that encouraged reflection and consensus-building. In the first session, participants applied the social determinants of health and socio-ecological frameworks to identify structural

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drivers of childhood obesity. Building on this theoretical grounding, they engaged in a collaborative brainstorming exercise to identify key implementation barriers affecting childhood obesity prevention in their district. The second session linked each barrier to potential solutions through group dialogue and collective agreement. Participant reflections were captured through brief evaluation surveys and researcher debriefing notes collected after each session. Workshop materials and notes were synthesised thematically.

Results: Participants collaboratively identified five key barriers to local implementation: low awareness of childhood obesity, limited interdepartmental coordination, poor visibility of community resources, unstable human and financial resources, and insufficient understanding of families' needs. Five corresponding solutions were co-developed, leading to the creation of concrete tools to address these barriers. Participants also reported increased empowerment, strengthened interdepartmental relationships, and a renewed sense of shared purpose in tackling childhood obesity locally.

Conclusion: This co-creation process demonstrated the value of participatory and intersectoral collaboration by identifying five context-specific implementation key barriers and developing the five corresponding community-informed solutions. Beyond tangible outputs, the process fostered professional empowerment and collective ownership, both key elements for advancing sustainable childhood obesity prevention.

S.2.39-2

Selecting Implementation Strategies and Tools through Co-creation Workshops in Low-socioeconomic Municipalities in Poland: Results from the OBCT Project

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S.2.39 Motivation and behavior change: Co-creating a toolbox to improve the implementation of childhood obesity prevention policies in low socioeconomic municipalities – the OBCT Project

Room 5, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: To present the results of co-creation workshops conducted in Polish municipality with low socioeconomic position, focusing on the implementation strategies and tools prioritized by local stakeholders for inclusion in the policy implementation toolbox to prevent childhood obesity.

Methods: As part of the Horizon Europe OBCT project, local co-creation workshops were held in June 2025 with representatives from schools, health sector, local authorities, NGOs, and community organizations. Participants discussed, adapted, and voted on proposed implementation strategies and tools across seven thematic goals related to the prevention of childhood obesity (e.g., diagnosis, planning, collaboration, community engagement). Voting results were analyzed using predefined decision thresholds ($\geq 30\%$ votes for high priority; 20–29% for medium priority) to identify the most supported items.

Results: Across seven goals, participants expressed the strongest support for strategies promoting integration of health actions into standard institutional practice (46%), conducting local needs diagnosis (39%), and building intersectoral implementation teams (39%). Among tools, the most highly rated included the annual health action plan template (40%), local health diagnosis questionnaire (36%), and set of best-practice cards (36%). The highest overall engagement was observed for strategies and tools related to community and family involvement, including storytelling-based communication and social media micro-campaign templates.

Conclusion: The co-creation process revealed that Polish stakeholders prioritize sustainability, intersectoral collaboration, and community engagement as key drivers for effective policy implementation. The identified strategies and tools provide practical, context-specific guidance for integrating obesity prevention policies into local systems, supporting the development of the cross-country OBCT implementation toolbox.

S.2.39-3**European Policy Implementation Toolbox to Prevent Childhood Obesity: A Cross-country Co-creation Process**N. Lien¹, S.H. Herstad¹, B. Meshkovska¹¹University of Oslo, Department of Nutrition, Oslo, Norway**S.2.39 Motivation and behavior change: Co-creating a toolbox to improve the implementation of childhood obesity prevention policies in low socioeconomic municipalities – the OBCT Project****Room 5, May 29, 2026, 5:00 PM - 6:00 PM**

Purpose: The objective of this study is to integrate theoretical insights with co-creation experiences across Poland, Spain and Norway in order to develop a policy implementation toolbox designed for European contexts. This European toolbox aims to serve as a comprehensive roadmap for local governments, facilitating the implementation of national childhood obesity prevention policies.

Methods: The process of co-creating country-specific toolboxes involved collaboration with local governments in Poland, Spain and Norway during the summer and fall of 2025. Building on these country-based toolboxes, the OBCT project teams from Poland, Spain, Norway and Denmark convened for a two-day workshop in September 2025. The workshop focused on establishing: (1) the overarching goals of the European toolbox, and (2) the specific subtasks necessary to achieve these goals. This process was informed by theory and expert knowledge across multiple disciplines, including nutrition, physical activity, psychology, public policy, and implementation science. Following the workshop, the project teams engaged in collaborative work over the subsequent month to develop a manual detailing a structured roadmap for local governments to implement national childhood obesity prevention policies, featuring clearly defined goals, subtasks, procedural steps, and templates.

Results: The European toolbox delineates five primary goals: (1) Raising Awareness: Promoting a whole of society approach to obesity prevention; (2) Building Lasting Partnerships: Establishing intersectoral partnerships that facilitate coordinated local actions for childhood obesity prevention; (3) Mapping Community Assets: Participatory mapping of assets to inform and strengthen local obesity prevention efforts; (4) Prioritization of a Policy Mix and Action Selection: Developing a coherent policy mix and collaboratively selecting and adapting actions aimed at obesity prevention, with active community and target group participation; (5) Ensuring Continuity and Sustainability: Embedding the selected policy mix and actions within local government structures and routine practices.

Conclusion: A key conclusion of this study is the necessity for local governments to adopt an intersectoral approach to enhance their understanding and application of a whole-of-society approach for obesity prevention. Throughout all stages of the process, it remains critical to involve the target population (persons living with obesity, children, parents, families) to ensure the effectiveness and relevance of implemented actions.

S.2.40-1**Oheró:kon: Revitalizing Rites of Passage for Haudenosaunee Youth and Community Wellbeing**A.M McComber¹, J. Beauvais², J. Shenandoah²¹McGill University, Department Of Family Medicine, Montreal, Canada, ²Akwesasne Mohawk Nation, Hogansburg, United States**S.2.40 Indigenizing Wellbeing Research: Relational Pathways to Wellbeing: Revitalizing Indigenous Mentorship, Rites of Passage, and Community Health Promotion****Room 6, May 29, 2026, 5:00 PM - 6:00 PM**

Purpose: Haudenosaunee communities are revitalizing rites of passage teachings to support youth in their journeys of self-discovery within a contemporary context shaped by the enduring impacts of colonization. These “coming of age” experiences—known as *Oheró:kon*—reaffirm traditional pathways of growth and responsibility, nurturing physical, mental, emotional, and spiritual wellbeing. The re-emergence of these land-based practices represents both a cultural resurgence and an assertion of self-determination, strengthening community identity and collective wellness.

Methods: This study draws on the lived experiences of two Haudenosaunee knowledge keepers who have guided and

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participated in *Oheró:kon* through community- and family-organized teachings, ceremonies, and land-based activities. Using narrative inquiry grounded in Indigenous methodologies, the knowledge keepers share personal stories that illuminate the year-long mentorship and teaching process. Adults in the program assume the roles of aunts and uncles to the youth, establishing relationships grounded in peace, the good mind, personal responsibility, and love. These relational and land-based practices foster confidence, respect, and cultural belonging among participants. The narratives were collaboratively interpreted through guided reflection and discussion, following Haudenosaunee principles of relational accountability and consensus-based meaning-making. Story analysis focused on identifying recurring teachings, metaphors, and experiences that illustrated processes of transformation, relationship-building, and balance with the natural world.

Results: The *Oheró:kon* journey functions as a transformative, intergenerational education process that unites participants in mutual learning and growth. Through ceremony, food practices, and physical activity, youth develop new frameworks for understanding themselves and their roles within family, community, and the natural world. The approach dissolves generational barriers, strengthens cultural identity, and restores balance between humans and the land.

Conclusion: Revitalized rites of passage rooted in Haudenosaunee teachings cultivate youth leadership, resilience, and wellbeing while reinforcing intergenerational knowledge transmission and cultural continuity. Centering youth in culturally grounded, land-based learning not only promotes individual health and identity but also sustains the collective wellness and vitality of Haudenosaunee society.

S.2.40-2

Centering Māori Knowledge for Youth Wellbeing

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S.2.40 Indigenizing Wellbeing Research: Relational Pathways to Wellbeing: Revitalizing Indigenous Mentorship, Rites of Passage, and Community Health Promotion

Room 6, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: This study centers Mātauranga (Māori knowledge) in the context of physical activity. The research question is: How can Mātauranga be used to engage Rangatahi (Māori youth) in Physical Activity for Waiora (holistic wellbeing)? By centering Mātauranga as the dominant knowledge system, we are able to explore and showcase indigenous ways of knowing and being. Whilst Mātauranga is an ancient knowledge system, Mātauranga is constantly adapting to this contemporary world within the context of physical activity.

Methods: Kaupapa Māori Research is the chosen methodology. Kaupapa Māori Research is research that is determined by Māori, for Māori, with Māori, and in a Māori way [1]. The methods for this study are Wānanga and Pūrākau. Wānanga is a gathering of people governed by tikanga (Māori protocols). The aim of wānanga is to compose knowledge with a chorus of intention, participants engage in active and collective discussion and problem solving. Wānanga is also a place where the transmission of intergenerational knowledge occurs between a tuakana (mentor) and teina (mentee) [2]. When deconstructing the word pūrākau; pū are the roots of a tree, embedded deep within Papatūānuku (Earth mother), in a place of darkness, the place of the unseen. Pū represents deep, grounded, implicit knowledge. Rākau is a tree, situated above the ground in the realm of Ranginui (Sky father), in the place of light, the place of the seen. Rākau represents the visible, the explicit knowledge. Bolton describes pūrākau as a reflective practice by “paying critical attention to the practical values and theories which inform everyday actions, by examining practice reflectively and reflexively” [3]. For the symposium, we; an Academic (mentor) and a Rangatahi (mentee) will jointly unpack the concepts that underpin the methodology and methods of this study.

Results: Mātauranga is deeply rooted in a geographical place through pūrākau, emphasising the importance of knowing place to then authentically engage in physical activity. Establishing a physical activity framework occurs in a structured and planned way through wānanga.

Conclusion: This study contributes both conceptually and methodologically to physical activity research. Advancing Indigenous research methodologies and methods has the ability to enhance and transform the field of physical activity.

S.2.40-3**Transformational Mentorship: A Relational Journey in Indigenous Health Promotion****C. Hare¹, A. McComber²**¹Queen's University, School of Kinesiology and Health Studies, Kingston, Canada, ²McGill University, Department of Family Medicine, Montreal, Canada**S.2.40 Indigenizing Wellbeing Research: Relational Pathways to Wellbeing: Revitalizing Indigenous Mentorship, Rites of Passage, and Community Health Promotion****Room 6, May 29, 2026, 5:00 PM - 6:00 PM****Purpose:**

Mentorship is an essential form of knowledge transfer within Indigenous contexts, where learning occurs through relational processes grounded in reciprocity and shared responsibility. In contrast, Western academic mentorship structures often emphasize hierarchy and overlook the wholistic dimensions of the learner that nurture personal development and wellbeing. This work explores how Indigenous mentorship functions as a relational process of knowledge transfer that strengthens engagement in Indigenous community health research.

Methods:

This work employs Indigenous storytelling within an autoethnographic, community based framework to describe a three year mentorship journey between a Haudenosaunee mentor and a Métis youth in an Indigenous health promotion project. The project supports the sharing of a Kanien'keha:ka community mobilization model through workshops, training sessions, and community partnerships. Narrative and thematic analysis was conducted collaboratively, guided by Indigenous epistemological principles of relational accountability and respect for story as both method and meaning. Key moments of transformation were explored through reflexive dialogue to ensure interpretations remained culturally grounded and relationally coherent.

Results:

Our mentorship evolved into a deeply personal and transformative journey that extended beyond academic boundaries into friendship, family, and community. It created space for critical reflection during moments of uncertainty in the project's direction and success. By keeping cultural values at the forefront, even disagreements became opportunities for deep dialogue and self reflection. Our shared experiences, from moments of chaos to laughter, revealed that mentorship grounded in Indigenous teachings supports both learners and mentors to grow resilient and thrive. Haudenosaunee and Métis cultural grounding created a mutually reinforcing cycle of growth, where emotional awareness and cultural understanding became central to personal development and our ability to advance health promotion in Indigenous community contexts.

Conclusion:

Indigenous mentorship models grounded in cultural values foster resilient and adaptive ways of learning that extend beyond traditional academic structures. Our experience demonstrates that mentorship rooted in relationship and reciprocity not only supports personal growth but also strengthens the capacity to engage in community research and health promotion in Indigenous contexts. This approach offers valuable insights for reimagining mentorship and personal development within Indigenous health promotion and broader community based participatory research.

S.2.41-1**Evaluating the Impact of a Redesigned School Playground on Children's Play, Preferences, and Wellbeing: Insights from an International Comparative Study****C. Pawlowski¹, I. Lousen¹, A. Johnstone², P. McCrorie³, J. Schipperijn¹**¹University of Southern Denmark, World Playground Research Institute, Active Living Research Unit, Department of Sports Science and Clinical Biomechanics, Odense, Denmark, ²University of Glasgow, General Practice and Primary Care, Glasgow, United Kingdom, ³University of Exeter, Department of Public Health and Sports Science, Exeter, United Kingdom**S.2.41 Children and families: Taking Risks in Play: Rethinking School Environments for Children's Physical Activity and Wellbeing****Room 7, May 29, 2026, 5:00 PM - 6:00 PM**

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Purpose: School playgrounds are key settings for promoting children's physical activity, providing opportunities for active play, social interaction, and creativity during the school day. This study evaluated the impact of a newly installed manufactured playground on children's play behaviour, preferences, and social and emotional wellbeing. Bringing together data from Denmark and Scotland, it offers a novel cross-country comparison of how school environments shape active play and wellbeing.

Methods: A pre-post design was implemented across six primary schools in Denmark and Scotland to examine changes following the introduction of redesigned playgrounds. All children in participating schools were eligible to take part. Baseline data were collected between October 2023 and September 2024, with follow-up conducted one year later. Consenting children completed the Loneliness and Social Dissatisfaction Scale to evaluate social and emotional wellbeing, and the *Lunchtime Enjoyment of Activity and Play (LEAP)* Questionnaire to assess playground preferences. The System for Observing Outdoor Play Environments in Neighborhood Schools (SOOPEN) was used at follow-up to observe play type, activity level, and social context. Descriptive and regression analyses will compare baseline and follow-up data to assess changes in preferences and wellbeing. Observational data are being coded to examine how physical activity, play type, and social interaction vary across playground zones.

Results: A total of 942 children aged 5–12 years completed baseline and follow-up assessments, which are currently under analysis. While preliminary findings indicate some positive trends, there was no significant effect on the Children's Loneliness and Social Dissatisfaction Scale. However, LEAP questionnaire data revealed that more children reported being happy with using play structures in the redesigned playground compared to the old playground. SOOPEN observations showed no difference in the number of children playing alone or in levels of conflict between the redesigned and original playgrounds.

Conclusion: This study provides new insights into how playground design influences children's physical activity and wellbeing across cultural settings. Findings will inform evidence-based strategies for developing school environments that balance safety with managed risk, promoting movement, creativity, and emotional health in diverse contexts.

S.2.41-2

How Does the Outdoor Play and Learning (OPAL) Programme Affect Children's Play Activities, Adventurous Play and Enjoyment of Playtimes: Evidence from Two Case Study Schools

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S.2.41 Children and families: Taking Risks in Play: Rethinking School Environments for Children's Physical Activity and Wellbeing

Room 7, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: School playtimes provide opportunity for children to engage in active, adventurous play but many schools have policies that act as barriers to this type of play. The Outdoor Play and Learning (OPAL) programme takes a whole-school approach to improve play in schools, including improving diversity of play experience and adventurous play. The purpose of this study was to examine the impact of OPAL on children's play activities, adventurous play and enjoyment of playtime.

Methods: Data were collected at two schools before and after implementation of OPAL (~12 months). We conducted scan observations at playground-level, and focal observations of individual child play during regular playtimes at school. Children aged 7-10 years completed questionnaire measures of their emotions during playtime. All measures were taken from the Multi-dimensional Toolkit for the Assessment of Play in Schools (M-TAPS). Initial analyses used t-tests to examine changes from pre to post on the focal observation data and the questionnaire data.

Results: For schools 1 (S1) and 2 (S2), the scan observation descriptive results showed an increase in the number of children engaged in: play (S1: 84%-95%; S2: 91%-94%); nature play (S1: 3%-4%; S2: 2%-7%); loose parts play (S1: 8%-19%; S2: 0%-7%); and adventurous play (S1: 11%-17%; S2: 16%-22%). These findings were supported by focal observations at both schools which showed a significant increase in adventurous play, (S1: 3%-8%; S2: 10%-17%, $p < .05$), and loose parts play, (S1: 1%-11%; S2: 0%-8%, $p < .05$). Child report showed a significant decrease in negative affect after OPAL at S1, $t(70.53) = 4.24, p < .001, d = -0.89$; but this effect was not significant for S2, $t(310.40) = 1.84, p = 0.07, d = -0.21$.

Conclusion: These two case studies demonstrate that the OPAL programme can increase adventurous, nature and

loose parts play during primary school playtimes. These types of play offer broad benefits to children's physical and emotional development.

S.2.41-3

Parents Perceptions of Independent and Risky Play in Schools: Findings from the British Children's Play Survey

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S.2.41 Children and families: Taking Risks in Play: Rethinking School Environments for Children's Physical Activity and Wellbeing

Room 7, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Play in schools provides opportunities for children to engage in independent, outdoor, and risky play, supporting their health, behaviour, and development. Despite this, schools often report that parental safety concerns limit such opportunities. However, limited quantitative evidence exists on parents' actual beliefs about play in school settings. Using data from the British Children's Play Survey, this study aimed to characterise parents' perceptions of play in schools and examine the extent to which these perceptions are explained by socio-demographic and geographic factors, as well as parents' attitudes towards risk in play and protection from injury.

Methods: Data were drawn from the British Children's Play Survey, a nationally representative sample of 1,919 parents (54% female) of children aged 5–11 years living in Britain. Parents completed measures assessing perceptions of the importance of school playtime, attitudes towards outdoor play spaces, beliefs about appropriate levels of independence and risk, and attitudes towards engagement with risk and protection from injury. Ordinal regression models examined whether socio-demographic, geographic, and attitudinal factors explained variability in parents' beliefs.

Results: Overall, parents expressed strong support for school playtime and the provision of outdoor play space, viewing it as a vital part of the school day. Most parents endorsed the value of independence and some level of risk during play. However, 16% felt no risk was acceptable, while 22% were highly supportive of risky play. Variability in beliefs was partly explained by socio-demographic and attitudinal factors: parents who were younger, male, from minority ethnic groups, had a disability, or lower education levels were less supportive of risk and play in schools.

Conclusion: Findings indicate that, contrary to schools' perceptions, most parents value children's independent and risky play. Schools can therefore be reassured about parental support for enriching play environments. However, interventions promoting risky play should include parent-focused components to address lingering concerns, particularly among groups less supportive of risk. Risk-reframing approaches and the engagement of supportive "parent champions" may enhance communication and help schools implement balanced, developmentally beneficial play policies.

S.2.43-1

Use of Nutrition Incentives to Promote Diet Quality among Families Participating in the Supplemental Nutrition Assistance Program (SNAP): A Case Study from the United States

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S.2.43 Policies and environments: Contrasting Approaches to Food and Nutrition Security: Targeted Nutrition Incentives vs. Universal Food Aid Reform

Room 9, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: Anticipated changes to the US the social safety net are likely to adversely impact low-income families, making it relevant to consider what improvements could improve diet-related health outcomes. In 2024, RI implemented

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the first statewide nutrition incentive program providing \$0.50 for every \$1 worth of fresh produce purchased at participating retailers. The What's on Your Plate (WOYP) and WOYP-Kids studies have longitudinally compared changes in fruit and vegetable (FV) consumption among participants over the short (6-8 mo) and longer (~1 year) term. Drawing on a body of research from this evaluation, this presentation will discuss the pros and cons of targeted programs like FV incentives to address food and nutrition insecurity, considering factors such as effectiveness (i.e., ability to improve diet quality and reduce food/nutrition insecurity) and sustainability (i.e., cost of the program and long-term funding models).

Methods: WOYP and WOYP-kids are mixed methods longitudinal pre-post studies among 725 adults (364 in Rhode Island and 361 in Connecticut) with complete data from online surveys at baseline and follow-up 1. Difference-in-difference analysis evaluated changes in FV intake between Rhode Island (intervention) and Connecticut (comparison). Implementation data was collected via in-depth interviews with implementation partners and advocates and via de-identified purchasing records from all participating households.

Results: Short-term, there was a non-significant increase in FV intake, that was only significantly greater among adults with higher baseline FV intake. No changes were observed in self-reported food and nutrition insecurity. Among children, FV frequency remained unchanged. Qualitative interviews revealed some challenges with coordinated implementation, limited community involvement, and poor program awareness and participation. Open-ended responses that queried participant's experiences following the termination of emergency allotments (loss of ~\$95/mo) revealed a rapid unraveling of food security, material hardship, and a deep sense of instability.

Conclusion: The WOYP and WOYP-Kids revealed limited effectiveness of FV incentives. While this may be reason to consider alternative approaches to improve nutrition security, other contextual factors may have contributed to the modest findings including low utilization, loss of emergency allotments and other social programs, and insufficient total SNAP incentives.

S.2.43-2

Evaluating the Nutritional Adequacy of Food Aid through a Multidimensional Lens

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S.2.43 Policies and environments: Contrasting Approaches to Food and Nutrition Security: Targeted Nutrition Incentives vs. Universal Food Aid Reform
Room 9, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: This study assesses the impact of a public-community food aid program in Barcelona using a multidimensional framework of food insecurity. The research is part of the FOOD4GOOD project, which aims to understand food insecurity through a systemic, rights-based, and person-centered lens. This contribution presents findings for three of the six dimensions defined by the HLPE framework—availability, economic access, and utilization—based on an analysis of the food distributed through the program. By operationalizing specific indicators, the study offers an innovative approach to evaluating the quality, accessibility, and nutritional contribution of food aid interventions.

Methods: FOOD4GOOD employs a mixed-methods design. For the analysis of availability, economic access, and utilization, a descriptive quantitative approach was used, drawing on data collected during the last quarter of 2024. The study examined food parcels and prepared meals distributed across three sites, focusing on four indicators: the quantity and diversity of foods offered measured through the Global Dietary Recommendation Index and the degree of processing through the NOVA classification (availability), the economic savings they represent compared to the monthly cost of a healthy diet (economic access), and the nutritional adequacy based on dietary reference intakes (utilization). Nutritional analysis and food categorization were conducted to assess alignment with dietary guidelines and overall food quality.

Results: Food parcels scored between 8-15 out of 17 on GDRI, indicating a medium-to-high alignment with healthy eating guidelines. The average NOVA 1/4 ratio was 0.52, reflecting a significant presence of ultra-processed foods in some distributions. Estimated economic savings ranged from 17-115% of the monthly cost of a healthy diet, with parcels offering greater value than prepared meals. Nutritional analysis showed energy coverage ranging from 73-178% of DRI, with adequate levels of iron, vitamins A, C, and B12, but recurring deficits in calcium, vitamin D, and protein.

Conclusion: Applying a multidimensional framework enables a more precise evaluation of food aid effectiveness. The findings show efforts to improve the availability, economic access, and utilization of healthy foods, though challenges remain regarding nutritional quality and food processing. This evidence provides concrete tools for designing public policies that promote more dignified, sustainable, and rights-based approaches to food assistance.

S.2.44-2

Navigating Multi-country, Multi-disciplinary Co-design with Families, Adolescents and Healthcare Practitioners: The SmartCHANGE Project

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S.2.44 E- & mHealth: The latest insights in the development and implementation of e-health applications for health promotion in children and adolescents – the SmartCHANGE project,
Multipurpose Room, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: The SmartCHANGE project aims to improve lifestyle behaviors among children and adolescents, as for instance only 19% of European 11-17 meet physical activity requirements. E- and m-health interventions present a promising solution, though existing interventions are often insufficiently tailored to the needs of these end-user groups. This study evaluates facilitators' experiences in applying a co-design approach aimed at developing solutions to improve children and adolescents' lifestyle behaviors, in collaboration with three different stakeholder groups in four different countries.

Methods: The co-design protocol included a theoretical framework, a table summarizing actionable goals and suggested activities to achieve them, a timeline comparing suggested session number per stakeholder group with design deadlines, and a practical protocol describing potential sessions. This protocol was applied in an adaptive and flexible manner at each study site to fit local needs, resulting in a different number of sessions and different activities at each site. Facilitators completed detailed log books and reflection forms. Two researchers and one designer worked through the logbooks of all study sites to identify challenges and best practices. These were discussed in two alignment meetings, after which a member-check was conducted with the facilitators at each study site.

Results: Challenges were specific to local study sites and centered primarily on recruitment and motivation, for instance fitting the sessions into the busy schedules of healthcare practitioners and engaging families in Portugal in particular. Other challenges included the need to both tailor the process to local needs and produce results for designers to create unified solutions. Numerous best practices were also identified in three areas: adaptability (e.g. Choosing the time and space to suit participants); session structure (e.g. including warm-ups and relaxation); and engagement (e.g. Aligning with participant interests where possible).

Conclusion: Through the flexible co-design approach we were able to identify key factors of importance to each of our stakeholder groups. However, contextual differences are significant and present a challenge to efforts at producing cross-border solutions. Future studies may consider more layered approaches that begin with a more open-ended approach to the format and focus of interventions.

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SmartCHANGE Methodology: Developing mHealth Applications

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S.2.44 E- & mHealth: The latest insights in the development and implementation of e-health applications for health promotion in children and adolescents – the SmartCHANGE project,
Multipurpose Room, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: The purpose of the SmartCHANGE project is to develop and validate innovative, personalized e- and mHealth solutions for Non-Communicable Disease (NCD) risk prediction and prevention. This research addresses

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the challenge of integrating complex, multi-domain lifespan data (lifestyle, physical fitness, biomarkers) for accurate NCD risk prediction while strictly safeguarding data privacy. The innovation lies in the early age risk prediction, and creation of unified, Trustworthy and Explainable Artificial Intelligence (XAI) risk models using Federated Learning (FL).

Methods: This is a proof-of-concept study using Participatory Design within an agile methodology to create the solutions: healthcare professional (HCP) web app and citizen HappyPlant mobile app with fitness trackers. Unified NCD risk-prediction models are built using Deep Neural Networks trained on 10 harmonized datasets (around 5 million subjects). FL is employed to train models on sensitive local data, ensuring privacy. XAI via counterfactual explanations translates complex risks into actionable insights. The feasibility and efficacy are tested in a non-randomized trial design with a control group (clustered at the HCP level) involving approximately 30 HCPs and 500 participants (250 adolescents, 250 children/parents) across five real-world sites in Europe and Taiwan, assessing global transferability. Continuous compliance with legal and ethical requirements (GDPR, Medical Device framework, AI Act) is ensured throughout the project phases.

Results: The primary results will focus on demonstrating the feasibility, usability, and preliminary efficacy of the SmartCHANGE tools. The analysis will yield: Validation metrics for the FL-trained deep neural network risk models (predictive accuracy and XAI effectiveness), and process results from the Participatory Design. Furthermore, findings from the non-randomized trial will assess uptake, compliance, and preliminary impact on behavioral physical activity metrics and changes in risk factors, comparing intervention and control groups.

Conclusion: The SmartCHANGE project offers a significant contribution to behavioral nutrition and physical activity practice by introducing a scalable, privacy-preserving (FL) and trustworthy (XAI) mHealth system for personalized NCD prevention. Its holistic approach and integration of next-generation AI have the significance of setting a new standard for effective, globally transferable digital health interventions.

S.2.44-3

Feasibility and Usability of AI-based e-and m-Health Tools to Support Healthy Behaviours in Children & Adolescents: Preliminary Findings from SmartCHANGE Study in Diverse European Settings

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S.2.44 E- & mHealth: The latest insights in the development and implementation of e-health applications for health promotion in children and adolescents – the SmartCHANGE project,
Multipurpose Room, May 29, 2026, 5:00 PM - 6:00 PM

Purpose: The **SmartCHANGE project** aims to promote healthy lifestyles and reduce the long-term risk of non-communicable diseases in youth by integrating artificial intelligence (AI) into e- and m-health interventions. This study assessed the **feasibility and usability** of the SmartCHANGE tools, the **Web App** for healthcare professionals (HCPs) and the **HappyPlant Mobile App** for children, adolescents, and families across four culturally distinct European contexts: Portugal, the Netherlands, Finland, and Slovenia.

Methods: A non-randomised feasibility design was implemented in Portugal, the Netherlands, Finland, and Slovenia. Participants included approximately 400–500 children/adolescents (6–14 years) and 25–35 HCPs. The Web App supports HCPs in AI-driven risk identification, behavioural goal-setting, and progress monitoring. It was designed to integrate AI-driven risk estimation with clinical decision support for health promotion. It aggregates lifestyle, biometric, and behavioural data, including physical activity, sleep, and diet, collected from the mobile app and wearable devices. Using explainable AI algorithms, it generates personalised risk scores for metabolic and cardiovascular diseases and visually displays the relative contribution of key behavioural factors (e.g., low physical activity, inadequate sleep). The HappyPlant App utilises gamification and family engagement to promote improvements in physical activity, diet, sleep, and screen time. Feasibility outcomes included recruitment, adherence, and integration into existing care workflows; usability was assessed through user surveys and focus groups.

Results: Initial feedback from participants suggests acceptability across all sites. Families reported strong motivation through gamified elements and personalised goals. HCPs valued the clarity and structure of the Web App but

highlighted the importance of tailored training to integrate AI outputs into counselling. Cross-country implementation was achieved through minor cultural and linguistic adaptations, particularly in relation to physical activity types and contexts.

Conclusion: The SmartCHANGE digital tools demonstrate promising feasibility and usability in diverse European settings, supporting the integration of **AI-assisted, behaviourally informed e- and m-health solutions** in preventive youth healthcare.

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S.3.45-1

Measuring Interpersonal Determinants of Adolescents' Physical Activity Behaviors in Digital and Social Media: The INDEEP Project

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S.3.45 Children and families: Building on a decade of evidence with the INDEEP project: Standard Instruments for measuring physical activity behaviours and their determinants in European youth

Auditorium, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: To develop and test an instrument for assessing interpersonal determinants of adolescent physical activity (PA) in digital and social media.

Methods: A scoping review was conducted following international guidelines (<https://osf.io/9uqvz/files/d54uv>). Eligible studies included healthy adolescents (10-19 years old) examining interpersonal determinants of PA within digital or social media contexts. Four databases and grey literature sources were searched without restrictions, and data were charted and synthesized descriptively by independent reviewers. The most frequently associated determinants were considered for developing the instrument.

Results: Of 6744 screened records, 22 studies (2009-2024) met the inclusion criteria spanning Europe, North America, Latin America, Asia, and Australia. Digital channels included social media (n=13), digital apps (n=9), messaging (n=7), websites (n=5), and video chat (n=1). PA was either self-reported (n=8), device-measured (n=7), both (n=5), or reported as PA intentions (n=2).

Social support, through in-app interactions (e.g., likes, comments), direct encouragement (e.g., reminders, motivational messages), or joint participation, was the most frequently assessed and positively associated determinant (n=20). Social norms (n=9), social comparison or competition (n=8), role modeling (n=7), social interaction (n=6), data sharing (n=4), and parasocial relatedness with influencers or peers (n=3) were less frequently assessed, often included as implicit behaviors rather than standalone constructs.

Determinants were measured through self-report questionnaires or platform behavior tracking, using heterogeneous, often unvalidated instruments, and inconsistent operational definitions across studies. The results aligned with the Social Cognitive Theory constructs, and most frequently assessed determinants were integrated for a self-administered questionnaire for adolescents. The instrument incorporates 5 items on social support (parental, peer, siblings, and teacher support), 4 on role modelling (parents, friends), 6 on social norms (perceived prevalence, importance, and acceptance of PA), and 2 on digital platform use and social influence on PA.

Conclusion: The newly developed instrument is part of the examination battery in the EU-funded INDEEP project (<https://www.indeep-project.eu/>). The ultimate aim of the INDEEP project is the provision of standardized instruments and operating procedures measuring intra- and interpersonal, biological, social, environmental, and policy factors influencing PA in adolescents. The instruments are being piloted in early 2026, with results expected in time for the congress presentation.

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S.3.45-2

Understanding the Contexts of Adolescents' Physical Activity across Europe: Insights from the INDEEP Project

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S.3.45 Children and families: Building on a decade of evidence with the INDEEP project: Standard Instruments for measuring physical activity behaviours and their determinants in European youth

Auditorium, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: To conduct a systematic review synthesizing studies that use Global Positioning System (GPS), Geographic Information System (GIS), and accelerometry to identify the physical contexts in which adolescents are physically active. Additionally, to design a geo-based Ecological Momentary Assessment (EMA) study to examine these contexts in real life, drawing on findings from the review and complementary evidence.

Methods: A systematic review was conducted following international standards and registered in PROSPERO to identify studies combining GPS, GIS, and accelerometry to objectively assess locations of physical activity (PA) among adolescents. Study screening and quality appraisal were performed using standardized tools, and results were synthesized narratively due to methodological heterogeneity. Based on the review findings, a multi-country study protocol was developed using the *Eco-Emo Tracker*, a smartphone application integrating GPS tracking with EMA surveys tailored to the locations where adolescents are active. Participants will use the app and wear two activity monitors (ActiGraph and SENS) for seven consecutive days. The protocol will be pilot tested in 300 adolescents (aged 12–14 years; 60 per country) from Belgium, the Netherlands, Norway, Portugal, and Germany in early 2026.

Results: Across 35 studies from 12 countries, school and home emerged as primary contributors to adolescents' moderate-to-vigorous PA, with additional activity observed in streets, greenspaces, and sports facilities. The geo-based EMA tool operationalizes these insights by providing an interactive interface that displays GPS-tracked routes linked with contextual information. Participants annotate their locations and trips each evening by answering *Where were you?*, *Were you alone or with others?*, and *What mode of transportation did you use?* Data from the app and activity monitors will be integrated to generate a dynamic representation of time, location, and levels of PA, providing a detailed overview of adolescents' PA behaviours shortly after they occur. At the conference, results from the systematic review and preliminary findings from the INDEEP pilot study will be presented.

Conclusion: Grounded in systematic review evidence, this geo-based EMA tool offers a novel, context-informed approach to understanding adolescent PA across Europe. The findings will inform adaptable, context-specific strategies to promote active lifestyles among adolescents.

S.3.45-3

Accelerometer-based Youth Physical Activity Measurement with Machine Learning: Systematic Review Findings, Validation Cohort Development, and Application to INDEEP

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S.3.45 Children and families: Building on a decade of evidence with the INDEEP project: Standard Instruments for measuring physical activity behaviours and their determinants in European youth

Auditorium, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: To identify opportunities and limitations in applying machine learning (ML) to accelerometer-based physical activity (PA) measurement among children and adolescents through a systematic review and to translate these insights into developing and validating algorithms on an independent, richly labelled cohort, which will be applied to

the INDEEP and general youth datasets.

Methods: A comprehensive literature search was conducted, targeting studies using supervised ML for accelerometer-based PA measurement in 5-19-year-old children and adolescents. Data extraction covered participant characteristics, accelerometer configurations, study settings, preprocessing approaches, ML architectures, validation strategies, and performance metrics. A validation protocol was designed based on the findings from the systematic review to address critical gaps.

Results: Among the 31 studies identified, most used structured protocols, and few had freelifing evaluations. Common accelerometer placements were hip/waist and wrist, and random forests and artificial neural networks were the predominant models. There were 3 to 10 classes in PA type and intensity classification algorithms, among which most accuracies exceeded 70%. For energy expenditure prediction algorithms, the root mean square error (RMSE) typically ranged from 1.2 to 2.0 METs. Few studies tested models on fully independent cohorts, highlighting generalisability gaps. To address these gaps, the planned validation will span structured, semistructured, and freelifing phases, thereby increasing ecological validity. The first two phases will be performed under indirect calorimetry and direct researcher observation for ground truth, while the freelifing phase will last one day with at least 10 hours of continuous downward-facing video for groundtruth labelling. In addition, the validation will be conducted in both Ireland and Norway to support external validation. The bestperforming model will then be applied to the INDEEP and potentially other youth accelerometry datasets to enable harmonised PA assessment at scale.

Conclusion: ML-based accelerometry in youth shows strong technical promise but remains limited by protocol heterogeneity and a lack of free-living validation. The subsequent validation study will address these gaps and provide accurate and transferable PA measurement, which aligns with INDEEP's mission to deliver harmonised, scalable, and context-sensitive European evidence to support frameworks and tools that help adolescents meet WHO PA recommendations.

S.3.46-1

How Park Characteristics and Urban Contexts Are Associated with Visitor Profiles and Activity Levels: Insights from Parks in Cuenca, an Andean City of Ecuador

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S.3.46 Policies and environments: Public green spaces as health-promoting environments across continents: integrating observational evidence, lived experiences and methodological innovation

Room 1, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Public parks play a vital role in promoting physical activity (PA), social interaction, and well-being, yet little is known about how park use varies across urban and peri-urban contexts in low- and middle-income countries (LMICs), where disparities in infrastructure and accessibility may shape health inequities. This study aimed (1) to describe park characteristics, the number of park users, visitor profiles, and park-based PA, and (2) to examine how time-related factors were associated with visitor numbers and activity levels, analyzed separately for urban and peri-urban parks.

Methods: A cross-sectional study was conducted in 20 parks in Cuenca. Urban parks (n = 12) were selected proportionally by size, and all peri-urban parks in Cuenca (n = 8) were included. Park characteristics were assessed using the EAPRS tool, and in a subsample of 10 parks (selected based on visitation and perceived safety), visitor profiles and PA levels were observed using SOPARC. Observations were conducted over seven consecutive days across morning, noon, afternoon, and evening periods. Analyses included descriptive statistics (aim 1) and multilevel mixed-effects models stratified by urban and peri-urban location (aim 2).

Results: Users were predominantly male and adults, and sedentary behavior was the most common activity. In urban parks, visitor numbers and sedentary users were higher on weekend days than on weekdays, and reached their highest levels in the evening (total: $\beta = 4.256$, $p < 0.001$; sedentary: $\beta = 3.015$, $p < 0.001$), followed by the afternoon (total: $\beta = 3.882$, $p < 0.001$; sedentary: $\beta = 2.921$, $p < 0.001$) and midday (total: $\beta = 1.204$, $p < 0.05$; sedentary: $\beta = 1.272$, $p < 0.001$). In peri-urban parks, visitor numbers and sedentary users were higher on weekends, and a significant increase in overall visitors was observed only in the evening ($\beta = 1.063$, $p < 0.05$).

Conclusion: Findings reveal context-specific patterns in park use and sedentary behavior, highlighting the need to

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promote more active engagement in these settings. These insights can inform future interventions and policies aimed at creating public park environments that better support active behaviors.

S.3.46-2

Designing Urban Green Spaces for Active Ageing: Perspectives from Older Adults in Indian Megacities

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S.3.46 Policies and environments: Public green spaces as health-promoting environments across continents: integrating observational evidence, lived experiences and methodological innovation

Room 1, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Urban green spaces (UGS) are increasingly recognised as vital for promoting physical activity, social engagement, and mental well-being among older adults. In rapidly urbanizing countries like India, where the ageing population is growing, understanding how UGS influences the health of older adults is crucial. This study explores the perceptions and experiences of older adults regarding UGS in two Indian megacities.

Methods: A qualitative study was conducted in Mumbai and Bengaluru to capture in-depth insights from older adults. Semi-structured interviews (n=60) were conducted with participants aged 60 and above from diverse socio-economic neighborhoods. Thematic analysis was used to identify key patterns and themes related to accessibility, usability, safety, and the contribution of UGS to physical and social well-being.

Results: Older adults valued well-maintained UGS featuring shaded walking paths, seating, and open areas for exercise and social interaction. Such spaces facilitated regular physical activity, reduced social isolation, and fostered community engagement. Conversely, poor pedestrian infrastructure, safety concerns, and limited amenities in low-income neighborhoods restricted UGS use. Participants highlighted the need for inclusive design, culturally appropriate programming, and active community involvement in planning and maintaining UGS to ensure they meet the needs of older adults.

Conclusion: UGS are vital infrastructure for supporting active ageing in Indian megacities. Urban planning and policy should prioritize the development of accessible, safe, and inclusive green spaces tailored to older adults' needs. Equitable resource allocation and community participation are critical to maximizing the health and social benefits of UGS, ensuring all older adults—regardless of socio-economic status—can access spaces that support physical activity, social connection, and overall well-being.

S.3.46-3

A Virtual Walk in the Park: Opportunities and Challenges of Virtual Reality in Public Health Research with Older Adults

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S.3.46 Policies and environments: Public green spaces as health-promoting environments across continents: integrating observational evidence, lived experiences and methodological innovation

Room 1, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Parks are vital for promoting healthy ageing, yet their renewal involves significant time, cost, and irreversible changes. Virtual reality (VR) offers a promising tool to evaluate design options prior to the implementation of environmental changes. This study examined the feasibility and engagement of VR as a participatory method to use with older adults from low-income neighbourhoods.

Methods: A qualitative study was conducted with 16 older adults from low-income neighbourhoods in Ghent, Belgium. Participants walked through two virtual designs of an urban park using an omnidirectional VR treadmill. The "Think Aloud" method was used to capture participants' real-time reflections during the VR walk. Additionally,

paper-based questionnaires on demographics, VR sickness, and VR presence were administered and subsequently orally discussed in more detail with each participant. Descriptive statistics were analysed in IBM SPSS, and qualitative data were transcribed verbatim and analysed using inductive qualitative content analysis in MAXQDA.

Results: Participants had a mean age of 72 years (SD=5.91); most were female, had low educational attainment, and reported (very) good perceived physical, mental, and social health. On average, participants spent 22 minutes and 33 seconds (SD=11.70 minutes; min=5.08 minutes; max=45.45 minutes) walking in the VR environments. However, 50% of the participants experienced moderate to severe motion sickness. Walking on the omnidirectional treadmill was perceived as unnatural and tiring by participants. However, participants also indicated that the VR images were realistic and immersive, that they enjoyed the experiment and that they considered VR a more effective tool for visualising environmental changes compared to traditional formats such as floor plans, 2D images, or 3D maquettes.

Conclusion: Although VR is promising as a pre-implementation evaluation method for urban design in public health research, future studies should consider alternative VR setups to enhance comfort and accessibility for older adults, and to prevent motion sickness and physical strain.

S.3.47-1

Why Do We Sit so Much? A Sensor-triggered Event-based Ecological Momentary Assessment Study of Habit and Reward during Prolonged Sedentary Behavior in Older Adults

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S.3.47 Cancer prevention and management: Beyond intention: capturing automatic processes in physical activity and sedentary behavior through innovative methods

Room 2, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Sedentary behavior (SB) poses significant physical and mental health risks, particularly for older adults who spend much of their day sitting. Despite awareness of these risks, SB remains high, suggesting that automatic rather than reflective processes drive this behavior. While reflective processes have been widely studied, automatic processes—including habits and reward-driven behavior—are rarely examined. This study aimed to examine how habit strength and reward value contribute to SB in daily life, and assessed automatic and reflective motivation of prolonged SB.

Methods: We conducted a 14-day intensive longitudinal study with 105 older adults. Participants wore a Fitbit, an ActivPAL, and used a smartphone ecological momentary assessment (EMA) app. Event-based EMA questionnaires were triggered after 30 consecutive minutes of SB, up to six times per day, assessing activity type, perceived reward, and habit strength. At the end of the study, participants self-reported automatic and reflective motivation toward prolonged SB. Descriptive statistics characterized prolonged bouts, linear mixed models tested reward-habit associations, and structural equation modeling identified key determinants.

Results: Prolonged sedentary activities were generally perceived as rewarding ($M = 9.55$, $SD = 1.6$; scale 0–18), with social interactions ($M = 10.8$, $SD = 1.1$) and job-related tasks ($M = 10.3$, $SD = 1.9$) rated as most rewarding. Habit strength for sedentary behavior was relatively high ($M = 5.6$, $SD = 0.7$; scale 1–7). Higher perceived reward was associated with stronger habits ($B = 0.01$, $p = 0.01$). Structural equation modeling further showed that automatic motivation was positively related to prolonged sedentary behavior ($B = 0.30$, $p < 0.01$), whereas reflective motivation was not ($B = 0.13$, $p = 0.23$).

Conclusion: Combining innovative sensor-triggered EMA with self-reported measures of automatic motivation enabled the capture of real-world processes underlying sedentary behavior. Among older adults, prolonged SB appears primarily driven by automatic, reward-based processes, resulting in strong and resistant habits. Interventions should therefore focus on disrupting automatic cues and promoting value-based alternatives that retain the rewarding aspects of sedentary activities while encouraging regular interruptions.

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S.3.47-2

Feeling Movement Differently? A Multimodal Exploration of Affective Responses during Physical Activity in Young Adults with and without Intellectual Disabilities

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S.3.47 Cancer prevention and management: Beyond intention: capturing automatic processes in physical activity and sedentary behavior through innovative methods

Room 2, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Dual-process theories propose that behavior stems from the interplay of two systems: a fast, automatic, emotion-based (affective) system and a slower, deliberate, reasoning-based (cognitive) system. While affective experiences during physical activity (PA) are increasingly recognized as key drivers of PA behavior in the general population, this aspect has received little attention among individuals with intellectual disabilities (ID). The limited evidence shows mixed findings, with some studies suggesting reduced pleasure, underscoring the need to better understand how individuals with ID experience PA. Because affect is an abstract and often difficult-to-express construct—particularly for those with communication challenges—novel methods are needed to capture affective responses more accurately. This study investigates automatic affective responses to PA in young adults with and without ID using a multimodal approach and explores how these responses differ across activity intensities.

Methods: Participants aged 18–30 years—half with ID and half without—will complete a 15-minute cycling protocol on a cycle ergometer in a controlled laboratory setting, consisting of three 5-minute phases (light, moderate, and high intensity). Intensity will be individually calibrated using the heart rate reserve method to ensure comparable physiological load. Affective responses will be assessed through a multimodal approach combining:

- (1) electroencephalography (EEG) to measure neural correlates of affect;
- (2) AI-based facial expression analysis to detect real-time affective cues via a smartphone camera; and
- (3) self-reported affect using the Feeling Scale.

A semi-structured interview will follow to contextualize and enrich participants' experiences.

Results: This exploratory study will provide insights into how individuals with ID experience PA at different intensities and whether these affective patterns diverge from those of peers without ID. We hypothesize that affective responses will be comparable at low intensity but increasingly distinct at higher intensities, where greater demands on emotion regulation and attentional control may challenge individuals with ID. Data collection will commence in December 2025, with preliminary results showcased during the symposium. Results from the ongoing facial expression validation at FIU will also be presented.

Conclusion: The focus will be on how automatic affective responses are captured using a multimodal, minimally intrusive approach, advancing inclusive methods for understanding affective responses during PA.

S.3.48-1

Improve Equity: Using Participatory Methods to Cocreate Policy Solutions that Reduce Obesity-related Health Inequity in Vulnerable Neighborhoods

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S.3.48 Participatory Research in Health Promotion: Participatory approaches in health equity: insights from three European projects under the scope of ERA4Health partnership-Health Equity

Room 3, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: This study examined how citizens from vulnerable (low-socioeconomic) neighborhoods can be directly involved in local policy planning to reduce obesity-related health inequities. The main research question is: Can participatory cocreation strategies effectively inform systemic policy interventions across diverse European contexts? The innovative aspect of this study is the integration of citizen-driven cocreation with advanced participatory modeling methods to design, prioritize, and tailor multilevel policy interventions to the local context.

Methods: Vulnerable neighborhoods were selected as living labs in five European countries (Netherlands, Germany, Poland, Spain, Turkey). To facilitate active citizen involvement, we established stakeholder communities (50% citizens, 25% local professionals, and 25% policymakers) and developed a three-phase cocreation workshop approach with participatory methods (i.e., the Improve Equity Approach). First, we used asset mapping to identify community strengths (e.g., people, services, physical places) and create visual maps of local assets and gaps. Second, we used system modeling to develop a model of multilevel factors contributing to obesity and integrated the local input (phase 1) to enable the generation of tailored interventions. Finally, we used digital (twin) simulation modeling to prioritize interventions (phase 2) through visualizations and simulations of their potential impact. The participation process in all workshops was evaluated (i.e., process evaluation).

Results: Communities were established in all countries and are in different stages of implementation. Some living labs had initial difficulties with recruiting citizens. Intermediate reports across living labs indicate high citizen engagement and a positive, productive atmosphere. Participants felt respected and motivated. Workshop goals were rated as very clear and methods used were positively evaluated. Overall, participants—specifically citizens and professionals—valued being included in policy intervention development through small-group discussions. However, perceived potential impact on neighborhood improvement was mixed (range: neutral to strongly agree). Full results, including cross-country differences, are presented at the symposium.

Conclusion: The Improve Equity Approach demonstrated feasibility and acceptability of participatory, systemic policy intervention cocreation in vulnerable neighborhoods. It combines citizen input with advanced modeling tools to offer an innovative framework for addressing obesity-related health inequities. Intermediate reports suggest the approach can support obesity-related equity improvement in vulnerable neighborhood through cocreation, although sustaining citizen engagement remains challenging.

S.3.48-2

Insights in Mechanisms Driving Outdoor in Children: A Multi-country Perspective

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S.3.48 Participatory Research in Health Promotion: Participatory approaches in health equity: insights from three European projects under the scope of ERA4Health partnership-Health Equity

Room 3, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Globally, an increasing number of children does not meet current guidelines for physical activity. In the B-Challenged project, actions are co-created together with children themselves and a network of adult actors to improve outdoor play. In this presentation, a comparison of mechanisms driving outdoor play and co-created action ideas amongst the participating countries in the project will be discussed.

Methods: In five European countries (Denmark, Germany, Poland, The Netherlands, and Spain), facilitators organized participatory sessions with action teams of children aged 9-12 years and adult actors. The number of participants ranges from 21 children in Germany to 54 children and 15 adults in Denmark. In several countries, the recruitment of adult actors is still ongoing. In the first phase, action teams and adult actors engaged in storytelling activities identifying what outdoor play activities children engage in and why, and what potential barriers to outdoor play are. Based on this, researchers identified mechanisms driving outdoor play, visualised in Causal Loop Diagrams (CLDs). In the next phase, action teams selected points for change (i.e., leverage points) and brainstormed actions that could make a big difference to a lot of children. To maximize impact, facilitators prompted the action teams to think about actions at different system levels, based on the Action Scales Model.

Results: The CLDs showing mechanisms driving outdoor play are compared, showing the overlap and differences in the mechanisms driving these behaviours in various European contexts. Preliminary results from the Danish and Dutch context show that social connectedness (i.e., having friends to play with) is an important driver for outdoor play in both The Netherlands and Denmark, whereas homework was only mentioned as a barrier to outdoor play in the

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Dutch context. Similarly, action ideas are compared amongst each other.

Conclusion: This presentation discusses the mechanisms driving outdoor play from a multi-country perspective. Comparing the CLDs from each local context and the subsequently developed action ideas will show which mechanisms and action ideas are relevant in a larger European context, and which mechanisms and actions apply to the specific local contexts.

S.3.48-3

Challenges in Applying Participatory Action Research with Adolescents in Schools – The Connection Project

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S.3.48 Participatory Research in Health Promotion: Participatory approaches in health equity: insights from three European projects under the scope of ERA4Health partnership-Health Equity

Room 3, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: The CONNECTION project aims to promote health equity by improving dietary habits and physical activity (PA) among adolescents living in socioeconomically disadvantaged contexts through co-created interventions. This study focuses on the Portuguese experience, examining methodological challenges and opportunities in applying Participatory Action Research (PAR) with adolescents in the school context. The innovative aspect lies in adapting PAR principles to engage young people as co-researchers and co-designers of health-promoting interventions, while addressing ethical, practical, and contextual constraints inherent to these environments.

Methods: In the Porto metropolitan area, a Participatory Action Research (PAR) approach was implemented with three Action Teams across two public schools from disadvantage areas (addressing diet and PA), among adolescents aged 12–17 years old (n ≈ 60). Across seven participatory sessions, data were generated by youth through *mapping*, *photovoice*, and *storyboard* activities, complemented by 25 interviews and one focus group with teachers, school staff, caregivers, and municipal representatives. The process emphasized co-creation, reflection, and joint decision-making. A grounded theory-informed thematic analysis identified methodological and relational challenges during implementation.

Results: Key challenges included managing time within sessions, sustaining adolescents' motivation, and balancing autonomy with structure. Institutional barriers, such as limited time, staff availability, and turnover also hindered continuity. Differences between the two schools reflected variations in stakeholder engagement, as higher involvement facilitated collaborative discussion and refinement of strategies, while lower engagement constrained co-creation and feasibility. Stakeholders' motivation, availability, and capacity influence which actions can be realistically implemented. Ensuring that results led to concrete changes and keeping adolescents engaged across sessions were additional barriers. Despite these difficulties, the process strengthened trust, dialogue, and ownership among adolescents and adult stakeholders.

Conclusion: Applying PAR in schools proved demanding yet transformative. Success required strong institutional commitment, flexible facilitation, and adequate time for real impact. While engagement and sustainability remain challenging, findings show that adolescents can meaningfully shape health-promoting interventions. Lessons learned advance participatory approaches in behavioral diet and physical activity research, underscoring both the value and complexity of empowering youth in vulnerable conditions as active change agents.

S.3.49-1**Maintaining Early Childhood Education Settings as Screen-free Zones: Exploring the Impact of Screen Use on Early Childhood Mental Health****S. Phillips¹**¹*Western University, London, Ontario, Canada***S.3.49 Implementation and scalability: Are Screens Enhancing or Hindering Positive Movement and Nutrition Behaviours in Early Childcare Environments?****Room 4, May 30, 2026, 8:00 AM - 9:00 AM**

Purpose: Early childhood is a formative period of development where key health behaviours and habits are established. Increasing evidence links screen use to mental health indicators throughout childhood, which has garnered increasing attention from researchers, educators, parents, and healthcare professionals. This presentation will explore screen use and other sedentary behaviours on a range of early life mental health indicators.

Methods: A systematic review was conducted to examine associations between screen use and other sedentary behaviours on a range of early life mental health indicators. This review distinguished between screen use/engagement and other sedentary behaviour to explore their distinct effects on mental health indicators of young children.

Results: Findings indicate that the use of screens during early childhood is associated with poorer mental health indicators. While some contexts or reasons for screen use may be less harmful, this research does not support screen use in early childhood education settings. This work also highlights that sedentary time and other sedentary activities may have varying associations with early childhood mental health indicators, emphasising the importance of evaluating these behaviours independently in the context of early childhood education.

Conclusion: Limiting screen use in early childhood may be an advantageous method to prevent adverse mental health outcomes. Keeping early childhood education settings as screen-free zones may help reduce the risk of harm of screen use on young children's health. These settings offer an ideal health promoting space for young children, including prioritisation of other sedentary behaviour activities associated with positive health outcomes, play, physical activity, and socialisation with peers and educators. This presentation will emphasise the importance of maintaining early childhood education environments as screen-free spaces, to support the health and wellbeing of young children from the earliest years.

S.3.49-2**Empowering Healthy Habits: In Favour of Screens to Promote Positive Movement and Nutrition Behaviours for Young Children****G. Thomas¹**¹*The University of Queensland, Health and Wellbeing Centre for Research Innovation, Brisbane, Australia***S.3.49 Implementation and scalability: Are Screens Enhancing or Hindering Positive Movement and Nutrition Behaviours in Early Childcare Environments?****Room 4, May 30, 2026, 8:00 AM - 9:00 AM**

Purpose: Screens are a prominent part of children's lives, and their role in early education is evolving. Often seen as sources of sedentary behaviour, screens can also engage young children in movement and nutrition education. Interactive apps, videos, and digital games can teach physical activity skills, promote active play, and enhance understanding of healthy eating. By using screens strategically, educators can leverage their appeal to motivate children to move more and make better food choices. This presentation will explore how screens can be integrated into early childcare settings to support positive movement behaviours and healthy eating habits.

Methods: A rapid review was conducted to examine existing research on the use of screens in early learning settings, focusing on studies that evaluated screen-based interventions aimed at promoting physical activity and healthy eating. Additionally, original data from pilot programs utilizing app-based and interactive digital content were reviewed, highlighting how screens can effectively engage children in active learning and movement-based activities.

Results: Findings suggest that screens, when used intentionally and as part of a broader curriculum, can be valuable tools for fostering engagement in physical activity and reinforcing healthy eating habits among young children. Programs incorporating movement-based games, interactive nutrition lessons, and digital storytelling have shown to encourage active play, enhance motor skills, and improve children's understanding of healthy food choices. Moreover,

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screens can serve as educational platforms that introduce variety and novelty, making lessons on physical activity and nutrition more appealing and accessible for young learners. These positive outcomes demonstrate that, with appropriate content and screen time management, digital tools can play a supportive role in promoting healthier behaviours in early childcare settings.

Conclusion: The integration of screens into early childcare environments offers opportunities to innovate how movement and nutrition are taught to young children. By harnessing the interactive and engaging nature of digital technology, early learning programs can complement traditional physical activity and nutrition education. The findings suggest that developing guidelines on effective screen use, which balance educational content with active play, can advance practices in behavioural nutrition and physical activity within early childhood education.

S.3.51-1

Navigating from Theory to Practice: Lessons from Implementing a City Wide Systems Approach to Urban Health in Amsterdam

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S.3.51 Systems Science: From theory to practice: implementing systems approaches to complex health challenges
Room 6, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Implementing systems approaches in public health practice is widely advocated but remains challenging. In Amsterdam, the Netherlands, an city wide systems approach was developed to address complex health challenges, such as obesity, mental health, and substance use, through area-based collaboration. This study explores how the approach was implemented, how professionals experienced the process, and what mechanisms created tensions between the system's ambitions and the realities of practice. The study contributes to understanding why implementing systems approaches is difficult and how system-level change unfolds in institutional contexts not yet designed for it.

Methods: A qualitative process evaluation was conducted using document analysis, semi-structured interviews, participant observation, and Ripple Effect Mapping workshops. An interpretive, iterative thematic analysis identified patterns in how professionals navigated tensions between the theoretical principles of systems thinking and the operational logics of public health organizations.

Results: The systems approach strengthened collaboration between the public health department ("Healthy Living") and district administrations, building new interprofessional connections, shared understanding, and early integrative actions. Yet progress was non-linear and shaped by underlying mechanisms across five domains. Adaptive governance revealed constant negotiation between structure and flexibility, as evolving contexts demanded ongoing role alignment. Institutional silos limited cross-domain collaboration, with thematic programs and fragmented mandates clashing with integrative ambitions. Language and meaning emerged as barriers, the term "systems approach" was perceived as abstract, requiring continuous translation into shared, practical language. The theory-practice gap became visible when conceptual tools (e.g., iceberg model, system maps) inspired insight but proved difficult to operationalize for practitioners seeking concrete action. Finally, temporal tensions reflected the slow pace of systemic change, where relational outcomes, trust, learning, and shared understanding, were vital yet often undervalued.

Conclusion: Implementing a systems approach exposed productive tensions between institutional order and emergent collaboration. These tensions are not failures but essential drivers of change. They prompt reflection, challenge routines, and foster collective learning. Recognizing and working with these tensions, rather than against it, is key to embedding systems thinking in public health and enabling structural, equitable responses to complex urban health challenges.

S.3.51-2

Building, Refining and Applying a Dynamic Theory of Change to Support a Systems-based Evaluation of a Stakeholder-led Intervention in Birmingham, UK

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S.3.51 Systems Science: From theory to practice: implementing systems approaches to complex health challenges
Room 6, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Systems thinking conceptualises interventions as events in complex adaptive systems. Consequently, interventions can be theorised as interacting with adaptive causal mechanisms generating outcomes. This paper reports the development and application of a 'dynamic' theory of change (ToC) to underpin a realist-informed, systems-based evaluation of the health and environmental impacts of a surplus food redistribution hub serving the community food sector.

Methods: The study is part of the Mandala Consortium: a 5-year project exploring the urban food system in Birmingham, UK. Group Model Building techniques were used with 16 stakeholders to develop a causal loop diagram (CLD) visualising the mechanisms sustaining low provision of healthy, fresh food in the community food sector (e.g. food aid). Leverage point identification, action ideation and prioritisation activities informed workshops with stakeholders to co-develop a surplus food redistribution hub located in the city's wholesale market. Using documentation and workshop notes, the sector-wide CLD was systematically converted into a 'dynamic' ToC incorporating feedback loops to theorise: (1) variations in intervention design to permit planned adaptations over time and (2) supporting and limiting influences of the wider system.

The ToC was refined through analysis of realist-informed interviews with stakeholders during intervention implementation. Hypotheses derived from the ToC using context-mechanism-outcome configurations will be tested using qualitative and quantitative data on the recovery of food waste, market traders' attitudes and practices around food redistribution and uptake of redistributed food in the community food sector.

Results: The dynamic ToC included: 22 nodes representing intervention inputs (5), activities (5), outputs (1), short-term (5) and long-term (3) outcomes and moderating influences (3); and 47 directed connections. From these, we identified >20 distinct reinforcing and balancing feedback loops which could support or suppress intervention effectiveness over time.

Challenges in refining and applying the dynamic ToC to inform evaluation included: working with real-world actors reliant on short-term funding to capture intervention adaptations; prioritising hypotheses for evaluation; identifying longitudinal data sources; integrating uncertainty in evaluation planning.

Conclusion: Detailing the steps taken to build, refine and apply a dynamic ToC supports methodological development for systems-based evaluation. Reported challenges illustrate the complexities of evaluating action in complex adaptive systems.

S.3.51-3

The Delivery of a Participatory System Dynamics Approach in Local Obesity Prevention in Amsterdam, the Netherlands: Walking the Broader Path

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S.3.51 Systems Science: From theory to practice: implementing systems approaches to complex health challenges
Room 6, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Increasingly, programs are applying methods rooted in (participatory) system dynamics (SD) to understand and address the root causes of complex public health problems, such as childhood obesity. However, the novelty and intricacy of implementing such approaches has left researchers and professionals 'muddling through' often resulting in a narrow conceptualization and implementation, which is fundamentally at odds with the call for a broader path that truly embraces complexity. This study aimed to reflect and provide further guidance on the process of delivering

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a participatory SD approach by identifying ‘points of friction’ that emerged while trying to ‘walk the broad path’.

Methods: We conducted a qualitative process evaluation of the LIKE project – a participatory SD project for obesity prevention among youth in Amsterdam, the Netherlands. Data was collected from three sources: (1) Ripple Effects Mapping (REM) a qualitative participatory method aimed at identifying intended and unintended consequences of actions, (2) interviews with stakeholders and (3) an impact consensus process. We used inductive and deductive thematic analysis, supplemented with insights from two central LIKE consortium members, to identify recurring themes and categorize them into points of friction.

Results: We identified four central ‘points of friction’: (1) embracing vs. reducing complexity, (2) collaborative and cross-sectoral working vs. working in expertise silos, (3) working adaptively vs. project-based work, and (4) broad and adaptive skillset vs. topical expertise. For each friction we explain what we did, what went well, what did not go well and the resulting friction. For example, despite efforts to work adaptively through flexible budgets and engaging the funders in learning spaces, friction arose from a mismatch between this flexibility and the more static goals of delivering a project within a timeline of 5-years.

Conclusion: Participatory SD approaches are aimed at addressing complex problems. However, friction arises when these approaches run into existing paradigms, structures and ways of working. We provide reflections from real-world experience in trying to ‘walk the broad path’ and weave these into existing theory to propose a practical framework for delivering a participatory SD approach.

S.3.52-1

Improving Food Is Medicine Access and Impacts: Screening and Enrollment Insights from Multiple Research Studies

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S.3.52 Motivation and behavior change: Fitting Food is Medicine to Context: Implementation Lessons from Programs in the U.S. and Israel

Room 7, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Food is Medicine (FiM) programs use a “screen-and-refer” approach within healthcare-community partnerships to address food insecurity (FI), nutrition insecurity (NI), and diet-related disease. Despite global FiM advancements, limited implementation research has examined screening and enrollment. The purpose of this presentation is to describe findings across multiple studies assessing FiM screening and enrollment processes to inform best practices.

Methods: Study 1 is a mixed-methods study including participant interviews (n=35) and surveys (n=1,490) from a national FiM initiative, which included assessment of participant screening experiences and examination of enrollment characteristics. Study 2 is a qualitative investigation of patients’ (n=10) experiences with FI/NI screening items. Study 3 is a qualitative examination of the FI experience of people with intellectual and developmental disabilities (IDD) (n=22) to inform screener development. Study 4 is a qualitative study of FiM implementer interviews (n=15) from another national initiative, which included questions about enrollment and screening. All studies took place in the USA.

Results: In studies 1 & 2, FiM participant interviewees emphasized the need for comfort and trusting relationships with staff conducting the screening. Additionally, Study 2 showed that participants interpreted screening questions about FI (“access to enough food”) differently than NI (“access to healthy food”). Study 3 found that groups experienced FI differently. Participants with IDD described unique aspects of their FI experience, such as sensory/texture needs and cooking struggles, not captured by existing screeners. In Study 4, FiM implementers emphasized careful consideration of enrollment criteria to ensure participants fit well and were motivated to engage. Study 1 also showed that participants in FiM programs with stricter enrollment criteria (diet-related condition + FI) compared to looser criteria (only FI) showed increases in fruit/vegetable intake and decreases in ER visits, hospitalizations, and forgoing medication (all ≥14% improvement, p<0.05).

Conclusion: Findings from these studies augment our understanding of how to screen and enroll participations to maximize FiM access and impacts. Facilitating participant trust and comfort are key overall. Screening questions chosen and tailoring to sub-populations can affect who gets enrolled. Enrollment criteria decisions can also impact participants’ engagement and outcomes.

S.3.52-2

Potential Unintended Consequences of a Fresh-only Produce Prescription Program Policy in the United States

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S.3.52 Motivation and behavior change: Fitting Food is Medicine to Context: Implementation Lessons from Programs in the U.S. and Israel

Room 7, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Policy is a key contextual factor that influences program design and implementation. In the United States (USA), produce prescription programs (PPRs), a type of Food is Medicine (FiM) intervention, engage the healthcare sector to screen eligible patients (low income, diet-related chronic disease risk) and prescribe free/reduced cost fruits and vegetables (FVs). A key federal policy for PPR restricts eligible FVs to fresh. This presentation will describe potential unintended consequences of a fresh-only policy for PPRs.

Methods: The USA 2018 Farm Bill established PPRs under the Gus Schumacher Nutrition Incentive Program (GusNIP) and designated a fresh-only policy. GusNIP also established the Nutrition Incentive Program Training, Technical Assistance, Evaluation, and Information Center (NTAE) for technical assistance and evaluation support. First, key literature on fresh FV accessibility in the USA was reviewed. Second, examples on limitations of a fresh-only policy were sourced from NTAE administrative data. Third, a nationally representative secondary data analysis of the most recent National Household Food Acquisition and Purchase Survey (FoodAPS) was carried out using regression modeling ($\alpha=0.05$) to explore the relationship between PPR eligibility and FV purchasing (fresh, frozen, canned, and dried FVs), including how multi-level factors shape the relationship.

Results: Key literature in the USA shows FV accessibility is influenced by several multi-level factors that limit fresh FV accessibility and utilization among populations with low income. NTAE administrative data found that while GusNIP grantees implementing PPRs can petition for exemptions to the federal fresh-only policy, this process can be burdensome and intimidating. Last, results of the secondary data analysis that classified FoodAPS households as eligible ($n=2,079$) or ineligible ($n=2,288$) for PPR found that while household eligibility for PPR was not related to the amount or variety of FVs purchased, various multi-level factors moderated the relationship. For example, racial/ethnic identity, farmers market access, and geographic location differentially impacted fresh, frozen, and canned FV purchases among PPR eligible households ($p<0.05$).

Conclusion: PPR policies restricting eligible FVs to only fresh may not fit local population needs. Allowing other forms of FVs could better support PPR goals to improve FV purchasing and intake. The US-centric approach could guide PPR decisions in international contexts.

S.3.52-3

From Local Conditions to Universal Principles: Design of a Produce Prescription Trial in Israel to Advance Global Evidence, Implementation, and Policy Learning

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S.3.52 Motivation and behavior change: Fitting Food is Medicine to Context: Implementation Lessons from Programs in the U.S. and Israel

Room 7, May 30, 2026, 8:00 AM - 9:00 AM

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Purpose: Produce Prescription (PPR) programs have become increasingly common in the USA, yet persistent challenges remain before they can become mainstream —how to define eligible patients, finance interventions sustainably, and integrate agriculture–health systems? This Israeli–USA collaboration, aims to address these questions in Israel’s first randomized PPR effectiveness trial. The purpose is twofold:

- (1) test feasibility and effectiveness of PPR in a managed care system with universal health coverage, and
- (2) generate comparative evidence to identify which elements of PPR are universal versus context-specific—to inform optimization of studies everywhere for medical, social, and economic impact.

Methods: The trial will be implemented in Meuhedet HMO diabetes clinics in collaboration with Sheba Medical Center, the Hebrew University of Jerusalem, the Israel Ministry of Health, Leket Israel (national food-rescue organization), and Eshel Chabad, which administers the national food-assistance program. Adults with type 2 diabetes and nutrition insecurity will be randomized to receive a weekly PPR paired with nutrition education or standard care. Outcomes include:

- (1) clinical efficacy
- (2) economic impact; and
- (3) feasibility and implementation.

The design aligns with GusNIP standards in the USA to enable binational comparison, while adapting to the unique Israeli context of universal healthcare, integrated EMR systems, absence of SNAP/WIC, reliance on non-profits for food provision, and diverse dietary and cultural norms.

Results: Complex design considerations will be discussed along with the local Israeli context, highlighting how universal PPR challenges and past USA experience have informed local design to enable international comparison and generalizability. Design components include screening of patients for food insecurity, patient dignity, delivery of produce in the clinical setting, personalizing prescription, patient adherence, integrating governmental, health, welfare and agricultural actors.

Conclusion: This international, multi-stakeholder trial will contribute more than efficacy data; it offers a model for context-sensitive design for PPR implementation—identifying universal principles of “food is medicine” and how they might be adapted to specific health system financing, food supply structure, and cultural eating patterns. This study intends to advance global learning on how PPR can be tailored and scaled to maximize metabolic, social, and economic value.

S.3.53-1

Unhealthy Food Outlets Density around Schools in Ten Cities across Europe: An OBCT Study

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S.3.53 Policies and environments: From Schools to Early Care: Comparative Approaches to Building Healthier Food Environments for Children

Room 8, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Obesogenic food environments around schools promote unhealthy eating behaviors and contribute to childhood obesity. This study aimed to describe the spatial distribution and density of unhealthy food outlets surrounding primary and secondary schools in ten European cities.

Methods: We conducted a descriptive ecological study in Amsterdam, Madrid, Berlin, Budapest, Helsinki, Lisbon, London, Oslo, Vienna, and Warsaw. We used Geographic Information Systems to geolocate all schools (N = 7,338) and unhealthy food outlets (N= 21,640), defined as those selling any unhealthy foods or non-alcoholic drinks for consumption on-site or elsewhere. We obtained data on schools from local administrative datasets, and on unhealthy food outlets from Google Maps, for June 2025. We counted the number of unhealthy food outlets within 5-minute walking distance from schools, representing approximately 400 m street network buffers. We used QGIS and Python for geospatial analyses and RStudio for statistical analyses. We report descriptive results, median and interquartile range (IQR), globally and by city. In addition, we show these results by primary and secondary schools.

Results: Overall, schools in European cities had a median of 4 [IQR = 10] unhealthy food outlets within a 5-minute walking distance from schools. Among the cities, Vienna had the highest density of unhealthy food outlets (median

=11, IQR = 20), followed by Warsaw (median= 10, IQR = 15) and Madrid (median = 9, IQR = 16). In contrast, cities with the least unhealthy school food environments were Helsinki (median = 1, IQR = 3), and Oslo (median= 1, IQR =5). We also observed higher median values for secondary schools, except for London and Lisbon.

Conclusion: The distribution and density of unhealthy food outlets around schools varies between cities, with cities like Vienna, Warsaw and Madrid showing a worrisome high density of such outlets. These findings serve as a starting point for gaining a better understanding of school food environments and, ultimately, for future research and health policy development.

S.3.53-2

School Food Interventions and Child Nutrition in Europe: Insights from a Scoping Review

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S.3.53 Policies and environments: From Schools to Early Care: Comparative Approaches to Building Healthier Food Environments for Children

Room 8, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: School settings are key for promoting healthier diets among youth; however, evidence on the effectiveness of school food interventions in Europe remains fragmented. Our aim was to map and synthesize recent evidence on school food interventions and assess their effects on nutritional outcomes among European youth. In addition, we explored how these interventions addressed equity-related findings.

Methods: Following the PRISMA-ScR guidelines, we conducted a scoping review. We launched our search strategy in PubMed and Scopus and retrieved original articles published between January 2020 and February 2025. Eligible studies included children and adolescents (aged 0–19 years) attending schools in Europe, involved a school food intervention, and assessed a diet- or anthropometric-related outcome. Titles and abstracts, and then full texts, were reviewed independently by two researchers. One researcher completed data extraction of eligible studies organizing findings by intervention type, outcomes, and impact on health equity. We registered the protocol in Open Science Framework (OSF.IO/T8KXV).

Results: Our search strategy yielded 454 articles and our screening process resulted in 26 studies. Most interventions were implemented in the Netherlands (n=7), Italy (n=4), and Poland (n=4). Out of the 16 educational interventions, 12 reported positive effects on dietary behaviors and four on weight-related outcomes. Food provision interventions (n=5), like free healthy school lunches or fruit distribution schemes, also showed positive effects on fruits and vegetable intake and nutritional knowledge. Multicomponent interventions (n=5), such as whole-school approaches, also showed consistent and sustainable positive effects on dietary behaviors and reductions in body mass index. Few studies evaluated the equity-related impact of their interventions.

Conclusion: While school food interventions show consistent positive effects on dietary behaviors, their impact on weight-related outcomes remains inconsistent. We identified persistent gaps in adolescent engagement, equity assessment, and long-term sustainability. Future interventions should promote universal access to healthy, sustainable school meals, prioritize long-term program evaluation and equity monitoring. Strengthening evidence-based, context-sensitive school food interventions is critical to achieving healthier and more equitable diets for all European children.

S.3.53-3

Assessing Farm to Early Care and Education (ECE) as an Innovative Public Health Strategy: Parent Insights on ECE Nutrition and Local Food Access

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S.3.53 Policies and environments: From Schools to Early Care: Comparative Approaches to Building Healthier Food Environments for Children

Room 8, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Many U.S. children ages five and under spend a large part of their day in early care and education (ECE) settings. ECEs can be critical environments for shaping dietary behaviors and promoting health. Farm to ECE programs, which enhance the nutritional quality of meals through local food procurement, provide experiential food and garden-based education, and connect families with local farms and produce, represent an innovative approach to improving child nutrition while supporting community-based food systems. Few studies have rigorously examined parent perceptions, key determinants of program sustainability and home-based behavior change. As part of a larger evaluation, we assessed parent perspectives on Farm to ECE programming, explored potential transfer of nutrition knowledge and behaviors from the classroom to the home, and identified opportunities to enhance family engagement with local food systems.

Methods: Baseline surveys were completed by 312 parents from eight participating ECE centers. Measures included perceptions of center food offerings and nutrition programming, knowledge and use of community food access resources, and demographic characteristics. Descriptive statistics were calculated to summarize parent characteristics and perceptions.

Results: Among respondents, 95% identified as Black or African American, and the majority were single mothers; one-third experienced household food insecurity. Although less than half (47%) of participants were familiar with Farm to ECE programming, parents supported its key activities: most agreed that centers should serve fresh, local fruits and vegetables (90%) and limit prepackaged, processed foods (77%). Most parents supported nutrition education within centers (86%) and believed that exposure to healthier options at ECEs could positively influence how they feed their children at home (81%). Awareness and utilization of local food access resources were low (11%) but the desire to learn more about resources from centers was high (90%).

Conclusion: Findings demonstrate parent support for Farm to ECE programming and its potential to influence home food environments and expand knowledge and use of local food access resources. Strengthening the connections between centers, families, communities through Farm to ECE programming offers a promising approach to improve nutrition and food security among young children and their families and support local food systems.

S.3.54-1

Introducing Resistance Training Into Primary Schools: Co-designing Project SCHOOL

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S.3.54 Participatory Research in Health Promotion: What Is Important to Co-Create an Intervention in School Contexts? Insights of Three Different Co-Creation Process in Europe

Room 9, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Physical inactivity remains a major issue among UK children, with fewer than half meeting recommended activity levels [1]. A “proficiency barrier” in motor skills may limit participation, underpinned by low muscular strength, poor movement competency, and reduced confidence [2,3]. Schools offer ideal settings to address this, yet fewer than 2% of Welsh primary schools use resistance training as a mode of physical activity [4]. This study aimed to co-design a resistance training curriculum for primary schools and assess its feasibility for school delivery.

Methods: A working group was formed including the principal investigator and four primary teachers in South Wales, UK. Key stage 2 children also contributed by sharing preferred activities. The co-design process involved: 1) an online planning meeting; 2) a teacher training and curriculum development day; 3) delivery of a preliminary session; 4) feedback from staff and pupils; and 5) reflection meeting to refine the curriculum. The pilot trial consisted of each teacher delivering the curriculum over four weeks. Feasibility was assessed using four domains (acceptability, implementation, adaptability, and practicality).

Results: Three teachers attended 100% of co-design sessions, with one withdrawing. Following stage 3, teachers suggested delivering sessions in-place of PE, shortening sessions to under 1-hour, and ensuring games were adaptable for space and equipment. Pupils mostly enjoyed the games element of the session (64% ranked as top 2 activities), while challenges were less preferred (44%). Gymnastics were polarising, with 30% rating them as favourite, but 47%

as least favourite. Pupils found movement cards and videos helpful (95% and 83%, respectively) but wanted guidance on exercise progressions. These insights formed curriculum refinements prior to the 4-week delivery.

The curriculum reached 78 pupils and was delivered with high fidelity (>75% of planned sessions delivered) and acceptability (97% reported “good” or “excellent”). Pupils reported perceived improvements in movement skills (61%) and muscular strength (55%), though fewer noted increases in confidence (18%). Teachers observed enhanced enjoyment and motivation compared to normal PE lessons.

Conclusion: Engaging teachers and pupils in curriculum co-design produced a feasible, engaging resistance training programme. A randomised controlled trial is now required to assess its preliminary effectiveness.

S.3.54-2

A Feasibility Study of a Co-creation Approach for Developing Didactic Resources to Promote Active Commuting in Children: The IDEA-Kids Study

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S.3.54 Participatory Research in Health Promotion: What Is Important to Co-Create an Intervention in School Contexts? Insights of Three Different Co-Creation Process in Europe

Room 9, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Active commuting, such as walking and cycling, improves children’s physical activity and well-being. Previous studies suggest that school-based interventions can contribute to changes in commuting behaviours, particularly when led by teachers who interact daily with students. The Spanish’s recent educational legislation supports active commuting objectives. Consequently, this study aimed to evaluate the implementation of a participatory co-creation process involving teachers and students in developing didactic resources to foster active commuting among primary school children.

Methods: At baseline, descriptive data about participants and context were collected to understand the participants and the study setting. Participants were 6 teachers (i.e., generalist, special educational needs specialist, and a School Board member) and 4 students from 5th or 6th grade, selected by convenience from one Andalusian school and ensuring gender balance. The co-creation process included five structured online and on-site workshops over four weeks, using participatory methodologies. Implementation was evaluated through several variables: attendance and engagement, fidelity of delivery, satisfaction, perceived difficulties and enablers, and teachers’ motivation and confidence to use educational materials promoting active commuting. Data were gathered through a process evaluation questionnaire, semi-structured interviews, fidelity checklists, and pre-post teacher evaluation questionnaires.

Results: Attendance and engagement were high, as most participants attended at least four of the five workshops and actively contributed to collaborative tasks. Fidelity of delivery, assessed through fidelity checklists, showed that all workshops were implemented as planned, with only minor scheduling adaptations. Satisfaction with the process was high among participants. Perceived difficulties and enablers mainly related to time management and discussion rotation as barriers, while collaborative learning and teacher-student interaction emerged as enablers. Teachers’ motivation and confidence to apply active commuting content in their teaching increased after the co-creation process. The process produced one didactic resource: the Learning Situation “¿Caminante se hace camino? ¡Únete al camino de San Miguel!”, integrating multiple curricular areas through cooperative, problem-based, and service-learning methodologies.

Conclusion: The co-creation process was feasible and well received. Despite some participant dropout, it fostered meaningful collaboration between teachers and students and demonstrated the potential of participatory approaches to promote active commuting within the school curriculum.

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S.3.54-3

Co-creating a Digital Behavioural Intervention to Improve Youth Well-being: The YEAH! Co-creation Protocol

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S.3.54 Participatory Research in Health Promotion: What Is Important to Co-Create an Intervention in School Contexts? Insights of Three Different Co-Creation Process in Europe

Room 9, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: This study presents an innovative large-scale co-creation protocol to develop a digital behavioural intervention supporting healthier lifestyles among children and adolescents. Embedded within YEAH!, a Horizon Europe project across seven countries, the protocol combines a standardised procedure, which will undergo local co-adaptation, ensuring both comparability and contextual relevance. It involves seven sites, around 100 co-creators, more than 40 co-creation sessions, and five trained facilitation agencies. A parallel randomised controlled trial will assess the co-created intervention's impact.

Methods: The co-creation approach is grounded in empowerment theory and critical realism, structured through the PRODUCES framework and evaluated with the recently published PROSECO evaluative co-creation framework. Co-creation will take place in the United Kingdom, France, the Netherlands, Denmark, Belgium, Greece, and Romania with children (8–10 years), adolescents (14–16 years), and adults (parents, teachers, youth and health professionals). Qualitative data will be generated through participatory activities, transcripts, and facilitator reflections and analysed thematically. Mixed methods will assess process quality, inclusiveness, and behavioural alignment.

Results: Findings will address the standard co-creation protocol designed, the procedure of the local adaptation, include useful and practical co-creation outputs, and describe how co-created content aligns with behavioural outcomes. The evaluation will describe useful, replicable metrics for an in-depth analysis of the co-creation process, including recommendations for quantitative analyses (baseline and post-co-creation measures) and qualitative analysis, presenting easy-to-use templates for researchers and practitioners.

Conclusion: This study provides insights, useful recommendations and practical outputs on how to apply large-scale, structured co-creation to behavioural nutrition and physical activity interventions. By embedding youth and stakeholder input across multiple countries, the protocol aims to support the replication of co-created digital interventions, advancing, this way, evidence-based co-creation practice in behavioural research.

S.3.55-1

Understanding and Optimising the Potential of Meal Kits as an Innovative Strategy to Promote Healthy Eating and Food Literacy

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S.3.55 Socio-economic inequalities: Meal boxes as an innovative strategy to promote healthy and equitable food practices in families: from potential to practice

Multipurpose Room, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Nutrition interventions aim to improve family diet quality, particularly among vulnerable/low-income populations. These vary in approach, delivery format and strategies to support healthy eating and build food literacy (i.e. food-related knowledge, skills and behaviours). Meal kits (i.e. boxes of pre-portioned ingredients and recipes) are emerging as an innovative strategy to support healthy eating within the home environment. However, despite growing interest in meal kits, there is limited understanding of the mechanisms through which they may influence behaviour, or how their potential can be optimised. This research explored how and why commercial Australian meal kit services influence food literacy and identified opportunities for enhancing their behaviour change potential.

Methods: A one-week subscription was purchased for all Australian meal kit services (n=9) to access websites, meal kits and recipe databases. The Behaviour Change Technique Taxonomy (BCTTv1) and Theoretical Domains Framework (TDF) were systematically applied to meal kit content to assess their theoretical potential for promoting food literacy-

related behaviour change. Twenty-five parents of children (2-5 years) were interviewed to explore how families use commercial meal kits. Interview transcripts were coded using inductive thematic analysis then mapped deductively to a food literacy framework to identify if and how food literacy is supported.

Results: Twelve unique behaviour change techniques (BCTs) were identified within the meal kit component (i.e. ingredients and recipes), mapping to nine of the 14 TDF domains and targeting food literacy-related capability, opportunity and motivation. This suggests that the delivery of a meal kit may theoretically support food literacy development, though their impact may be limited without intentional design. Qualitative interviews revealed that commercial meal kits primarily support food literacy domains regarding 'planning and managing' and 'preparing', with less support of 'selecting' and 'eating'. This suggests that families may benefit from tailored support to maximise behaviour change potential of meal kits.

Conclusion: This research provides a theoretical understanding of the potential of meal kits as an innovative strategy to influence food literacy-related behaviours and improve family dietary quality. It offers practical recommendations to optimise the potential of meal kits through intentional design using behaviour change and food literacy frameworks.

S.3.55-2

Meal Boxes as an Innovative Intervention Strategy to Enable Healthy Food Choices and a Healthier Home Food Environment among Low-SES Families

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S.3.55 Socio-economic inequalities: Meal boxes as an innovative strategy to promote healthy and equitable food practices in families: from potential to practice

Multipurpose Room, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Families from a lower socioeconomic status (SES) often face barriers to cooking at home and their **food parenting practices** are less supportive of a healthy lifestyle compared to families with a higher SES. **Meal boxes** have the potential to help overcome barriers (e.g., time scarcity, lack of meal preparation knowledge) to cook at home and eat together. **Yet, in their current format they are not affordable or accessible for low-SES families.**

This study aims **to examine the needs, preferences, and acceptability of meal boxes among low-SES families.** To our knowledge, few studies have investigated their potential for low-SES families.

Methods: **Focus groups** were conducted with **low-SES parents of 6–12-year-olds in Belgium** to explore, for example, preferred meal offer, and willingness to pay for meal boxes. A subsample of these families **tested meal boxes** from different suppliers for one week. Participants ordered the meal box during a **Think Aloud interview**, capturing their decision-making processes and interaction with the interface. A **follow-up individual interview** assessed acceptability of the offer and potential impact on food parenting practices. This **stepwise approach** enabled broader discussions during the focus groups while providing in-depth insights on meal box usage in the individual interviews. All interviews were audiotaped and transcribed. A qualitative thematic analysis was conducted using MAXQDA.

Results: Preliminary results indicate that price is a main barrier for low-SES families to use meal boxes, although some perceived them as financially beneficial by reducing impulsive purchases. Participants appreciated discovering new recipes, and several reported that children became more involved in cooking and were therefore less picky. However, cultural preferences, limited flexibility, and concerns about portion sizes reduced acceptance.

Conclusion: Future strategies should focus on affordability, a diverse offer, and room for alterations. This needs assessment will inform the **co-development of healthy meal boxes** with commercial suppliers to better meet the needs of low-SES families. The adapted meal boxes will be evaluated in an **intervention study** assessing their effectiveness in improving healthy food choices. As such, this research aims to contribute to behavioral nutrition by addressing dietary inequalities and potentially suggesting sustainable strategies to improve health.

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S.3.55-3

Can Recipe-boxes Improve Dietary Quality and Food Agency? Analysis of the Feasibility and Acceptability of a Pilot Randomised Controlled Trial in Households with School-aged Children

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S.3.55 Socio-economic inequalities: Meal boxes as an innovative strategy to promote healthy and equitable food practices in families: from potential to practice

Multipurpose Room, May 30, 2026, 8:00 AM - 9:00 AM

Purpose: Recipe box subscriptions are a promising intervention to improve dietary quality by enabling the preparation of meals at home, which is associated with higher dietary quality. Partnering with a Recipe Box Company, we conducted an unblinded pilot and feasibility randomised waitlist-controlled trial of a discounted recipe box subscription. The subscription is discounted as commercial subscriptions are unaffordable for many. We aimed to test the feasibility and acceptability of the trial design and procedures for participants and researchers.

Methods: We recruited primary food providers in households with school-aged children, in Birmingham, UK, via five channels: social media, schools, employers, community organisations, and referrals from customers of the Company. Upon consenting, participants completed online questionnaires and 24-hour dietary recalls. The intervention consisted of a 6-week recipe box subscription, discounted by 60% in week 1 and 50% in weeks 2 to 6, with the option to continue ordering at a 20% discount in weeks 7-10. Control participants were offered the same intervention 10 weeks post-randomisation. Subsamples of participants from both groups were invited for qualitative interviews at baseline and during weeks 7-9.

Results: We randomised n = 165 participants into intervention (n = 84) or waitlist control (n = 81) groups. Data was collected from n = 128 at 6 weeks and n = 119 at 10 weeks. Data cleaning and preparation are in progress and analysis will be completed by March 2026. We will present findings on the acceptability and feasibility of recruitment methods and enrolment procedures, the recipe box subscription, and allocation to both groups, from mixed methods analyses, including thematic analyses of semi-structured interviews.

Conclusion: This is the first study to evaluate the feasibility and acceptability of a commercial recipe box intervention. This platform offers participants choice and flexibility and could support rapid scale-up. Our findings will inform progression to an effectiveness study, as well as offer the potential for future trials of recipe-box interventions on prescription for key clinical groups (e.g. people living with pre-diabetes or obesity).

S.3.56-1

Food Is the Best Medicine (FBM) for Food-insecure Postpartum Women: Findings from a Multi-arm Randomized Study

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S.3.56 Socio-economic inequalities: Food as Medicine in Maternal Health: Advancing Nutrition Equity Across the Perinatal Continuum

Multipurpose Room, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: For women experiencing food insecurity, the postpartum period after childbirth poses especially significant health challenges, including increased risk of inadequate nutrition, postpartum depression, and lower breastfeeding rates. Food is the Best Medicine (FBM) was developed to alleviate postpartum stress among food-insecure mothers by providing food assistance and behavioral support. The purpose of this presentation is to present results from a randomized controlled trial comparing three versions of the FBM intervention, each providing

8 weeks of home-delivered food boxes containing prepared meals, meal kits, organic produce, and staple foods: (1) FBM-Standard, which provided only the food boxes; (2) FBM-CHW, which included the food boxes plus two home visits from community health workers (CHWs) who assisted families in goal setting, community resources, home cooking, and enrollment in assistance programs; and (3) FBM-Virtual, which included food boxes plus access to a study-created website offering nutrition education, recipes, and community resource information.

Methods: 150 postpartum women were randomly assigned to one of the three intervention arms: FBM-Standard (n=45), FBM-CHW (n=49), and FBM-Virtual (n=56). Data were collected at baseline (T0), and immediately post-intervention (T1). Primary outcomes included food security, fruit and vegetable (F&V) and whole grain consumption, postpartum depression, food preparation practices, and financial stress. Differences in change over time between treatment groups were assessed using regression models with interaction terms between time and treatment group. Linear regression was used for continuous outcomes and logistic regression for binary outcomes. P-value was set at 0.05.

Results: Participants were primarily Hispanic (71%), low income (84% with household income of less than \$25,000), and had limited formal education (37% less than high school). Baseline socio-demographic and outcome data showed no significant differences among the 3 groups, except income level. Results demonstrated significant improvements in food security ($p < .001$) and vegetable and whole grain consumption ($p < 0.05$) from T0 to T1 among all three groups. No significant differences among the three groups were found.

Conclusion: Results indicate that different versions of FBM programs can improve food security and diet quality among food-insecure postpartum women. More research is warranted to determine the most meaningful way of incorporating CHW support into FIM interventions.

S.3.56-2

Randomized Controlled Trial Assessing the Impact of Technology-based Engagement Strategies to Improve Adoption of Medically-tailored Retail Produce Prescriptions

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S.3.56 Socio-economic inequalities: Food as Medicine in Maternal Health: Advancing Nutrition Equity Across the Perinatal Continuum

Multipurpose Room, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Produce Prescription (PRx) are increasingly part of an individual's treatment plan but evidence demonstrates funds for healthy foods are often underutilized. Delays in the first months of the program – especially enrollment, activation, and first transactions effectively reduce program length and potential impact. Fresh Connect, a PRx product of the non-profit organization About Fresh, Inc., consists of a pre-paid, programmable debit card and a cloud-based cardholder success platform. Active cardholders redeemed an average of 65-73% of their \$100-\$120 monthly benefits. It remains unclear the obstacles in the way of higher redemption rates. Our study question was - Does high-touch cardholder engagement, specifically weekly text messaging, increase PRx benefits utilization in Medicaid members with high-risk pregnancy in Houston, TX?

Methods: We randomized 103 study participants 1:1 to receive enhanced engagement communication using text messaging (intervention group) from Fresh Connect or usual care Fresh Connect cardholder engagement. All women receive the \$100/month benefits starting enrollment (<20 weeks gestation) for 3 months to use for purchasing fresh fruits/veg at grocery retail (no roll over). Three constructs were operationalized in the weekly enhanced text messaging - loss aversion, positive reinforcement and endowment framing. The primary outcomes measured include: (1) number of days from enrollment to first shopping transaction, (2) number of shopping transactions per month, (3) prescription dollar spend per month, and (4) proportion of benefits redemption per month. We will assess changes in food security, nutrition security and fruit and vegetable consumption from baseline to 3 months across both study arms.

Results: We have completed enrollment and baseline data collection as of November 2025. Final analysis of the RCT will be complete by March 2026 which will be presented at ISBNPA 2026. At baseline, for the 103 participants, the average age was 30 years, with racial distribution of 31% Black, 43% White and ethnically 56% were Hispanic. Median gestational age was 13 weeks at the time of enrollment. Overall activation rate for the About Fresh card was 72% and

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redemption rate was 92%.

Conclusion: As PRx program designs have matured there are increased opportunities for improved program implementation outcomes which will be demonstrated in our study.

S.3.56-3

Designing Inclusive and User-centered Nutrition Interventions for Gestational Diabetes Prevention

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S.3.56 Socio-economic inequalities: Food as Medicine in Maternal Health: Advancing Nutrition Equity Across the Perinatal Continuum

Multipurpose Room, May 30, 2026, 10:00 AM - 11:00 AM

Purpose: Gestational diabetes mellitus (GDM), the most common medical complication of pregnancy, poses significant risks to maternal and infant health, including hypertensive disorders, cesarean delivery, and long-term development of type 2 diabetes and cardiovascular disease. GDM also has intergenerational consequences, increasing children's risk for macrosomia, metabolic disorders, and diabetes. With GDM prevalence rising, innovative prevention strategies are urgently needed, particularly for populations disproportionately affected, such as women living with lower income in rural communities and racially and ethnically minoritized groups.

Methods: This user-centered design (UCD) pilot study aims to develop a comprehensive protocol for a future large-scale multisite trial, the Medically-tailored nutrition intervention to Achieve Nutrition security and improve Gestational Outcomes (MANGO) study. The target population includes Medicaid-eligible women at-risk for GDM. Exclusion criteria include pre-existing diabetes, hemoglobin A1c ≥ 7 , or current insulin/metformin use. Eligible women are provided a bi-weekly home-delivered Food is Medicine (FIM) box. The content of each box varies but includes a combination of medically tailored groceries (MTG), produce prescriptions (PRx), and nutritious meal kits. Digital nutrition and support from dietitians are available to all participants as desired. Baseline and follow-up questionnaires as well as bi-weekly satisfaction surveys, and qualitative interviews will be used to identify preferred FIM box contents, adherence, usability, perceived effectiveness, cultural appropriateness, program satisfaction, and future opportunities for program improvement.

Results: Three community sites, 1) a safety-net health center serving Hispanic and/or Latino(a) women in Austin, Texas, 2) a safety-net health center serving predominantly African American or Black and white pregnant women in Massachusetts, and 3) a health system in Maine that predominantly serves pregnant women living in rural communities are approved to begin data collection and collection will be completed by March of 2026.

Conclusion: This presentation informs on how UCD design principles can be used to develop patient-centered interventions. The results of this study will be used to design a full-scale RCT for a major funding agency, contributing to the evidence base for scalable, equity-focused nutrition interventions in prenatal care.

ABSTRACT BOOK

POSTER ABSTRACTS

A. AGEING

I-P-A.01

Participation in an Online Nutrition Education Program Did Not Improve Physical Function in Community-dwelling Older Adults

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Purpose: Decline in physical function (PF) is predictive of disability, quality of life, and mortality in older adults. This study investigated the effect of an online nutrition education program on PF in older adults in a clustered randomized controlled trial. The study hypothesis was that the participants in the online nutrition education program had a higher PF level than the participants in the control condition.

Methods: Study participants were community-dwelling adults aged 60+ years enrolled in 14 congregate meals program sites in South Texas, the United States of America (USA). The program sites were randomly assigned to a 6-month online nutrition education intervention or control treatment. The nutrition education program focused on digital literacy and evidence-based nutrition knowledge and practices. Data for this study were collected at the baseline and posttest assessment of the 6-month intervention. PF was assessed by the Short Physical Performance Battery (SPPB) consisted of the chair-stand test, gait speed test, and balance test. Other measures included the Dietary Screener Questionnaire (DSQ), the body mass index (BMI), and a demographic and health history survey. A linear mixed model was used to examine the difference in SPPB total score between the treatment groups at the 6-month posttest, controlling for the nesting effect by the program sites, baseline DSQ score, baseline BMI, and demographic variables.

Results: The participants (n=352, mean age= 72.1 (SD 6.55) were 78% females; 13% Black, 60% Latino; 19% White, 9% others; 48% with ≤high school education; 50% with household income ≤US\$20,000/year. Mean SPPB total score was 7.42 (2.26) with 7.92 (2.17) for males and 7.29 (2.27) for females at baseline. Results of mixed model analysis showed a marginally significant improvement in SPPB total scores over time ($\beta = 0.26$, 95% CI [-0.01, 0.53], $p = 0.059$). There was no significant difference between treatment groups ($\beta = 0.07$, 95% CI [-1.19, 1.33], n.s.), and the interaction between treatment groups and time was not significant ($\beta = -0.08$, 95% CI [-0.48, 0.34], n.s.), suggesting both treatment groups improved.

Conclusion: An evidence-based nutrition education program without environmental and policy modification did not improve PF in older community-dwelling adults.

I-P-A.04

Characterizing 24-hour Movement Behaviors among Low-income Mexican-American Adults with Uncontrolled Type 2 Diabetes: Preliminary Results from the Salud y Vida Accelerometry Study

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Purpose: The purpose of this study was to characterize the baseline 24-hour movement behavior profiles (steps, light physical activity [LPA], moderate physical activity [MPA], vigorous physical activity [VPA], inactivity, and sleep duration) of low-income Mexican-American adults with uncontrolled type 2 diabetes who enrolled in the Salud y Vida intervention to improve HbA1c control. This population is understudied in 24-hour movement behavior research.

Methods: Within this 18-month repeated measure intervention study that examines clinical, behavioral, and multi-omic markers, participants were instructed at baseline to wear an accelerometer (Axivity AX3) on their non-dominant wrist for 24 hours/day across a 10-day wear period. Accelerometry data were processed using the GGIR package in R using validated cut-points and algorithms to determine intensity thresholds and sleep duration. A valid wear day was defined as a minimum of 16 hours. Descriptive means and standard deviations were calculated for all device-assessed movement behavior variables, including steps, LPA, MPA, VPA, inactivity, and sleep duration.

Results: A total of 44 participants (54.8 ± 9.1 years, 82% female, 98% Hispanic/Latino, 91% with household income of \$29,999 or less) were included in the analytical sample. On average, participants had 7 ± 2 days of valid accelerometry data and 4 ± 6% of non-wear time over the course of the measurement period. When averaging movement behaviors

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across the 10-day baseline wear period, participants accrued $6,393 \pm 1497$ steps/day, 156 ± 81 minutes/day of LPA, 32 ± 31 minutes/day of MPA, 0.06 ± 0.20 minutes/day of VPA, 14 ± 2 hours/day of inactivity, and 6 ± 2 hours/night of sleep.

Conclusion: Preliminary evidence suggests the 24-hour movement behavior profile of low-income Mexican-American adults with uncontrolled Type 2 diabetes who participated in the Salud y Vida accelerometry study is characterized by a moderate amount of steps, LPA, and MPA, a high amount of inactivity, and a low amount of VPA and sleep. Programs/interventions designed for this population should focus on shifting movement to higher intensities, replacing inactivity with activity, and improving sleep duration.

I-P-A.05

Comparing Food Insecurity and Nutrition Insecurity Prevalence among Older Adults Participating in Meals on Wheels and the Connection with Diet Quality

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Purpose: Food insecurity (FI) and nutrition insecurity (NI) are related but distinct concepts. FI is the lack of consistent access to enough food, while NI also includes having consistent access to foods that promote health and prevent diet-related diseases. Measuring NI is newer and more complex but has less evidence when compared to FI measures. A new Nutrition Security Screener (NSS) has recently been validated, but there is a need to measure its performance in population subgroups including older adults, who may experience different food access barriers than younger adults.

Methods: Older adults (≥ 60 years) participating in the Meals+ study at Meals on Wheels of Rhode Island completed baseline measures including FI (6-item Household Food Security Scale -HFSS), and NI (2-item NSS), which also assesses the prevalence of 13 barriers to NI. We compared the prevalence of NI and FI in this population and assessed diet quality scores using the 25-item Dietary Screening Tool (DST).

Results: Recruitment is ongoing; as of 11/07/2025, 100 participants (61.7% female, average age 71.9 ± 7.3 years) completed both HFSS and NSS. Overall, we observed a high prevalence of both FI (59.0%) and NI (72.0%). We observed concordance between FI and NI status in 65.0% of participants, with 11.0% classified as FI only and 24.0% NI only. The most common barriers for those facing NI were mobility/physical limitations to prepare healthier meals (84.0%), lack of transportation (77.8%), and price of healthy food (74.0%). Participants classified as FI and NI had a mean DST score of 50.7 ± 12.6 , with 75.0% at high nutritional risk, compared to a mean DST score of 63.9 ± 11.9 , with 29.4% at high nutritional risk among those without FI or NI. *Note: Recruitment continues through 2026, so more data will be added before the conference presentation.*

Conclusion: In a study among older adults, FI and NI measures had good concordance, with NI higher than FI, as expected. Participants with FI and NI had lower diet quality when compared with FI or NI only groups. Some barriers to nutrition security for older adults differed from younger populations, highlighting the need to tailor nutrition interventions for this population.

I-P-A.06

Evaluating the Effectiveness of an Mhealth Application to Promote Home-based Exercise in Adults Aged 65 and Older: A Single Group Study Protocol

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Purpose: With the global population aging rapidly, older adults face increased risks of physical and cognitive decline. Despite the well-documented benefits of physical activity (PA), many older adults fail to meet PA guidelines. Mobile health (mHealth) applications offer promising tools to promote PA, but engagement remains a challenge. The MIA (More in Action) app was co-created with older adults using the Behavior Change Wheel framework to enhance usability, relevance, and sustained engagement. A feasibility study indicated promising usability and satisfaction, supporting further evaluation. This study aims to evaluate the effectiveness of MIA in promoting PA among older adults.

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Methods: A prospective single-group trial will evaluate the MIA app over an eight-week period. The primary outcome is moderate-to-vigorous physical activity (MVPA) measured using Garmin wearable devices. Secondary outcomes include self-reported PA, well-being, user satisfaction, clinical assessments (physical and cognitive functioning), and daily step count. A total of forty participants will be recruited. Eligible participants are ≥ 65 years, medically stable, with no significant cognitive or physical limitations, Dutch-speaking, and with smartphone or computer access. Exclusion criteria include engaging in an already active lifestyle (>150 min MVPA per week), participation in other exercise programs or trials, or conditions compromising safety or study validity. Changes from baseline to post-intervention will be analysed using paired-samples t-tests or non-parametric tests. Statistical significance will be set at $p < 0.05$, analyzed with IBM SPSS Statistics.

The innovation of this study lies in evaluating the effectiveness of a co-created, theory-driven mHealth intervention for older adults. By combining objective activity tracking with self-reported and clinical outcomes, it offers a comprehensive assessment of intervention impact. The findings will contribute to the growing evidence on mHealth effectiveness and will inform whether a co-created, theory-based app can support sustained PA in aging populations.

Results: Recruitment for the study commenced on October 7th, 2025. Data collection is ongoing.

Conclusion: This study will generate evidence on the potential of co-created, theory-driven mHealth interventions to promote PA in older adults. It will guide strategies to enhance engagement, inform future digital health design, and advance behavioral PA research and evidence-based practice.

I-P-A.07

ENERGY Study Protocol: Efficacy of a Program Combining Exercise, Nutrition, and Psychological Support in Patients Aged ≥ 70 Years Enrolled in Early-phase Clinical Trials

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Purpose: The primary objective of the ENERGY study is to evaluate whether a multimodal intervention combining exercise, nutritional management, and psychological support can improve inclusion and retention rates of cancer patients aged ≥ 70 years in early-phase (phase I) clinical trials. We hypothesize that improving physical function, nutritional status, and psychological resilience will enhance eligibility for and adherence to experimental treatments. This study is innovative in its patient-centered approach, integrating three complementary interventions within early-phase oncology to promote more equitable access to and benefit from phase I trials for older adults who remain largely underrepresented.

Methods: The ENERGY trial consists of two sequential phases. The first is a pilot study assessing the feasibility of the multimodal intervention in 10 patients. The second phase is an open-label, randomized (1:1), multicenter controlled trial comparing the intervention group with standard care across 10 French centers accredited for early-phase oncology trials. A total of 196 patients aged ≥ 70 years, treated for cancer and enrolled in a phase I clinical trial, will be included. Participants will undergo physical, nutritional, and psychological assessments at baseline and at 1, 2, and 3 months. The intervention group will receive a 3-month combined program of exercise, nutritional management, and psychological support, the specific modalities of which will be refined through input from former patients and caregivers during the pilot phase. The control group will receive standard care. Statistical analyses will assess whether the multimodal program improves inclusion and retention in our study population, as well as its effects on physical capacities, physical activity level and motivation, nutritional status, body composition, mood, quality of life, toxicities, healthcare use, and—within the intervention group—program adherence and fidelity, population reach, and barriers, facilitators, and satisfaction among patients, caregivers, and professionals.

Results: As recruitment has not yet started, this presentation will focus on the study protocol.

Conclusion: By integrating exercise, nutrition, and psychological support, the ENERGY project could redefine phase I care pathways and improve both the inclusion of older adults with cancer and their ability to benefit optimally from experimental treatments.

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I-P-A.09

Mental Fatigue Impairs Physical Performance in Healthy Active Women Aged over 65 Years

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Purpose: The main study purpose was to evaluate the effects of 20 min. sustained cognitive activity on the physical performance of healthy active women aged over 65 years. Mental fatigue has been shown to impair physical performance across the lifespan, however recent evidence suggests that these detrimental effects may be exacerbated with aging. To our knowledge, this is the first study to investigate the effects of mental fatigue in this specific population. Our findings may improve understanding of how everyday mental fatigue impacts training performance and associated health benefits in older women, a population for whom physical activity plays a key role for health.

Methods: Forty healthy - physically active (confirmed by International Physical Activity Questionnaire) women aged over 65 years participated in a randomized crossover design. After a familiarization session, participants completed two testing sessions in a randomized counterbalanced order where their physical performance (6-minute walk, 30-second sit-to-stand, handgrip strength, and Timed Up and Go) were tested before and after two different experimental conditions: (1) **Fresh** – 20 min. watching a neutral documentary, or (2) **Mental Fatigue** – 20 min. engaging the Time Load Dual Back Task (TLDB). Performance outcomes were compared between conditions to determine the effects of mental fatigue.

Results: Subjective fatigue ratings and cognitive performance (TLDB) confirmed successful induction of mental fatigue. Handgrip strength and Timed Up and Go performance were not affected by mental fatigue. In contrast, the number of repetitions in the 30-second sit-to-stand test ($p = 0.03$) and the distance covered during the 6-minute walk test ($p = 0.01$) were significantly reduced under the mental fatigue condition, with no changes observed in the Fresh condition. These impairments were accompanied by significantly higher ratings of perceived physical exertion ($p = 0.01$) in the mental fatigue session.

Conclusion: Mental fatigue induced by sustained cognitive activity negatively affects strength-endurance and endurance performance in healthy-physically active women aged over 65 years, while maximal strength and short-duration agility remain preserved. These findings suggest that mental fatigue may compromise training outcomes and, subsequently, attenuate the health-associated benefits of exercise in this population. These findings highlighting the importance of considering mental fatigue in older women.

I-P-A.10

Study Design for Realworld Assessment of Physical Activity, Behaviour, and Heat-related Strain in Older Adults during Heatwaves

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Purpose: Background: Older adults are disproportionately vulnerable to heat-related morbidity, yet little is known about how they behave and adapt their daily routines during heatwaves in their natural environments. Existing laboratory studies provide mechanistic insight into thermoregulatory strain, but they cannot capture the environmental, behavioural and psychosocial factors that shape real-world heat exposure. In daily life, individual heat vulnerability results from an interaction between intrinsic biological factors, physical activity patterns, sleep, indoor/outdoor microclimates, and behavioural responses. Understanding these interactions is essential as heatwaves are projected to become longer, hotter, and more frequent, posing direct challenges to healthy aging, active lifestyles and climate resilience.

Purpose: This ecological study aims to determine how older adults perceive and respond to heat in their daily lives, with a specific focus on changes in physical activity behaviour, sleep, psychological wellbeing, and self-selected heatmitigation strategies during heatwaves.

Methods: A prospective, withinsubject observational study will be conducted across two periods: a “control” phase (April–May) and a Belgian heatwave phase (i.e., ≥ 5 consecutive days $>25^{\circ}\text{C}$, including ≥ 3 consecutive days $>30^{\circ}\text{C}$). One hundred older adults (balanced by sex) will complete both periods. Participants will use wearable sensors for continuous monitoring of heart rate, physical activity patterns and sleep. Environmental data loggers in the living room and bedroom will assess indoor heat exposure, in combination with outdoor weather stations. With use of

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digital questionnaires thermal perception, mitigation behaviours (e.g., hydration, activity timing, shade use) and psychological state will be evaluated. Linear mixed-effects models will be used to assess differences between conditions and to quantify associations between physical activity, behavioural factors, environmental conditions, and heat-related strain.

Results: Expected Outcomes: We hypothesize that heatwave exposure will reduce daily physical activity, alter activity timing, impair sleep, and increase perceived and physiological strain. Indoor temperatures are expected to influence heat strain and correlate strongly with behavioural adaptations. This research will provide actionable evidence for policymakers and health agencies. It will identify behavioural and environmental conditions that support heat resilience in older adults, informing targeted interventions that safeguard physical activity, autonomy, and wellbeing in a warming climate.

Conclusion: /

I-P-A.11

Dietary Intake and Nutritional Biomarker Status in Relation to Appetite Loss and Physical Activity in Older Adults

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Purpose: Although appetite loss is associated with malnutrition, differences in dietary intake and nutritional biomarker status between older adults with and without appetite loss remain unclear. The potential moderating role of physical activity has also been insufficiently studied.

This study aims to examine differences and associations between appetite loss, dietary intake, and nutritional biomarker status (e.g., serum vitamins and minerals) in older adults. A secondary aim is to determine whether physical activity modifies these associations.

We hypothesize that older adults with appetite loss will have lower energy and nutrient intakes and poorer nutritional status than those without appetite loss. We further expect that higher physical activity levels will attenuate the negative association between appetite loss and nutrient status. The study is ongoing and preliminary findings will be presented at the conference.

Methods: This cross-sectional study will utilize data from the Swedish aging cohorts H70 (n ≈1000) and SNAC-K (n ≈3000). Participants aged ≥65 years with available data on appetite, physical activity, dietary intake, nutritional biomarker status, and relevant covariates will be included. Descriptive statistics and multivariable regression models will be assessed. Appetite status at baseline (poor vs. normal appetite) is the exposure, and dietary intake and nutritional biomarker status are the primary outcomes. Models will be adjusted for key covariates, including socioeconomic factors, smoking status, cognition, diseases, living situation, age, sex, civil status, body composition, and total energy intake (for nutrient intake).

Results: Analyses will examine (1) differences in dietary intake and nutritional biomarker status (i.e., serum vitamin and minerals) between older adults with and without appetite loss, (2) associations between appetite loss, dietary intake and nutritional biomarker status, and (3) the potential modifying effect of physical activity on these associations.

Conclusion: This study will contribute to understanding how appetite loss influences dietary intake and nutritional biomarker status in older adults, and whether physical activity may modify these effects. Furthermore, this study may provide new insights into appetite loss among older adults and inform targeted interventions and public health strategies to support appetite, promote healthy aging, and improve nutritional outcomes.

I-P-A.12

Knowledge, Perceptions, and Behaviours towards Muscle Strengthening Activities in Community Dwelling Older Adults: A Data2Action Survey Study

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Purpose: Muscle-strengthening activities (MSA) provide important health benefits for older adults. Despite WHO recommendations to perform MSA on two or more days per week, adherence is strikingly low, and MSA remains underrepresented in research and practice in comparison to aerobic physical activity. Limited understanding of what constitutes MSA and its associated guidelines has been identified as a potential barrier. Within the scope of the EU MSCA Data2Action doctoral network (101169037), this study examines community dwelling older adults' awareness and understanding of MSA and its guidelines, how they interpret what constitutes MSA, and how these perceptions and knowledge are related to their muscle-strengthening behaviour.

Methods: Belgian adults aged ≥ 65 years without diagnosed cognitive or physical impairment are included in this cross-sectional survey (33 items). The target number of respondents is 1,000 (February-May 2026). Measures include sociodemographic characteristics, innovative items assessing awareness, knowledge, and perceptions of MSA and its guidelines, activity-classification tasks, and validated items assessing self-reported muscle-strengthening behaviour. Motivators, barriers, and open-ended responses are also collected to contextualise behavioural engagement. A pilot study was conducted to ensure questionnaire reliability and coherence among participants. Descriptive statistics summarised pilot responses, and associations between knowledge accuracy and behaviour were examined. Planned analyses will further explore associations between knowledge, perceptions, and behaviour.

Results: Preliminary pilot findings showed high perceived importance of muscle health (97%) and belief in MSA benefits (93%). However, only 48% felt confident identifying MSA. Misclassification was common (66% identifying walking and 71% cycling as MSA). Although overall misinterpretation was evident, older adults participating in MSA (Yes /No) demonstrated significantly greater classification accuracy than non-participants (mean = 4.05 vs 1.75, $p = .011$). Knowledge of the official guidelines was also limited, with 42% believing MSA should be performed daily. Despite this inaccuracy, 71% reported that the presented WHO guidelines were clear.

Conclusion: Perceived clarity of MSA guidelines does not necessarily reflect accurate understanding. However, better conceptual understanding of MSA is associated with engagement in muscle-strengthening behaviour. Improving how MSA recommendations are communicated and understood may be key to supporting healthy ageing. Further findings from the main study will be presented at the conference.

I-P-A.13

Goal-setting and Walking in Older Persons with Multimorbidity: A Longitudinal Investigation

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Purpose: Older persons with multimorbidity (PwMs) live with two or more chronic health conditions. Key to the management of multimorbidity is physical activity engagement. Previous research indicates that physical activity engagement, including walking, is associated with better health outcomes (e.g., physical and cognitive function) and reduced mortality in older adults in general and older PwMs especially. Previous research also suggests that goal-setting facilitates greater physical activity engagement in adults and older adults in general, albeit research has yet to explore this relationship in older PwMs. Thus, the objective of this study was to explore the relationship between goal-setting, implemented via an innovative digital health platform called ProACT, and walking in older PwMs.

Methods: The ProACT platform comprised health-related measuring devices (e.g., a weight scale, blood pressure monitor, and smartwatch) and an app (e.g., where one could monitor their symptom trends), designed to support older PwMs to manage their conditions. This platform was tested during an effectiveness-implementation hybrid trial with older PwMs in Ireland during a six-month period. A range of data was collected from 146 participants, including their step count per week and whether or not they set a steps goal.

Results: Multilevel negative binomial regression analysis revealed that those who set a goal walked significantly more during their first week of trial participation than those who did not ($\beta = 0.40$ [95% CI: 0.03, 0.78]). The former group retained their advantage throughout their trial periods, albeit their step count declined to a (non-statistically significant) greater extent ($\beta = -0.04$ [95% CI: -0.10, 0.01]).

Conclusion: These findings demonstrate that goal-setting via digital health technology may help older PwMs to walk more and thus better manage their conditions. Future research is needed to explore how goal-setting may facilitate sustained physical activity engagement over time. This study was conducted during the SEURO project (<https://seuro2020.eu>), funded by the EU's Horizon 2020 research and innovation programme under Grant Agreement number 945449. The lead author is also supported by CREATE-DkIT, which is co-funded by the Government of Ireland and the European Union through the ERDF Southern, Eastern & Midland Regional Programme 2021-27.

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I-P-A.14

Self-reported Physical Activity and its Relationship with Sleep Quality and Mental Fatigability in Healthy Middle-aged Adults from Rural Areas: A Cross-sectional Study

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Purpose: The study aimed to compare subjective sleep quality and perceived mental fatigability across different levels of self-reported physical activity, as classified by International Physical Activity Questionnaire (IPAQ) scores, in healthy middle-aged adults from rural areas. We hypothesized that individuals with higher physical activity levels would report better subjective sleep quality and lower perceived mental fatigability. These findings may help to clarify whether meeting physical activity recommendations is sufficient to benefit sleep and mental fatigability, or where more structured exercise programs are necessary in this population.

Methods: A cross-sectional survey design was employed: 359 healthy adults aged over 65 years from Extremadura participated in the study. Data were collected in a single assessment using validated self-report questionnaires. Physical activity levels were assessed using the IPAQ, and participants were classified as sedentary (n = 118), moderately active (n = 137), or active (n = 104) accordingly. Subjective sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), and perceived mental fatigability was assessed using the mental fatigability subscale of the Pittsburgh Fatigability Scale. Sleep quality and mental fatigability outcomes were compared across physical activity groups to examine group differences associated with activity level.

Results: Significant between-group differences were observed for sleep-related variables ($p = 0.01$). Physically active participants reported significantly greater sleep duration and better subjective sleep quality compared with sedentary ($p = 0.01$) and moderately active groups ($p = 0.04$). In contrast, no significant differences were found between physical activity groups for perceived mental fatigability ($p = .36$). These findings indicate that higher levels of self-reported physical activity are associated with improved sleep quality, whereas mental fatigability may not be sufficiently influenced by habitual physical activity alone.

Conclusion: While being physically active appears to be sufficient to improve sleep in older adults from rural areas, more targeted interventions may be required to reduce perceived mental fatigability. Structured-individualized exercise programs or cognitive-based interventions, such as Brain endurance Training, may represent effective strategies to address mental fatigability. Given the limited availability of active aging programs in Extremadura and the association between mental fatigability and adverse health outcomes (e.g., falls), this issue warrants greater attention in public health policies.

I-P-A.15

Promoting Active Ageing through Social Prescribing: Insights from Flemish Healthcare Professionals

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Purpose: Social prescribing is increasingly recognised as a promising approach to improve wellbeing and support active ageing among adults aged 65 and older. In Flanders, however, little is known about the behavioural factors that shape healthcare professionals' engagement in social prescribing, nor how digital tools may support this process. The study introduces a COMB-informed survey to examine the capability, opportunity, and motivation of first-line healthcare professionals to deliver social prescribing. The study additionally explores how professionals evaluate the usability and perceived potential of De Verenigingspil, a digital platform designed to facilitate referrals to community-based social initiatives for older adults.

Methods: A cross-sectional online survey will be administered to firstline healthcare professionals, including general practitioners, nurses, physiotherapists, pharmacists, social workers and movement coaches participating in monthly training sessions. The survey draws on validated components from ISABE, TDF, HABS, NoMAD, the Theoretical Framework of Acceptability, and the System Usability Scale (SUS). Items are organised according to the COMB model.

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Usability of De Verenigingspil is evaluated through SUS scoring and additional questions on perceived usefulness, relevance for older adults, and anticipated influence on future social prescribing behaviour. Open-ended questions capture barriers, enablers, and suggestions for platform improvement. Data will be analysed descriptively, with thematic mapping of barriers/enablers to COMB domains. SUS scores will be interpreted using established thresholds. Findings will be visualised in a COMB behavioural determinant map.

Results: Findings will describe participant characteristics and summarise levels of capability, motivation, and opportunity for social prescribing among healthcare professionals. Usability findings for De Verenigingspil will be reported using SUS scoring and perceived usefulness. A COM-B behavioural map will highlight key barriers and enablers, informing recommendations for future implementation and scale-up.

Conclusion: This presentation will provide foundational insight into behavioural determinants influencing social prescribing for older adults in Flanders, while informing optimisation and implementation potential of De Verenigingspil as a practice-support tool.

II-P-A.01

Walk On!: Implementation Considerations for a Community-based Walking Program for Older Adults with Mobility Impairments

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Purpose: Mobility impairments (conditions that limit a person's coordination, stability, balance, or ability to ambulate) among older adults are associated with decreased independence and increased health risks. Evidence-based, scalable interventions are needed to address these challenges in community settings. The purpose of this presentation is to describe the development, implementation, and outcomes of *Walk On!*, a community-based program designed for older adults with mobility limitations.

Methods: *Walk On!* was developed at Wake Forest University School of Medicine and expanded across multiple markets within the Advocate Health System, located in the southeastern United States. Guided by the Exploration, Preparation, Implementation, and Sustainment (EPIS) framework, the program was designed to require minimal resources and staffing. Implementation strategies focused on acceptability, appropriateness, and sustainability. The program emphasizes feasibility, affordability, and adaptability across diverse settings in the United States. Program sessions focus on long-distance walking, taking place in community-based organizations for one-hour per day, two days/week, over a 12-week timeframe. Evaluation included measures of functional improvement and participant satisfaction.

Results: Across multiple sites, *Walk On!* demonstrated significant improvements in physical functioning among participants and consistently high satisfaction ratings. The program was perceived as effective, acceptable, and appropriate for older adults with mobility impairments, as rated by participants and staff employed or volunteering at the local sites. Current efforts are focused on expanding implementation into rural and underserved communities, and scaling across the six states served by the Advocate Health System.

Conclusion: *Walk On!* represents a potentially scalable, low-cost intervention that improves mobility and quality of life for older adults. Its success highlights the value of implementation science frameworks in guiding dissemination and sustainment of community-based health programs.

II-P-A.02

Sedentary Time, Executive Function, and Spatial Ability in Older Adults: A Quasi-experimental Study

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Purpose: Although sedentary time (ST) has been linked to poorer cognitive outcomes in older adults, experimental evidence remains limited. This study tested whether an induced increase in ST leads to measurable changes in

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executive and visuospatial abilities and evaluated the feasibility of this protocol in an older population.

Methods: Using a quasi-experimental design, older adults completed either two weeks of their usual activities (Group 1: $N=18$; 44% men; 68.2 ± 5.5 years) or one week of usual activity followed by one week of increased ST (Group 2: $N=11$; 27% men; 67.6 ± 7.8 years). Each week, participants wore an activPAL™ inclinometer to quantify ST and completed a Stroop test (executive function), a paper-based Mental Rotation Test (MRT), and three hands-on visuospatial tasks: one visual search and two rotation tasks differing in spatial demand. Changes in cognition and movement were analyzed using mixed ANOVAs, and Pearson's r assessed correlations between cognitive and movement measures.

Results: Group 2 increased daily ST by 59 ± 57 minutes ($p < .05$), although only 8 of 11 participants achieved this and only 3 of 11 met the step target (<3000 per day) for Week 2. They performed worse on the visual search task than Group 1 ($p = .035$). No significant group $\times$ time interaction emerged for any cognitive measure, but there was a trend for poorer visuospatial performance in Group 2 after Week 2 ($p = .086$). Among all participants, across weeks, higher ST correlated with lower spatial task performance ($r = .459$, $p < .02$). After Week 2, higher ST was associated with slower visual search ($r = .540$, $p < .01$) and fewer sit-to-stand transitions were associated with poorer Stroop performance ($r = .512$, $p < .01$).

Conclusion: Although there was no significant difference in cognitive ability after a week of increased ST, trends suggest visuospatial abilities may be sensitive to movement behavior. Because executive and spatial functions support independence in aging, identifying behavioral risk factors is essential. Experimental evidence can clarify the dose and type of sedentary behavior most detrimental to cognition in older adults, but there are challenges with adherence to this protocol.

II-P-A.03

Digitally-supported Geriatric Rehabilitation at Home: Perspectives of Older Adults and Healthcare Professionals on Nutrition and Physical Activity Rehabilitation Interventions

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Purpose: Healthy lifestyle behaviors, including adequate nutrition and regular physical activity, are essential for recovery following geriatric rehabilitation (GR). However, after discharge and returning home, many older adults struggle to maintain these behaviors leading to physical and functional decline. Blended care – combining face-to-face and digital support – may support self-management and continuity of rehabilitation, yet its implementation in everyday practice remains underexplored. As part of the BITE-IT project, this study explores the experiences and needs of older adults and healthcare professionals (HCPs) to guide the development of a blended care intervention for home-based rehabilitation.

Methods: Semi-structured interviews were conducted with older adults (≥ 60 years, $n=16$) who returned home after recent discharge from inpatient GR. Furthermore, three focus groups were held with HCPs ($n=16$) from primary care and GR settings. Data were thematically analyzed in MAXQDA using a primarily inductive approach.

Results: Older adults described **returning home after GR as challenging**. Many experienced fatigue, reduced energy, and difficulties adapting to daily routines, often leading to dependence on support for ADL-activities. The transition required participants to **take more responsibility for their recovery** demanding more **self-management**.

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Motivation and **social support** played a key role in their confidence and persistence. **Awareness** of the importance of **adequate nutrition and protein intake** in supporting recovery **was limited**, and the expertise of dietitians was insufficiently integrated within post-discharge care. **Digital tools were generally viewed positively** by patients actively engaged in their recovery. **Loss of personal contact with HCPs and practical barriers were expressed as concerns**, highlighting the need for personalized guidance and support.

HCPs explained that **interdisciplinary collaboration is frequently fragmented**, with dietitians often insufficiently involved. They highlighted the potential of a shared electronic health record to improve coordination. **Blended care was considered promising** but most effective when patients' and HCPs' abilities, digital literacy, and preferences were considered. HCPs identified **professional support and integration into existing workflows** as key elements for successful use.

Conclusion: Blended care has the potential to enhance home-based GR by supporting motivation, self-management, interprofessional collaboration, and increase awareness of nutrition and protein intake. Its success depends on personalized, simple, and well-integrated approaches that complement face-to-face care.

II-P-A.04

Sedentary Time and Prevention of Obesity and Weight Gain in Adults: A Systematic Review with Meta-analysis

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Purpose: Determine the prospective association between sedentary time and prevention of weight gain and obesity among adults through a systematic review and meta-analysis.

Methods: A systematic search was conducted in PubMed, EBSCO CINAHL, and SPORTDiscus from inception until September 29, 2024. Eligible prospective studies included general population ostensibly healthy adults aged 18 – 65 years at baseline, had minimum 2 years follow-up, a sample size of ≥200 participants, and measured any form of sedentary time. The primary outcome was incident obesity and secondary outcomes included weight change, adiposity, and body composition. Incident obesity was combined with studies on incidence of weight gain (variously defined) due to few studies. Eligible studies were identified through a combination of human and computer-assisted screening. Two reviewers independently extracted the data. Estimates from individual studies were synthesised using random-effects meta-analysis where possible. This review is registered with PROSPERO (CRD42024596491).

Results: Forty-three unique publications from 26 cohorts were included. The most frequently reported outcomes were body mass index (n=21 publications, hereof 6 on incident obesity), body weight (n=14), and waist circumference (n=9). TV viewing and total sitting/sedentary time were the most frequent exposures, reported in 20 and 11 publications, respectively. Four cohorts, including 9935 cases, 81,662 participants, and an average follow-up of 6.3 years, were included in a meta-analysis of leisure time sitting and incident obesity weight gain. For each additional hour of leisure sitting above baseline (1 hour and 15 minutes/day), the risk of obesity increased by 3% (RR: 1.03, 95%CI: 1.01, 1.05) with some evidence of a non-linear dose-response pattern (p=0.04). Based on a meta-analysis of 5 studies with an average of 7.7 years of follow-up, a 1-hour increase in daily sedentary time from baseline to follow-up (i.e., modelling change in sedentary time) was associated with a 0.01 (95%CI, 0.00, 0.02) kg higher gain in body weight/year. Heterogeneity in exposure and outcome definitions challenge pooled analyses which leaves uncertainty in reported effect-sizes.

Conclusion: Higher sedentary time, and increasing sedentary time over time, is associated with a slight increased risk of obesity and weight gain. The effect of sedentary time on weight gain, if causal, appears small compared to other health outcomes.

II-P-A.05

Long-term Physical Activity and Risk of Obesity in Australian Women Using Target Trial Emulation: An OBCT Study

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Purpose: Determine the causal effect of long-term adherence to the WHO-recommended level of physical activity throughout middle-age on the incidence of obesity using target trial emulation.

Methods: This study emulated a target trial using observational data from the Australian Longitudinal Study on Women's Health collected at triennial surveys between 1996 and 2022. The target trial would assess the effect of randomizing women to either meeting or not meeting the WHO-recommended level of physical activity over an 18-year period on the 21-year incidence of obesity. Targeted maximum likelihood estimation controlling for time-constant and time-varying confounders was used to emulate the target trial, assuming conditional exchangeability, positivity, consistency, and no interference. Participants were Australian women with a body mass index between 18.5 and $< 30 \text{ kg/m}^2$ and a physical function score above the 5th percentile. The exposure was 18-years of consistent adherence to the physical activity recommendation, defined as engaging in ≥ 150 minutes of moderate-to-vigorous physical activity per week, versus consistent non-adherence to the recommendation. Physical activity was self-reported. The outcome was the 21-year incidence of obesity (self-reported body mass index $\geq 30 \text{ kg/m}^2$).

Results: 4,779 women aged 47 to 52 years at study entry were included. The cumulative incidence of obesity was 9.9% (99.5% CI: 8.6%, 11.1%) in the scenario with 18-year adherence to the recommendation and 15.1% (99.5% CI: 12.8%, 17.4%) with consistent non-adherence (risk ratio: 1.5 [99.5% CI: 1.2, 1.9], risk difference: 5.3 %-point [99.5% CI: 2.3%, 8.3%]). Meeting the recommendation in one to seven surveys reduced obesity risk in a linear dose-response manner. Sensitivity analyses suggested robustness to unmeasured confounding.

Conclusion: Long-term adherence to the recommended ≥ 150 minutes of moderate-to-vigorous physical activity per week reduced the risk of obesity in middle-aged women. The risk of obesity decreased linearly as adherence increased. These findings underscore the importance of sustained physical activity promotion for long-term obesity prevention and public health strategies.

II-P-A.06

A Family History of Depression and Physical Activity in Older Adults: Associations with Current Depressive Symptoms in the German National Cohort (NAKO)

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Purpose: Depressive symptoms are particularly prevalent among individuals with a family history of depression. The present study aimed to investigate the association between accelerometer-assessed physical activity and depressive symptoms in older adults, with a specific focus on the role of parental history of depression.

Methods: Analyses were conducted on a subsample of 16,161 older adults (aged 60–74 years; mean age = 64.8 years; 49.3% female) from the German National Cohort (NAKO) who provided valid accelerometer data and complete questionnaire information. The outcome variable, current depressive symptoms, was assessed using the Patient Health Questionnaire-9 (PHQ-9). Parental history of depression was obtained through self-report, and physical activity was objectively measured with an ActiGraph accelerometer, processed using the Mean Amplitude Deviation algorithm. Generalized linear models were used to examine main and moderation effects, adjusting for sex, body mass index, social network size, education, and employment status.

Results:

Participants with a parental history of depression (11.4%) reported significantly higher depressive symptom scores compared to those without such a history ($M_{\text{family history}} = 4.19$; 95% CI [4.01, 4.36] vs. $M_{\text{No family history}} = 3.14$; 95% CI [3.09, 3.19]; $p < 0.001$). In multivariable linear models, higher levels of physical activity were associated with lower depressive symptom scores ($\beta = -0.042$, $p < 0.001$). This corresponds to a reduction of 0.24 points in symptom score for every 10-unit increase of physical activity. Importantly, physically active older adults with a parental history of depression exhibited significantly fewer depressive symptoms than their less active counterparts ($\beta = -.058$, $p = 0.024$), indicating a potential moderating effect of physical activity.

Conclusion:

These findings suggest that higher levels of physical activity are associated with reduced depressive symptoms in older adults at elevated familial risk. Promoting physical activity may therefore serve as a promising preventive strategy for mitigating depressive symptoms in this vulnerable population.

II-P-A.07

The Optimal Combination of Physical and Cognitive Activity in Older Adults to Promote Cognitive Functioning: Preliminary Results of the CONSCIOUS Study

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Purpose: Although life expectancy has increased due to medical advances, there has not been a corresponding rise in healthy life expectancy without cognitive decline. Evidence supports the effectiveness of combining physical and cognitive activity (PA + CA) to promote healthy cognitive ageing, yet the optimal balance between these components remains unclear. This insight is crucial for optimizing interventions targeting prevention of cognitive decline, particularly considering today's ageing society. Therefore, this study aims to identify which combination of PA intensity and CA difficulty yields the greatest cognitive benefits in healthy, community-dwelling older adults.

Methods: Sixty-eight older adults aged 65+ with varying levels of cardiorespiratory fitness will be invited to participate in a familiarization session to determine two PA intensity levels (light and moderate) and two CA difficulty levels (easy and challenging). PA intensity will be defined by heart-rate zones calculated based on the percentage of the heart-rate reserve. CA difficulty will be determined based on subjective ratings and objective performance of participants. Following this, participants will be invited to complete all four PA + CA combinations (light/moderate PA x easy/challenging CA) in a controlled laboratory setting where they walk on a treadmill at a given intensity while performing cognitive tasks at a certain difficulty. Immediately before and after each combination inhibition, cognitive flexibility, and complex attention will be assessed.

Results: Preliminary findings presented at the conference will compare the acute effects of the four combinations on all cognitive outcomes. Additionally, feasibility and enjoyment ratings obtained after each combination will be used to evaluate task acceptability and participant engagement.

Conclusion: This study is the first to experimentally manipulate both PA intensity and CA difficulty in a controlled setting to identify the optimal PA + CA "dose" for immediate cognitive enhancement. The findings will contribute to a clearer understanding of how simultaneous PA and CA can be tailored to maximize short-term cognitive benefits in older adults, thereby advancing the scientific basis for future applied research on brain health promotion.

II-P-A.08

Selective Effects of Resistance Exercise on Cognitive Function in Older Adults

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Purpose: Physical exercise is a promising non-pharmaceutical strategy to delay cognitive decline in aging. However, the limited understanding of the mechanisms by which exercise impacts cognition and the poor description of exercise programs in late adulthood hinder its implementation as a therapeutic or preventive approach for Alzheimer's Disease (AD) cognitive decline, especially resistance training. Few studies with well-characterized samples and comprehensive cognitive assessments have attempted to understand the moderator role of key demographics/clinical variables on the effect of resistance exercise on cognition, as well as to identify the brain mechanisms underlying these cognitive benefits. This study aims to uncover the effects of a 24-week resistance exercise intervention on cognitive performance,

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considering key moderators of the effect.

Methods: The AGUEDA trial is a single-site, two-arm, single-blinded, randomized controlled trial (RCT) involving 90 cognitively normal older adults from Spain, (65-80 years). We will share promising findings on the impact of exercise on cognitive subdomains such as attentional/inhibitory control, episodic memory, processing speed, visuospatial memory and working memory, with a focus on optimizing the effect based on moderation analysis. Demographics and key clinical characteristics such as sex, age, education level, number of comorbidities, apolipoprotein E carrier, Amyloid burden, baseline cognitive performance of each cognitive outcome and subjective cognitive decline are explored as potential moderators of the exercise's impact on cognition. In addition, we discuss the brain pathways with a particular focus on hippocampus- linking exercise to cognitive resilience in aging.

Results: Resistance exercise improve the attention/inhibitory control, but no other cognitive domains benefits were identified compared to control. Remarkably, we were able to identify greater benefits for older individuals with lower education levels, and those with high subject cognitive decline. Hippocampus did not appear to mediate the effects of exercise on cognition. High adherence was observed, with and no serious adverse events occurred.

Conclusion: This research demonstrates the selective potential of resistance exercise as a powerful tool in the new era of precision interventions targeting specific AD-related cognitive decline. It also provides valuable insights into optimizing benefits based on patient characteristics, necessitating a thorough exploration of the underlying mechanisms linking exercise to cognition during aging.

II-P-A.09

Individual and Combined Associations of Physical Activity and Cognitive Function with All-cause Mortality in Older Ages: A Prospective Analysis of the German National Cohort (NAKO)

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Purpose: Low physical activity (PA) and poor cognitive function are associated with higher mortality risks. However, little is known about their interaction, including whether PA may moderate cognition-related mortality risks. This study examines the combined associations of PA and cognition with all-cause mortality, with attention to sex differences.

Methods: Using data from the German National Cohort (NAKO) and its mortality follow-up, we analyzed mortality risk based on:

- baseline low vs. sufficient PA (assessed via the global physical activity questionnaire using a threshold of < vs. ≥ 600 MET-minutes/week),
- baseline low vs. medium vs. high semantic memory (SM) and executive function/processing speed (EF/PS), assessed through factor analyses of a neurocognitive test battery, and
- their interaction on mortality in individuals aged 65+ up to 10 years of follow-up (N=28,892).

Cox models were estimated both in the total sample and stratified by sex, adjusting for relevant confounders and reporting both distinct and combined associations.

Results: During follow-up, 1,605 individuals (5.6%) died: 1,097 men (7.5%) and 508 women (3.6%). Compared to individuals with low cognitive function, those with high SM (Hazard Ratio (HR)=0.83 [95%CI: 0.67–1.02]), as well as high EF/PS (HR=0.66 [0.53–0.83]) and medium EF/PS (HR=0.68 [0.60–0.78]) had lower mortality risks. PA was associated with a 29% decreased mortality risk (HR=0.71 [0.62–0.82]) compared to low PA. PA moderated the elevated risk from low cognition, especially with regard to EF/PS. The associations did not differ between men and women.

Conclusion: Maintaining cognitive function and PA in older age is relevant for reducing mortality risk in both men and women. PA may offset risks linked to low cognition in both sexes, though mechanisms require further study.

II-P-A.10

Pilot Randomized Control Trial of Two Novel Food Prescriptions Interventions for Older Adults Experiencing Food Insecurity

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Purpose: Food prescriptions are an increasingly popular approach for addressing food security and improving health outcomes (i.e., Food is Medicine), but they are underused. For this pilot, we worked with a Community Advisory Board of older adults to design two novel food prescription programs that could overcome barriers to food prescription usage.

Methods: Participants aged 65+ experiencing food insecurity (N=67) were recruited from primary care clinics and randomized to one of three arms for 12 weeks: 1.) home-delivered produce prescription intervention (n=22); 2.) home delivered meal kit intervention (all ingredients and recipes to make three meals) (n=23) and 3.) standard for care control (SOCC) produce prescription redeemed at a mobile market at their clinic or other convenient location (n=22). Intervention arm participants received a default food delivery but could customize or skip their delivery if they chose. All arms included the same quantity of fruits and vegetables (F&Vs), cooking equipment, and educational materials. Phone surveys at baseline and 12 weeks were used to collect data on F&V intake, nutrition/food security, and health status.

Results: Nutrition security improved in both intervention arms compared to SOCC mobile market arm ($p<0.005$). Food security also improved significantly ($p=0.006$) in the meal kit arm (-1.83 SD 2.35) compared to the SOCC (0.41 SD 2.21). F&V consumption increased by 0.7 times/day in both intervention arms compared to 0.2 times/day in the SOCC, but this difference was not statistically significant. Both intervention arms reported eating more leafy greens and salsa than SOCC ($p<0.05$). Self-reported health ratings were also higher in the intervention groups vs. the SOCC ($p<0.05$).

Conclusion: Delivered food prescriptions helped older adults improve nutrition security, likely by eliminating barriers to accessing fresh F&V. While we hypothesized that the meal kits would help participants prepare and eat more F&Vs, we did not see differences in F&V intake vs. the produce-only prescriptions. Improvements in food security among those who received meal kits may be due to the higher overall quantity of food received.

II-P-A.12

Associations between Field-based Physical Function Tests and Life's Essential 8 in Individuals with Coronary Artery Disease: A Cross-sectional Analysis from the Heart-Brain Trial

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Purpose: Many coronary artery disease (CAD) deaths may be prevented by addressing modifiable cardiovascular disease risk factors. In this context, the American Heart Association created the Life's Essential 8 (LE8) framework to quantify cardiovascular health (CVH) based on eight health behaviors and factors. Further, physical function is also clinically relevant, although it is unclear which field-based physical function tests most closely align with CVH as defined by LE8. We aimed to identify which field-based physical function tests are most strongly associated with the LE8 score in individuals with CAD.

Methods: This cross-sectional analysis from the Heart-Brain trial included individuals with stable CAD. Participants completed field-based physical function tests including the 6-minute walk test (6MWT), 30-second sit-to-stand (30s-STs), timed up and go, 2-minute step test, handgrip strength, and arm-curl test. LE8 components were assessed to derive a 0-100 score: physical activity and sleep (accelerometry), diet (MEDAS questionnaire), nicotine exposure (self-reported), glucose and lipids (fasting blood samples), body mass index (anthropometric measurements) and

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blood pressure (sphygmomanometer). Linear regression models were adjusted for age, sex, and education.

Results: 102 individuals were evaluated (21 females, 62.3±6.6 years). Descriptive characteristics of the study sample were (mean±SD): LE8 score, 66.6±8.6 pts; 6MWT, 566±71.9 m; 30s-STs, 16.7±4.3 repetitions; timed up and go, 4.8±0.7 s; 2-minute step test, 89.7±21.9 repetitions; handgrip strength, 37.1±8.4 kg; and arm-curl test, 19.8±4.1 repetitions. The 6MWT ($\beta_{std}=0.47$; $p<0.001$) and 2-minute step test ($\beta_{std}=0.23$; $p=0.02$) showed significant positive associations with the LE8 score. No significant associations were observed for 30s-STs ($\beta_{std}=0.16$; $p=0.14$), arm-curl score ($\beta_{std}=0.04$; $p=0.72$), handgrip strength ($\beta_{std}=-0.10$; $p=0.51$), or timed up and go ($\beta_{std}=-0.12$; $p=0.26$).

Conclusion: The 6MWT showed the strongest association with the LE8 score, while the 2-minute step test showed a weaker yet significant association. These findings support the 6MWT as a low-cost, feasible marker of CVH for routine clinical practice in adults with stable CAD.

II-P-A.13

Effects of A 24-week Resistance Exercise Intervention on White Matter Hyperintensity: Findings from the AGUEDA Trial

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Purpose: We examined whether a 24-week resistance exercise (RE) intervention modifies global White Matter Hyperintensity (WMH) burden and whether change in global WMH associates with change in attentional control. This study is innovative because it links longitudinal WMH progression to cognitive change and tests whether exercise modifies this connection.

Methods: Brain MRI sequences were acquired on a 3T Siemens Magnetom TIM Trio scanner (T1-weighted and 3D FLAIR sequences). The UBO-Detector pipeline was used to quantify global WMH volume. Attentional control z-score was derived from cognitive tests. As part of the AGUEDA trial, participants were randomly allocated to the Resistance Exercise group or to a usual-activities control group. The Resistance Exercise group performed 180 minutes/week of supervised training, while the control group maintained usual activities.. An intention-to-treat analysis was applied on WMH using constrained linear mixed models and post-intervention between-group contrasts. Linear regression models examined whether change scores in WMH were correlated with changes in attentional control.

Results: Analyses included 80 participants (mean age 71.4 ± 3.9 years, 54.4% women). No significant between-group differences were observed in global WMH (SMD= 0.08, 95% CI -0.13 to 0.28; $p = 0.457$). The association between change in WMH and change in attentional control was not significant in the whole sample ($\beta = 0.20$, 95% CI -0.17 to 0.56; $p = 0.288$), the control group ($\beta = 0.05$, 95% CI -0.51 to 0.60; $p = 0.865$) or the exercise group ($\beta = 0.31$, 95% CI -0.15 to 0.77; $p = 0.186$).

Conclusion: RE intervention did not change global WMH burden over 24 weeks. In parallel, changes in WMH were not linked to changes in attentional control. It is possible that longer intervention periods are required to detect structural changes in WMH, particularly in cognitively healthy older adults with relatively low baseline WMH burden.

II-P-A.14

Mapping of National Surveys on Physical Activity, Sedentary Behavior among Older Adults in South America

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Purpose: Surveillance of physical activity (PA) and sedentary behavior (SB) is essential to monitor the health behaviors of the older population and inform public policies. In South America, despite the existence of national surveys, how these data are structured and whether they are comparable remains unclear. This study aimed to map national surveys conducted in South America that included information on PA and SB among individuals 60 years of age or older.

Methods: A mapping study was conducted across the 12 South American countries through searches of official websites of Ministries of Health and National Institutes of Statistics, as well as international repositories, including the World Health Organization, Pan American Health Organization, and the STEPwise Approach to Noncommunicable Disease RiskFactor Surveillance. For this study, only surveys with nationally representative samples with information on PA and/or SB among individuals aged ≥ 60 years were included, considering their different editions and methodologies.

Results: A total of 53 national surveys were identified. Twenty surveys of older adults from eight countries (Argentina, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, and Uruguay) were included. PA was assessed in all surveys, whereas SB was not all surveys evaluated. All surveys used only self-report methods. Heterogeneity was observed in PA instruments: 60% ($n = 12$) used country-specific questionnaires, whereas 40% adopted international protocols (International Physical Activity Questionnaire [IPAQ] or Global Physical Activity Questionnaire [GPAQ]). Only 30% ($n = 6$) assessed multiple domains of PA. SB was predominantly measured through total sitting time (57%), while 43% focused on screen time.

Conclusion:

National surveys in South America show significant heterogeneity in assessment methods, with no objective, device-based measurements. Improving the standardization of protocols across life domains is essential to provide high-quality evidence to address sedentary lifestyles in the region's aging population.

II-P-A.15

Cardiorespiratory Fitness Outcomes in Older African Americans: The Reducing African Americans' Alzheimer's Disease Risk Through Exercise (RAATE) Study

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Purpose: Older African Americans engage in low levels of physical activity, which increases risk for dementia. Few physical activity interventions have been conducted in older African Americans. The purpose of this study is to determine engagement in, and the effect of, a physical activity intervention targeting older African Americans.

Methods: There were 129 sedentary, cognitively healthy, older African Americans randomized to a 52-week physical activity (PA) or successful aging (SA) group. PA participants met twice weekly for supervised exercise and SA participants met weekly for education and light exercise. Participants completed a treadmill cardiorespiratory fitness test and changes in cardiorespiratory fitness (estimated maximal and submaximal outcomes) between baseline and week 52 were compared between PA and SA groups using repeated measures ANOVA models, in intention to treat (ITT) and completers analyses.

Results: A total of 126 individuals (mean age 67.8 ± 5.3 years; 77% female; 65% college degree or more; 44% married) were randomized (61/65 PA/SA) and included in the ITT analysis. Attendance in PA and SA group sessions was 86.9% and 86.3%, respectively. The PA group had a marginally significant increase in maximal METS ($p = 0.071$) compared to the SA group, driven by greater PA group improvements in treadmill incline ($p = 0.001$). Both groups improved submaximal METS (80%APHRmax; p values < 0.033). There were no between group differences in absolute or relative peak VO_2 (p values > 0.227), submaximal VO_2 ($p = 0.130$), estimated maximal VO_2 ($p = 0.231$), estimated submaximal VO_2 ($p = 0.480$), or maximum heart rate ($p = 0.563$). The results were similar in the completers analysis ($n = 113$).

Conclusion: Participants in the physical activity group showed improvements work rate and both groups improved submaximal fitness. Most outcomes were in the expected direction (improvements in the PA group and no change in the SA group) for non-significant findings. The RAATE study is one of few to show cardiorespiratory fitness changes in older African Americans after one year. It will be important to determine if physical activity changes are associated with a reduction in dementia risk factors.

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I-P-B.01

Exploring Concepts and Existing Research on Protein Literacy: A Scoping Review

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Purpose: Public and scientific interest in dietary protein continues to grow, yet many individuals remain unaware of their daily protein needs. Given the increase in attention to protein intake in both public health messaging and consumer trends, there is a developing need to examine the concept of protein literacy and how it influences dietary behaviors. The purpose of this scoping review is to synthesize published research on protein literacy including assessment tools, educational sessions, and developed frameworks.

Methods: Our scoping review followed the Arksey and O'Malley framework, complied with the Joanna Briggs Institute (JBI) guidance for data extraction, and was registered in the Open Science Framework. We searched CINAHL, PubMed, Web of Science, ProQuest, CDC Stacks, and CENTRAL up until May 2025. Studies were included if they presented a protein literacy model, framework, assessment tool, intervention, or program.

Results: Nineteen studies met the inclusion criteria for this scoping review. Sixteen included an assessment tool measuring dietary protein knowledge, perceived attitudes, and nutritional importance. The tools most often assessed factual knowledge about protein intake and sources, while few addressed behavioral application or communication skills related to protein sources. Few assessment tools were developed using validated literacy framework (n=5) and none based on a protein literacy framework. Most instruments did not assess validity while approximately half reported reliability (n=10). Three studies gathered qualitative data through semi structured interviews or focus groups to explore perceptions of protein adequacy and understanding dietary guidance. Most studies focused on adult populations (n=14).

Conclusion: Findings reveal the inconsistency in defining and measuring protein literacy. Current approaches tend to isolate knowledge or attitudes without considering interactive or critical dimensions such as application in real-world settings. A comprehensive, theory-driven framework is needed to guide the development of validated assessment tools and educational programs that capture the multifaceted nature of protein literacy.

I-P-B.02

Developing a Conceptual Framework for Dietary Protein Literacy: A Thematic Analysis of Expert Interviews

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Purpose: Protein plays an important role in health and disease prevention, yet public understanding of appropriate intake, quality, and sources remains limited. This gap shows the need for a comprehensive protein literacy framework that defines how individuals demonstrate the ability to assess, interpret, and apply information about dietary protein. Developing such a framework is necessary to guide future education efforts, assessment development, and behavioral research in this area. The primary aim of the study is to gather feedback from experts on the development of a conceptual framework for protein literacy, grounded in Nutbeam's model of health literacy, which includes functional, interactive, and critical domains.

Methods: Semi-structured interviews are being conducted via zoom with experts, health professionals, and other stakeholders to gain insight into key concepts and perspectives surrounding dietary protein literacy. Interviews are audio recorded and transcribed verbatim. Braune and Clark's reflexive thematic analysis approach is being applied to systematically code the data and identify emerging patterns and key themes from the interviews. A primarily deductive analytical process is used to organize the themes according to the domains of functional, interactive, and critical literacy while also allowing for inductive insights to capture unique aspects of protein literacy that may exist beyond frameworks.

Results: Preliminary findings indicate consensus on various key elements to include in the emerging framework. The functional domain centers on foundational knowledge such as understanding protein sources, quality, and recommended intakes. Interactive protein literacy involves the ability to communicate protein related information

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and apply knowledge to make informed protein related decisions. The critical domain encompasses the ability to evaluate credibility of protein related information and make decisions aligned with health goals. Participants also emphasized the need for the framework to include cultural and contextual factors.

Conclusion: Analysis will inform the development of a comprehensive and theory-driven protein literacy framework that integrates the functional, interactive, and critical domains. This framework will provide a foundation for future assessment tool development, educational interventions, and research aimed at improving protein related knowledge and behaviors.

I-P-B.03

The Association of Physical Activity and Strength on Bone Health: Is Menopausal Age Modifying this Association? Evidence from NHANES 2013–2014

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Purpose: Osteoporosis disproportionately affects women as they transition through menopause, when hormonal changes accelerate bone loss. Physical activity (PA) and muscular strength are protective factors for bone health; however, the extent to which menopausal age modifies these associations remains unclear in nationally representative data. Our study examines the association between physical activity and grip strength with bone health, and to assess whether menopausal age modifies these relationships among adult women.

Methods: Data were drawn from the 2013–2014 National Health and Nutrition Examination Survey (NHANES) for women (n = 5,172) aged ≥ 20 years with complete information on osteoporosis status, grip strength, and PA. A survey-weighted logistic regression model estimated the odds of osteoporosis as a function of total minutes of PA, grip strength, and age group (“<40” & “≥40”), including interaction terms between menopausal group and both PA and grip strength. The model accounted for strata, clusters, and examination weights. It was also adjusted for race, education, and income, and age group was included as an interaction term. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated.

Results: Higher grip strength was associated with lower odds of osteoporosis (OR = 0.94, 95% CI: 0.92–0.97, *p* = 0.006) suggesting that each one-unit increase in grip strength reduced the likelihood of osteoporosis by about 6%. Total minutes of PA showed an inverse but non-significant association (OR = 0.99, 95% CI: 0.98–1.00, *p* = 0.11). No significant interactions were observed between age group and either PA or grip strength (*p* = 0.12 or 0.31) respectively.

Conclusion: Using nationally weighted data, higher muscular strength seemed to be independently protective against osteoporosis, whereas total PA volume and menopausal age did not significantly influence this relationship. These findings underscore the importance of raising awareness about the benefits of strength training, in conjunction with recommended exercise guidelines, and incorporating strength training into the exercise routines of women across all age groups.

I-P-B.04

Motivations and Experiences of Adults Using GLP-1 or Dual GLP-1/GIP Agonists for Obesity: Preliminary Findings from a Qualitative Study

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Purpose: GLP-1 receptor agonists (GLP-1As) and dual GLP-1/GIP agonists (GLP-1/GIP-As) are transforming obesity management, yet very few studies have explored adults' experiences using or discontinuing these medications. This study explores adults' experiences using injectable GLP-1As or dual GLP-1/GIP-As for obesity management, focusing on motivational factors underlying treatment initiation and continuation, as well as facilitators and barriers influencing adherence or discontinuation.

Methods: Guided by Self-Determination Theory, this qualitative study used a comprehensive paradigm to explore participants' experiences. A purposeful sample of adults from the province of Québec (Canada) currently using ($n = 13$) or having discontinued ($n = 8$) injectable GLP-1As or GLP-1/GIP-As was recruited through a research volunteer mailing list from an obesity medicine clinic and the general population. Eligible participants completed sociodemographic and brief medical history questionnaires. Individual semi-structured interviews were conducted by the first author via Microsoft Teams and video-recorded. Transcripts were revised for accuracy and analyzed using NVivo 15. Thematic analysis combined inductive and deductive coding and was refined through iterative discussions with co-researchers during three analytic meetings while data was being collected.

Results: Preliminary findings suggest that motivations to initiate GLP-1As and GLP-1/GIP-As treatments were mostly linked to health concerns (e.g., preventing or improving obesity-related co-existing conditions), body image concerns, and repeated challenges with previous weight-management attempts. Barriers to medication initiation were mainly related to cost and potential side effects (e.g., nausea, diarrhea). Participants described perceived benefits such as appetite and satiety regulation, weight loss, enhanced body satisfaction, and greater physical capacity to engage in meaningful activities (e.g., sports). Perceived downsides included financial burden, side effects, and social discomfort (e.g., during shared meals in social settings due to loss of appetite). Participants identified eating habits and physical activity as the behaviors they were most motivated to improve or maintain in the future, with or without medication.

Conclusion: This is among the first qualitative studies to examine adults' motivations, facilitators, and barriers related to the use of GLP-1As and GLP-1/GIP-As medications to support obesity management. These findings highlight the need to consider motivational factors and patients' experiences when integrating pharmacological treatments in obesity care.

I-P-B.05

Moving beyond Appearance: Understanding the Relationship between Physical Activity, Embodiment and Positive Body Image in Men

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Purpose: The purpose of this study was to investigate whether physical activity predicts positive body image in men, and if this relationship is mediated by increases in embodiment and decreases in self-objectification, consistent with the Embodiment Model of Positive Body Image (Menzel & Levine, 2011).

Methods: A cross-sectional study was conducted with one hundred and forty-two men (18-85 years of age) living in North America. They completed demographic information and measures of physical activity, positive body image (i.e., functional values, functional-behavioural investment, and functional satisfaction), embodiment, and self-objectification online or in person. Three separate serial mediation analyses (one for each positive body image outcome) were conducted using PROCESS Model 6 (Hayes, 2016) and 5000 bootstrap samples, with embodiment and self-objectification as the mediators.

Results: Results of the mediation analysis for functional values showed no direct or indirect effects (all $ps > 0.05$). For functional-behavioural investment, there was a significant total effect, $\beta = 0.21$, $t(140) = 2.58$, $p = .01$, and a significant direct effect $\beta = 0.23$, $t(138) = 2.74$, $p = .01$, but no significant indirect effects, $ps > 0.05$. For functional satisfaction, there was also a significant total effect $\beta = 0.29$, $t(140) = 3.53$, $p < .001$, a significant direct effect $\beta = 0.29$, $t(138) = 3.59$, $p < .001$, but no significant indirect effects, $p > 0.05$.

Conclusion: Results show that physical activity participation can contribute to positive body image in men. Specifically, there were increases in functional-behavioural investment (engagement in physical activities, reflecting importance of body function) and functional satisfaction (positive evaluation of the body's abilities). However, contrary to hypotheses, these effects were not mediated through embodiment and self-objectification; rather, the effects appear to be direct. Findings show that physical activity may affect positive body image differently for men than women. Further research is needed to understand how physical activity can enhance positive body image in men.

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I-P-B.06

Interactive Behavioural Support Interventions in Osteoarthritis Care: A Scoping Review

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Purpose: Physical activity (PA) offers essential benefits for adults with osteoarthritis (OA), yet PA levels remain low. Interactive behavioural support, such as counselling, shows promise in promoting PA. However, evidence regarding its design, delivery, and effectiveness — particularly for adults with OA or total joint prostheses — is limited and has not been systematically described. This scoping review aims to map and characterise interactive behavioural support interventions in these populations, examining their design, setting, delivery mode, theoretical foundations, and use of behaviour change techniques (BCTs).

Methods: A systematic search was conducted in PubMed, Embase, CINAHL, PsycINFO, and Web of Science (last updated September 3rd, 2025). Studies were eligible when they (1) included adults (≥18 years) with OA or a total joint prosthesis, (2) described interventions including interactive support aiming to increase PA or related determinants, (3) reported PA levels, determinants or user experiences, and (4) were published in English. Data were extracted using a template informed by the Behaviour Change Intervention Ontology, and BCTs were independently coded by two researchers using the updated BCT taxonomy.

Results: Thirty-four studies were included, most conducted in countries with relatively well-resourced healthcare systems, such as North America, Australia, and Europe. The majority (n=31, 91%) focused on adults with knee or hip OA, while only three studies (9%) specifically targeted adults with total joint prostheses. Interventions varied in design, delivery, and theoretical basis, yet consistent features emerged. Behavioural support was typically delivered individually by physical therapists or nurses and included on average seven BCTs, such as goal setting, delivering support, and goal strategizing. Almost all interventions (n=32, 94%) also included additional components, such as exercise programs or education.

Conclusion: Interactive behavioural support is commonly integrated with other intervention components and delivered using theory-informed approaches with key BCTs. There is considerable variation in design, delivery, and reporting, with interventions for adults with joint prostheses remaining limited. Future research should clarify the added value of interactive support within multicomponent programs, especially for adults with prostheses, explore implementation across less-resourced settings, and develop evidence-based guidelines to improve consistency, quality, and applicability of such interventions.

I-P-B.07

Cooking up Confidence: Impact of a 10-week Programme on Food Literacy in UK Secondary Schools

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Purpose: Cooking skills are part of England's Design and Technology curriculum. Strengthening cooking skills and confidence can improve food literacy in terms of young people's ability to make healthy, informed food choices. This study assessed changes in food literacy including food and nutrition knowledge, cooking confidence and food skills of school pupils following participation in the 10-week Jamie Oliver Ministry of Food (MoF) school programme in Years 7–9.

Methods: Secondary schools (n=12) participated in the MoF programme between September 2023 and April 2024, with schools in underprivileged areas oversampled. The programme comprised ten 50-minute lessons (eight weeks if shortened), each involving meal preparation using fresh produce. At baseline and follow-up, 215 pupils from 12 schools completed cooking confidence and food literacy questionnaires (scored out of 70). Changes in food literacy between baseline and follow-up were analysed using multilevel regression modelling to consider the clustering of

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pupils within schools.

Results: Baseline food literacy was low (mean score 43/70). Knowledge gaps included identifying vitamins, minerals, and seasonal produce. Most pupils (98%) agreed cooking is important, but confidence varied: 67% felt very or extremely confident, while 6% lacked confidence in cooking from raw ingredients. After the programme, overall food literacy increased significantly (mean difference 3.0 points; 95% CI 2.0–3.9; $p < 0.001$), driven by improvements in knowledge (mean +1.7 points; $p = 0.003$) and cooking confidence (+0.9 points; $p = 0.03$). Two-thirds of pupils rated the course highly in terms of enjoying the meal (>4 out of 5), and 75% of pupils reported cooking at home using the course recipe post-programme.

Conclusion: The 10-week cooking programme significantly improved pupils' food knowledge and cooking confidence, demonstrating a positive impact on food literacy. Schools should integrate structured cooking lessons, engage parents, and provide take-home resources to improve food literacy and cooking confidence.

I-P-B.08

The Relationship between Environmental and Sustainability-related Literacy and Health-related Behavior: A Systematic Review

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Purpose: As environmental challenges increasingly affect human health, it becomes essential to understand how individuals' environmental knowledge, attitudes, and competencies influence their health-related behaviors (e.g., whether climate awareness promotes healthier eating). However, the association of environmental or sustainability-related literacy on health-related behaviors remains underexplored. This systematic review, therefore, addresses this research gap by identifying and synthesizing studies that examine this relationship.

Methods: The systematic review was conducted following PRISMA guidelines and was registered in PROSPERO (Registration ID: CRD420251104050). A comprehensive literature search was performed across databases from different research areas (e.g., PubMed, Web of Science, GreenFile) to identify studies examining the relationship between environmental or sustainability-related literacy and health-related behaviors. The search strategy included variations of 'environmental literacy' (e.g., climate literacy, green literacy) and 'health behavior' (e.g., 'healthy lifestyle' and 'physically active'). Inclusion and exclusion criteria were predefined (e.g., inclusion criteria like individuals who are capable of making conscious decisions or empirical studies measuring health behaviors, such as physical activity, healthy eating, and substance use), and data were extracted and synthesized narratively. Study quality was assessed using the JBI checklist for analytical cross-sectional studies.

Results: The database search identified 9,346 records. After removing duplicates and screening according to the eligibility criteria, five studies published within the past six years were included in the narrative synthesis. These studies, originating from the USA as well as Asian and European countries, varied in design, measurement instruments, quality, and conceptualization of literacy. Although all studies reported a statistically significant positive association between environmental or sustainability-related literacy and health-related behaviors (e.g., general health behavior, smoking, diet), no firm conclusions could be drawn regarding the direction of influence from environmental or sustainability-related literacy to health-related behaviors.

Conclusion: Findings suggest that environmental or sustainability-related literacy is linked to healthier behaviors. However, due to the limited number of studies, the heterogeneous understanding and measurement of literacy and the unclear direction of influence based exclusively on cross-sectional studies, further research is needed to better understand causal relationships and underlying mechanisms.

I-P-B.09

Environmental Literacy and Its Association with Health Behaviours in German Adolescents

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Purpose: Health is closely linked to environmental and climate protection issues. The mutual benefits of health and the environment are evident and hold potential for making health-related and environmentally relevant decisions in a co-benefit scenario. However, empirical relationships between environmental literacy and health-related behaviours have rarely been examined.

Methods: The Health Behaviour in School-aged Children (HBSC) study surveyed 15-year-old girls (n=967) and boys (n=837) in the 2022 survey round, assessing their environmental literacy for the first time in the German sample. Environmental literacy was self-reported using an 11-item scale comprising the subdimensions knowledge, action, and social aspects. The associations of environmental literacy with self-reported fruit and vegetable consumption, as well as daily physical activity, were examined using sex-specific logistic regressions while controlling for family affluence and school type.

Results: In boys, the action dimension of environmental literacy was significantly associated in the adjusted model with daily fruit (OR: 1.32 [95%-CI: 1.14-1.54]) and daily vegetable consumption (OR: 1.30 [95%-CI: 1.09-1.56]), as well as with meeting physical activity recommendation (OR: 1.32 [95%-CI: 1.23-1.54]). The social dimensions show similar results for daily fruit consumption and physical activity. In girls, we found significant associations between the knowledge (OR: 1.36 [95%-CI: 1.11-1.66]) and action dimension (OR: 1.23 [95%-CI: 1.04-1.46]) of environmental literacy and daily fruit consumption. The total score of environmental literacy was significantly associated with daily fruit consumption in both boys and girls, and with physical activity in boys only.

Conclusion: We found selected associations between different dimensions of environmental literacy and fruit and vegetable consumption, as well as with physical activity. The findings indicate co-benefits between sustainability and health behaviours, offering a new perspective for designing interventions. Promoting environmental literacy in education could simultaneously foster healthier behaviours among adolescents. The underlying mechanism explaining the association between environmental literacy and health behaviours should also be further investigated.

I-P-B.10

Motivational Interviewing Plus Cognitive Behavioral Therapy Interventions on Physical Activity among Adults: A Systematic Review and Meta-analysis

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Purpose: The World Health Organization (WHO) projects that global physical inactivity levels will rise to 35% by 2030, demonstrating that current efforts are insufficient to achieve the WHO's goal of a 15% reduction in physical inactivity within this period. This growing gap underscores the need for effective behavioral interventions that can enhance motivation and adherence to physical activity. Motivational interviewing (MI) and cognitive behavioral therapy (CBT) have emerged as promising strategies for addressing barriers to engaging in physical activity. Using both behavioral techniques could complement each other and maximize their potency. Therefore, this systematic review aimed to determine the effectiveness of MI + CBT in promoting physical activity among adults.

Methods: Cochrane library, Medline, PsycINFO, CINAHL, EMBASE and Web of Science core collections databases were searched from inception to 16th July, 2025. Eligible studies included randomized controlled trials (RCTs) which examined the effects of MI+CBT on physical activity (primary outcome), quality of life and self-efficacy (secondary outcomes) in adults (≥18 years). Risk of bias was assessed using the Cochrane RoB-2, and certainty of evidence with Grading of Recommendations, Assessment, Development and Evaluation. Pooled data was summarized with standardized mean difference (SMD) using a random-effects model.

Results: Of the 404 studies retrieved, only five RCTs were included in this review with a total sample size of 2,146 adults (age range 18-71 years; 75% male). The results showed that combined MI+CBT interventions had a non-significant effect on physical activity (SMD = -0.54, 95% CI [-0.07 – 1.16], I²=86%, p=0.08) and quality of life (SMD = -0.76, 95% CI [-1.51 – 3.03], I²=95%, p=0.51) with very low certainty of evidence. However, there was a moderate certainty of evidence supporting the beneficial effect of MI + CBT on self-efficacy (SMD = 0.33, 95% CI [0.09, 0.56], I² = 0%, p = 0.007).

Conclusion: Although MI + CBT intervention had no statistically significant improvement on physical activity and quality of life, but it demonstrated moderate evidence for the beneficial effects on self-efficacy among adults. Strengthening self-efficacy may therefore serve as a pivotal pathway for improving adherence and achieving meaningful increase in physical activity participation among adults.

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I-P-B.13

Are Pre-operative Exercise Interventions for Joint Arthroplasty Effective at Improving Peri-operative Outcomes: A Systematic Review and Meta-analysis of Randomized Controlled Trials

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Purpose: Evidence on pre-operative physical activity before hip and knee arthroplasty is limited and heterogeneous, meanwhile intervention components and behavior change techniques remain underexplored. This review examined the effectiveness of pre-operative physical activity interventions on patient and surgical outcomes in elective hip and knee arthroplasty up to 12 weeks post-surgery.

Methods: A systematic search of 8 databases up to August 8, 2024 identified randomized controlled trials of physical activity interventions before total hip and knee arthroplasty. Quality of evidence was evaluated with Grading of Recommendations, Assessment, Development and Evaluation (GRADE) framework. Random-effects models were used for meta-analyses. The included interventions were described using the Template for Intervention Description and Replication (TIDieR) and behaviour change techniques (BCTs) were identified via the Behaviour Change Technique Taxonomy (BCTTv1).

Results: Forty trials were included. Significant mean differences in favour of the intervention groups were found at pre- and post-surgery in 4 outcomes: health-related quality of life (Knee pre-surgery SMD = -0.5, 95%CI: -0.1 to -0.1 and Hip and Knee post-surgery SMD = -0.4, 95%CI: -0.6 to -0.1), pain (Hip and Knee pre-surgery SMD = -0.4, 95%CI: -0.6 to -0.1 and Knee post-surgery SMD = -0.3, 95%CI: -0.6 to -0.1), function (Hip and Knee pre-surgery SMD = -0.5, 95%CI: -0.8 to -0.2 and Knee post-surgery SMD = -0.6, 95%CI: -1 to -0.2), and timed-up-and-go (Hip and Knee MD = -1.2, 95%CI: -2 to -0.3 and Hip and Knee MD = -1.3, 95%CI: -1.7 to -0.8). Half of the interventions reported over 75% of the TIDieR items, while behavior change techniques reporting was limited.

Conclusion: Pre-operative exercise improves health-related quality of life, pain, and function pre- and post-surgery in elective hip and knee arthroplasty. Standardized reporting is needed for establishing effective intervention components.

I-P-B.14

Women in Strength: Randomised Controlled Feasibility Testing of a Co-designed Muscle-strengthening Intervention for Women

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Purpose: Women's participation in muscle-strengthening exercise remains low despite its known health benefits. A prior workshop identified barriers, facilitators, and co-designed an intervention for women not currently participating in these activities. This study aimed to assess the feasibility and effects of a co-designed muscle-strengthening exercise intervention for women.

Methods: We recruited women aged 18–45 years. The initial 12-week intervention included education sessions, optional group exercise sessions, online support group, training logs, and access to various modalities (gym memberships and resistance bands). Participants were encouraged to complete two weekly muscle-strengthening sessions of their choice (weights, resistance bands, bodyweight, yoga, Pilates, or strength classes). After 12 weeks, support was withdrawn, and participants were asked to maintain twice-weekly sessions. The control group maintained habitual activity. Feasibility was assessed through recruitment, adherence and retention at 24 weeks. Acceptability was evaluated via qualitative interviews and analysed thematically. Measurements included muscle thickness, handgrip strength, back strength, and knee extensor torque at baseline, 6, 12, and 24 weeks.

Results: Thirty-one participants completed (n=16 control; n=15 intervention; age 28.9 ± 7.6 years). Recruitment targets were met (100%), with 91% retention and 53% completed ≥24 sessions within 12 weeks. Education sessions (attendance 80–87%) and access to exercise modalities were highly acceptable. Optional group sessions and the online support group were less utilised. No significant interactions were observed. Significant effects of time occurred for muscle thickness (p=0.028), back strength (p=0.039), and knee extensor torque (p<.001), but not handgrip strength

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($p=0.118$). From baseline to week 12, changes in muscle thickness were +0.56mm, $p=0.492$ in control and +0.86mm, $p=0.054$ in intervention. For handgrip strength, changes were -0.75kg, $p=1.000$ in control and +0.17kg, $p=1.000$ in intervention. For back strength, changes were +3kg, $p=1.000$ in control and +9.8 kg, $p=0.011$ in intervention. For knee extensor torque, changes were -0.52Nm, $p=1.000$ in control and +10.89Nm, $p=0.381$ in intervention. Similar results were observed from baseline to week 24, with effects generally smaller.

Conclusion: The co-designed muscle-strengthening intervention was feasible, acceptable, and showed potential for improving muscle thickness and strength. These findings suggest the trial was successful and can be advanced to a larger trial focusing on increasing adherence.

I-P-B.15

Inconsistent Association Pattern between Health and Well-being Determinants and the Day-to-Day Variability of Sedentary Behaviour in Community Dwelling People with Stroke

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Purpose: Stroke is the second leading cause of death and the third leading cause of long-term disability worldwide and people who suffered a stroke are at high risk of a recurrent stroke. This makes secondary prevention after stroke highly important. The risk of stroke is associated with high levels of sedentary behaviour. Therefore it is important to improve the effectiveness of behaviour interventions aiming to reduce sedentary behaviour in people with stroke. The current study aimed to explore the association between health and well-being determinants and the daily variability in sedentary behaviour over time within community-dwelling people with stroke.

Methods: In this n-of-1 study design the associations between determinants and sedentary behaviour during the RISE-intervention randomized multiple baseline study was examined. Sedentary behaviour was measured with an accelerometer for 17.5 weeks. health and well-being determinants were measured daily using the Visual Analogue Scale. Dynamic regression modelling (time-series analysis) was used to determine the association between health and well-being determinants and daily variability in sedentary behaviour over time.

Results: Data from twelve community dwelling people with stroke (median age 65, daily sedentary behaviour ranging 55.5-81.4 percent) were included in the analysis. It showed variance in the associations between participants. Sleep length (measured with the activity monitor) was positively associated with the percentage of sedentary behaviour in three participants ($p=0.001$, $p<0.0001$, $p=0.045$), and negatively associated in one participant ($p=0.002$). Subjective sleep length ($p=0.016$), fatigue ($p=0.013$), and pain ($p=0.0098$) were exclusively associated with the percentage of sedentary behaviour in one participant. No significant associations were found for sleep quality, happiness, stress, or time pressure in any of the participants.

Conclusion: The results of this study show an inconsistent association pattern between health and well-being determinants and the day-to-day variability of sedentary behaviour across participants. Indicating that factors associated with the daily variability of sedentary behaviour in one individual may differ from those in another individual. This highlights the need for a personalized approach within behavioural interventions aiming to improve sedentary behaviour in people with stroke.

I-P-B.16

Towards the Co-design of a Culturally Relevant Physical Activity Intervention for Adults at Higher Risk of Non-communicable Diseases: Application of a Behavioural Science Approach

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Purpose: Engaging stakeholders in co-design ensures interventions are culturally relevant, contextually appropriate, and more likely to be adopted and sustained in real-world settings. We describe the first step of the process of co-designing a theory-informed PA intervention to be delivered in primary care (PC) for adults at higher risk of NCDs, in Ghana and Canada.

Methods: Our co-design process includes 2 steps:

- i) developing an initial theory-informed core version of the intervention, and
- ii) adapting the intervention to country-specific PC contexts with Ghanaian and Canadian stakeholders.

To date we identified relevant systematic reviews, extracted the reported determinants, and mapped them onto the Theoretical Domains Framework (TDF) and Behaviour Change Wheel components (Capability, Opportunity, Motivation, and Behaviour). Subsequently, we selected relevant Behaviour Change Techniques (BCTs) to target identified determinants and their likely Mechanisms of Actions. Finally, we applied the APEASE criteria (Acceptability, Practicability, Effectiveness, Affordability, Side-effects, and Equity) to the selected BCTs.

Results: The identified determinants were mapped onto 12 TDF domains: knowledge (adequate PA literacy and knowledge); behavioural regulation (establishing healthy PA routines); skills (practical skills on PA); social influences (positive social support for PA); environment context and resources (supportive built environment); social role and identity (competing roles resulting in lack of time for PA); beliefs about capabilities (positive belief about capabilities); belief about consequences (belief that PA will improve health); and emotion (pleasure engaging in PA). Relevant BCTs related to goal setting, action planning, self-monitoring of behaviour, feedback on performance, social support and instruction on how to perform PA. Education, training, enablement, and persuasion were identified as the most effective intervention functions to activate to promote PA in PC. Using these results as a starting point, together with ongoing work including comprehensive systematic reviews on PA determinants and implementation strategies, and patient and clinician perspectives on promoting PA in PC settings, we are now using co-design methods to adapt the intervention and develop the implementation plan with our transdisciplinary team of stakeholders.

Conclusion: The first step of a co-design process aiming to develop a theory-informed core version of the intervention requires substantial teamwork and involves multiple iterations between theoretical content and intervention aims.

I-P-B.17

Psychosocial Correlates of Mediterranean Diet Adherence across Time: A Secondary Analysis of the BRIDGE Study

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Purpose: Adherence to the Mediterranean diet (MedDiet) is associated with improved cardiometabolic and cognitive outcomes, yet the psychosocial factors supporting sustained adherence remain unclear. Guided by Self-Determination Theory, this secondary analysis of the BRIDGE dataset examined how motivation and depressive symptoms predict Mediterranean diet adherence trajectories across three intervention groups and multiple timepoints.

Methods: Data were drawn from the BRIDGE randomized controlled trial evaluating behavioral strategies to promote Mediterranean diet adherence among adults (N = 185) assigned to one of three groups: 1) MedDiet education only, 2) MedDiet plus calorie restriction, or 3) control. Mediterranean diet adherence was assessed using the 14-item Mediterranean Diet Adherence Screener (MEDAS). Depressive symptoms were measured with the Center for Epidemiologic Studies Depression Scale (CES-D), physical activity with the Godin Leisure-Time Exercise Questionnaire, and motivational regulation with the Treatment Self-Regulation Questionnaire (TSRQ). A linear mixed-effects model was estimated to assess psychosocial predictors of MedDiet adherence over time, with participants modeled as a random intercept. Fixed effects included depression, physical activity, autonomous motivation, controlled motivation, and amotivation, along with time point, group, and their interaction.

Results: Autonomous motivation was positively associated with Mediterranean diet adherence ($\beta = 0.39$, SE = 0.14, $p = .005$). Depressive symptoms, physical activity, controlled motivation, and amotivation were not significant predictors.

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Adherence increased linearly across visits ($p < .001$), with a quadratic trend indicating that gains plateaued over time ($p < .001$). Compared with the MedDiet-only group, the control group showed lower overall adherence ($\beta = -0.82$, $SE = 0.25$, $p = .001$). The MedDiet-plus group did not significantly differ from MedDiet-only in overall adherence or change patterns.

Conclusion: Autonomous motivation emerged as a key psychosocial predictor of Mediterranean diet adherence, suggesting that fostering self-endorsed motivation may enhance long-term dietary engagement. Although adherence improved over time, gains plateaued, highlighting the need for sustained behavioral support. Group differences suggest that intervention intensity and delivery context may influence adherence trajectories. These findings advance understanding of motivational mechanisms underlying Mediterranean diet adoption and maintenance in behavioral nutrition research.

I-P-B.18

Boosting Everyday Movement: Co-designing an Intervention to Promote Micropatterns among Diverse Communities

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Purpose: Vigorous (VILPA) and moderate to vigorous (MV-ILPA) intermittent lifestyle physical activity are defined as brief bouts of physical activity occurring during normal daily activities lasting <1 minute and <3 minutes respectively. Evidence indicates that 4-6 bursts of VILPA/MV-ILPA per day can lead to a significant reduction in risk from cardiovascular disease and some cancers. These “micropatterns” of activity may offer a time-efficient and accessible alternative to the temporal and financial barriers (e.g. equipment) associated with structured exercise. However, communities will still experience unique barriers and facilitators to VILPA/MV-ILPA that need to be explored. This research aims to explore participant perspectives and experiences of VILPA/MV-ILPA and co-design a digital intervention to promote these activities among socioeconomically diverse communities in Glasgow and Sydney.

Methods: The study involved a series of three co-design workshops in Glasgow (N=20) and Sydney (N=34). Workshops incorporated participatory activities, education, training, discussion, and reflection to explore the concept of micropatterns, related facilitators and barriers and co-design the intervention. This study was guided by the Behaviour Change Wheel and MRC and 6SQiD intervention development frameworks. Data were audio-recorded, transcribed, and analysed using thematic framework analysis.

Results: Participants identified a range of barriers (e.g. concerns about ability and safety, low mood, sociocultural norms) and facilitators (e.g. adaptability, dual-purpose activities, minimal time commitment) to engaging in micropatterns. Thirteen intervention components were identified that utilized seven intervention functions (education, persuasion, training, environmental restructuring, modelling, incentivisation, and enablement) to promote VILPA/MV-ILPA activities. The importance of educational content, social support, accessible terminology and inclusive delivery formats (e.g. short videos, visual materials) were emphasised in both contexts.

Conclusion: The co-design process shaped the development of a highly promising app-based digital intervention to promote VILPA and MV-ILPA among diverse communities. This study will provide critical insights to support the successful real-world implementation of micropattern interventions in future research and practice.

I-P-B.19

Perspectives of Nurses on their Role in Supporting an Active Lifestyle during Inpatient Stroke Rehabilitation

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Purpose: Although enhancing physical activity (PA) is important for physical and cognitive recovery of stroke patients, the role of nurses in supporting an active lifestyle is underused during the inpatient rehabilitation treatment. The aim of this study is to identify nurses' perspectives on their current and potential role and influencing factors to support an active lifestyle of stroke patients during inpatient rehabilitation treatment.

Methods: Three focus groups were conducted in three Dutch rehabilitation centres with 18 nurses (EQF level 3-6 (European Qualifications Framework)). Each focus group consisted of 5-8 nurses. The transcribed data were analysed using the framework method. The data were coded by 2 researchers independently and afterwards checked to align the codes and themes until consensus was reached.

Results: In their current role, nurses encourage PA during the 24/7 nursing care with a focus on regaining independency. In their potential role, nurses consider themselves the linking pin between the patient, nursing team and interdisciplinary team. They have unique knowledge of patients through their 24/7 eyes on the patients and (informal) contact with relatives. Nurses foresee a shift towards coaching and supporting patients to achieve a more active lifestyle.

The influencing factors mentioned by nurses can be divided into five themes: awareness of nurse's role, structures supporting patients' active lifestyle within nursing practice, changing work patterns, social interactions within nursing team, and profiling the nurse's role within interdisciplinary team.

Conclusion: Nurses may have a large potential role in promoting an active lifestyle of patients during inpatient rehabilitation. Their current role in facilitating and coaching patients to regain independency can be expanded to facilitating and coaching patients in behavioural change toward an active lifestyle.

However, nurses need support in learning how to improve their role in supporting an active lifestyle. Increasing their role also priority with nurses and in the nursing teams, structure within nursing practice and, requires commitment from the interdisciplinary team.

I-P-B.20

From Farm to Table, Not to Trash: A Community Approach to Reducing Food Waste

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Purpose: The purpose of this work is to empower households to reduce food waste through education, engagement, and practical tools. The projects objectives were to:

1. Increase awareness of food waste impacts and actionable solutions among households in Skagit County
2. Motivate community members to adopt at least one new food waste prevention behavior.
3. Foster community partnerships to sustain and expand food waste prevention efforts.

Methods: A community-based qualitative evaluation employed a participatory action approach to assess the impacts of the campaign. The initiative sought to understand household behavior change linked to food waste reduction and its contributions to climate action. The campaign targeted Skagit County households, including bilingual (English and Spanish) families and local community partners.

Qualitative data were collected through participant-generated feedback on a "Wall of Ideas" during the community event, capturing firsthand accounts of household behavior changes. Additional feedback came from reflections of team members and partners during a ripple effect mapping session.

Indicators included self-reported behavior changes (e.g., improved food storage, composting adoption, meal planning), number of individuals reached, and estimated pounds of food diverted from landfills. Qualitative data were analyzed thematically following a grounded theory approach, identifying recurring patterns in participant behaviors and attitudes toward waste prevention. Quantitative engagement data was summarized descriptively to assess program reach and behavioral adoption trends.

Results: Results. Broad community engagement and measurable behavior changes aligned with the food waste prevention and climate action goals of the project

The campaign's bilingual outreach materials and events reached more than 10,000 county residents through digital, print, and broadcast media. Social media posts in English and Spanish generated over 1,800 engagements and 300 webpage clicks. The "Day of Learning" attracted 120 in-person participants, and over 6,000 residents were reached through print newspaper coverage and 10,000 through public radio and television features.

Conclusion: The program has proven that practical, accessible education, when adapted to local contexts and

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cultures, can significantly reduce food waste and strengthen community engagement around climate action. The ongoing integration of these approaches within Skagit County reflects the power of Extension-led collaboration to create sustainable, system-level change that benefits both people and the planet.

I-P-B.21

Exercise Identity and Resilience in Physical Activity: Revealing New Insights into Women's Motivation and Barriers

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Purpose: Living in remote regions limits access to physical activity, and women in these areas show lower participation rates (INSPQ, 2022). Psychological factors, including exercise identity, reflecting integrating activity into one's self-concept, and resilience in physical activity, the ability to overcome participation challenges, may help counter these barriers. Both have been associated with sustained engagement in exercise (Martin et al., 2025; Wilson et Muon., 2008). This study compared the proportions of adolescent girls (12-17 years) and young adult women (18-29 years) practicing physical activity by cross-referencing their exercise identity and resilience in physical activity with reported motivations and barriers.

Methods: Data came from the 2018–2019 *Enquête québécoise sur l'activité physique et le sport* (EQAPS), a population-based survey conducted across Québec ($n = 17,649$). The subsample included 6,177 females (5,334 adolescents; 843 young adults). Twenty-four closed-ended items from two sections – *opinions, perceptions and values regarding physical activity* and *respondent profile* – were analyzed. Weighted analysis (SAS, SUDAAN) used log-linear chi-square and Wald tests ($p < .05$) to compare proportions; estimates were assessed via coefficient of variation.

Results: Across age groups, differences in motivations and perceived barriers were observed according to exercise identity and resilience. The highest proportions of perceived barriers appeared among adolescents declaring no exercise identity nor resilience, whereas those declaring both reported a broader range of motivations. Both adolescents and young adults declaring exercise identity alone reported higher competition-related motivation (84.6% and 78.2%; $p < .05$). Among adolescents, nine out of ten perceived barriers showed lower proportions among those declaring exercise identity and resilience. Specifically, adolescents declaring having resilience alone reported lower proportion of “lack of a partner” (24.4% vs. 43.8%; $p < .05$) as a perceived barrier, whereas those declaring exercise identity and resilience mentioned more often “health issue or injury” (32.6% vs. 25.8%; $p < .05$).

Conclusion: Strengthening both exercise identity and resilience among women during adolescence and young adulthood appears as a potential lever for improving their engagement in physical activity. Future interventions should explore how combining these constructs may reduce participation barriers and enhance motivation, especially among women in rural and remote areas.

I-P-B.22

Faster Walking Pace, Fewer Steps: Consequences of Time-restricted Outdoor Periods in Older Adults during the Pandemic in Spain

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Purpose: The political restrictions to control mobility and reduce epidemiological risk during the COVID-19 pandemic led to changes in physical activity habits. The aim of the study was to analyze changes in physical activity patterns in general, and walking in particular, before, during, and after the pandemic, taking into account the time restrictions imposed during the de-escalation phase in Spain.

Methods: A longitudinal study was conducted with 50 overweight or obese older adults (62–76 years) residing in Benalmadena, Spain. Three periods were evaluated: pre-pandemic (T1), pandemic-de-escalation (T2), and post-pandemic (T3). Physical activity was measured using wrist accelerometers (GENEActiv) worn for seven consecutive days. Step count, cadence, mean intensity (ENMO), moderate-to-vigorous physical activity (MVPA bouts)

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and walking patterns were compared.

Results: In both sexes, total daily steps decreased from T1 to T2 (9109 to 7527 steps/day).

In men, walks were shorter in T2 (37.6 min/day) compared to T1 (42.2 min/day), and continued to decrease in T3 (30.5 min/day). However, the walks in T2 had faster pace and were more intense, with the highest cadence (84 steps/min) and mean ENMO (128.1 mg) values.

In women, the duration of walks was also shorter in T2 (20.6 min/day) compared to T1 (22.7 min/day) but increased again in T3 (25.0 min/day). During the evening walks in T2, the fastest paces were recorded (86.6 steps/min), while the most intense walks, with the highest ENMO value, corresponded to the morning walks in T3 (97.3 mg). Overall, these findings suggest that the pandemic did not increase their frailty; on the contrary, the women regained and even surpassed their pre-pandemic activity levels.

Conclusion: The pandemic led to a redistribution of walking time and intensity, with differences between sexes. Time slots served as a facilitating structure for daily routines. These changes may have supported the maintenance of mobility and functional health, particularly among women.

I-P-B.23

Motivational Interviewing Skills in a Hospital-based Lifestyle Front Office: Association with Patients' Successful Behavioral Change

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Purpose: Motivational Interviewing is a communication style which helps overcome ambivalence and strengthens internal motivation for lifestyle change. This study aimed to 1) evaluate Motivational Interviewing (MI) fidelity of nine lifestyle brokers working in the Lifestyle Front Office (LFO) during the Dutch Lifestyle front Office For Integrating medicine in the Treatment of patients (LOFIT)-trial, and 2) examine the associations between lifestyle brokers' MI-scores and patient behavioral outcomes.

Methods: During the LOFIT-trial, all MI consultations in the LFO were audio-recorded. For each lifestyle broker, at least four recordings were randomly selected and independently scored by two researchers using the Motivational Interviewing Treatment Integrity code (MITI), version 4.2.1. This resulted in two global summary scores (global technical (GT) and global relational (GR), range 1-5) and four behavioral scores (% complex reflections (%CR), Reflection-Question-ratio (RQR) and the counts of MI-adherent behavior (MIA) and MI-nonadherent behavior (MINA)). Summary MI-scores were averaged per lifestyle broker and compared with established threshold values to evaluate MI fidelity.

Linear regression analyses were conducted with as independent variable the dichotomized MI scores of each lifestyle broker (low or high quality), and as dependent variable patients' FUSTER BEWAT score.

Results: Mean weighted summary scores (range; threshold score) were GT 3.5 (1.9-4.4; 3.0); GR 3.6 (1.9-4.3; 3.5); %CR 40.2% (14.3-61.2%; 40%) RQR 1.0 (0.3-1.8; 1.0) MIA 3.8 (2.0-5.2; n/a) MINA 2.0 (0.1-9.5; n/a)

Average summary scores met or exceeded threshold values, indicating that MI fidelity was achieved within the LOFIT trial. Considerable variation was observed between lifestyle brokers (5= high MI; 3= low MI).

The analysis between MI fidelity and the Fuster-BEWAT-score showed a nonsignificant mean difference of 1.09 (95%CI -0.37 to 2.56).

Conclusion: This study evaluated professionals' fidelity to a MI protocol within an RCT, supporting the interpretation of the trial results. Investigating the associations between MI quality and behavioral outcomes (Fuster-BEWAT) provides valuable insight into the urgency of using motivational interviewing in lifestyle care.

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I-P-B.24

'I Must Admit, I'm Still Having Ice Cream.' – Motivational Interviewing and Dietary Health Behaviour Change Talk in Type 2 Diabetes Community Healthcare

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Purpose: The way healthcare professionals and patients discuss dietary health behavior change can impact patient health outcomes and the patient's experience of healthcare. Motivational Interviewing (MI) is a communication practice known to improve behaviour change outcomes. Despite being a best practice approach, dietary behaviour change talk in practice using MI approaches has been scarcely studied to date. The purpose of this study was to examine how dietitians functionally achieve dietary behaviour change talk during the dietary history-taking phase of consultations with people with type 2 diabetes.

Methods: This study used the qualitative method of conversation analysis (CA), which focuses on language use in an interaction, examining the context beyond what is being said. Fifteen hours of naturally occurring, video-recorded dietitian-client consultations were transcribed verbatim and analyzed line by line to identify interactional patterns within the data. Using CA, we focused on the functional language used by the dietitian and its alignment with motivational interviewing (MI) practices. The study examined the specific strategies used by the dietitian and client to solicit and provide dietary information, ultimately leading to the clinical negotiation of dietary behaviour change.

Results: In the dietary history-taking phase of the consultations, two themes were identified.

1. Clients often disclose negative assessments of themselves (self-deprecations) and their dietary choices or moralistic food talk in response to the dietitian's questioning. E.g., *Client: "I was naughty yesterday, I had three hot chocolates."*
2. The Dietitian's response (employment of MI or not) to these accounts and moralistic disclosures impacts clients' in situ acceptance of subsequent dietary and/or behavioural advice. E.g. *Client: "I am guilty of getting fried chicken!" Dietitian: "That's fine!" Client: "I'll remember that!" Dietitian: "That's protein, I'm happy you're getting it."*

Conclusion: This study contributes to a deeper understanding of the use of MI in dietetic practice and how dietitians' questioning style can affect clients' acceptance of dietary behaviour change advice in situ. Findings from this study have the potential to inform future MI training curricula for dietary health professionals. Optimising the use of MI in clinical settings may improve dietary behaviour change conversations and subsequent dietary health outcomes.

I-P-B.25

Health by Association: A Cluster-based Analysis of Personal Social Networks and Health Behaviours

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Purpose: To identify distinct personal social network (PSN) phenotypes and explore their association with physical activity (PA) and dietary behaviours.

Methods: Data were from Wave 4 of QUALITY, an ongoing cohort study on cardiometabolic health. Participants (*egos*) aged 23–29 years completed an online questionnaire assessing PSNs and health behaviours. *Egos* were prompted to: name significant persons in their PSN (*alters*), describe relationship characteristics with and between *alters*, and report sociodemographics and health behaviours for themselves and *alters*. A diet quality score was computed based on the average of three diet items coded 1=unhealthy to 5=healthy. Scores were categorized as diet quality ≥ 4 (*healthy*), and PA frequency ≥ 3 times/week (*active*). Structural, compositional and relational features of PSNs were characterized using social network analysis. Using Partitioning Around Medoids, five distinct PSN phenotypes were identified. Group-specific predicted probabilities were derived by averaging regression model-based predictions within each phenotype; risk differences (RD) were then calculated as contrasts between these averaged risks.

Results: Cluster#1 (reference) had high proportions of healthy-diet (60%) and active (59%) *alters*, strong encouragement (71% diet, 77% PA), and moderate co-engagement in PA (52%). Cluster#5 showed moderate

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proportions of healthy-diet (43%) and active (27%) alters, moderate encouragement (54% diet, 69% PA), and frequent co-engagement (65% diet, 47% PA). Cluster#3 showed moderate proportions of healthy-diet (33%) and active (40%) alters, and moderate encouragement (49% diet, 64% PA). Cluster#2 had fewer healthy-diet (28%) or active (25%) alters and lower encouragement (29% diet, 43% PA). Cluster#4 had low proportions of healthy-diet (14%) or active (20%) alters, and low encouragement (37% diet, 29% PA). Across clusters, the proportion of active egos ranged from 24%-81%, and those with healthy diets from 47%-95%. Compared with Cluster#1, egos in all other PSN phenotypes showed higher risk of inactivity, greatest in #4 (RD= -0.64, SE= 0.14), followed by #5 (-0.58, SE= 0.14), #2 (-0.55, SE= 0.14), and #3 (-0.33, SE= 0.15). Clusters#4 and #5 also showed higher risk of unhealthy diets (RD= -0.48, SE= 0.14; RD= -0.30, SE= 0.13).

Conclusion: The varied nature of PSNs among young adults reflects diverse social contexts that may differentially influence cardiometabolic health, suggesting the potential of PSN-informed approaches to guide targeted interventions aimed at young adults.

I-P-B.26

Operationally Ready: The Association between Motivation, Psychological Needs and Health Behaviours in Military Personnel

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Purpose: Musculoskeletal injuries (MSKI) are a leading cause of medical downgrades and reduced operational effectiveness in the UK Armed Forces. Initial military training presents a high-risk period for sustaining MSKI but also provides an important opportunity for promoting positive health behaviours to mitigate future MSKI risk. Self-Determination Theory (SDT) proposes that environments supporting the basic psychological needs for autonomy, competence, and relatedness foster autonomous motivation that maintains health behaviours. However, SDT remains underexplored within military contexts characterised by hierarchical structures. This study explored basic psychological need satisfaction and frustration, behavioural regulation and health behaviours in the Royal Navy.

Methods: A cross-sectional survey was conducted with 1,591 Royal Navy participants (15.6% female; aged 16–61 years), comprising 941 recruits, 190 Officer Cadets, and 460 trained personnel. Participants completed the Work Behaviour Regulation Questionnaire and the Basic Psychological Need Satisfaction and Frustration Scale. Health behaviours were assessed using the Defence Health Behaviour Index (assessing sleep quantity and quality, diet quality relative to fruit and vegetable intakes, hydration, physical activity, alcohol consumption and nicotine use). Weight-related health risk was determined from body weight, height and waist circumference. Linear regression and multivariate analysis of covariance (MANCOVA) were used to explore relationships and group differences.

Results: Supporting basic psychological needs in the workplace was positively associated with autonomous motivation ($P<0.002$), which was also associated with more favourable health behaviours ($\beta=0.119$, $P<0.001$). Frustrating psychological needs were associated with controlled motivation ($P<0.001$) and poorer health behaviours ($\beta=0.082$, $P=0.006$). Trained personnel reported higher weight-related ill-health risk, poorer health behaviours and greater psychological need frustration than trainees ($P<0.001$). Recruit trainees had the highest psychological need satisfaction, but also the greatest introjected and external motivation regulations (i.e., controlled by internal pressures or external rewards). Female and trained personnel exhibited greater weight-related ill-health risk ($OR=0.51$, $P<0.001$).

Conclusion: Creating need-supportive military environments may play an important role in fostering autonomous motivation and encouraging positive and sustained health behaviours. Efforts to ensure early-career phases develop self-determined motivation for their health behaviours could help mitigate MSKI risk and support a thriving military workforce.

I-P-B.27

Perceptions of Physical Activity after Patent Foramen Ovale (PFO)-associated Stroke and Percutaneous Device Closure: A Qualitative Study

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B. MOTIVATION AND BEHAVIOR CHANGE

Purpose: Paradoxical embolism through a patent foramen ovale (PFO) may be responsible for 5% of all ischemic strokes, and 10% of strokes in younger patients. After PFO-associated stroke, the PFO is closed using an occluder delivered via transcatheter procedure to block the opening between the left and right atria of the heart. Given the implication of the heart in PFO-associated stroke, there may be unique factors that may prevent returning to physical activity. The purpose of this study was to elicit patient perceptions of physical activity after PFO-associated stroke and transcatheter closure.

Methods: A purposive sample of 48 individuals who had a PFO-associated stroke participated in this study. Data were collected using semi-structured interviews from October 2024 to December 2024. Interviews of up to 60 minutes in length were conducted and recorded using the Zoom platform. The interviewer (JV) kept field notes consisting of initial impressions of the interview content and other relevant observations. Data were analyzed using Braun and Clarke's thematic analysis methodology. NVivo software was used to manage data, code, and generate themes.

Results: Participants were on average 47.7 years of age (SD=8.9). The mean age at the time of stroke was 44.7 (8.2), and average months since stroke was 38.5 (36.7) months. All participants were diagnosed with ischemic stroke or trans ischemic attack and all but 4 received subsequent PFO closure via transcatheter closure. The main themes (and sub themes) related to perceptions of physical activity after stroke and closure were: (1) psychological barriers (fear and anxiety, and closure device apprehension); (2) variability in fitness performance (subjective fitness improvement, and decline in physical activity); and (3) variability in physical recovery (lingering fatigue/neuro-fatigue, residual physical symptoms, and cardiac irregularities post-closure).

Conclusion: Participants reported several unique barriers (e.g., cardiac irregularities) to engaging in physical activity after stroke and closure. Participants reported anxiety about having another stroke, poorer fitness and function, and significant apprehension about being physically active with a new device in their heart. This study is the first step in understanding patient-centered issues around physical activity after PFO-associated stroke and after corrective closure.

I-P-B.28

Psychosocial Predictors of Adherence to a Structured Physical Activity Program in Pre- and Post-menopausal Women

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Purpose: Maintaining physical activity (PA) remains challenging for adult women despite health benefits. Guided by the Multi-Process Action Control (M-PAC) framework, the primary purpose of this study was to examine psychological predictors of adherence to independently completed moderate-to-vigorous physical activity (MVPA) during a 12-week structured PA intervention (goal of 150 min of MVPA/week) in pre- and post-menopausal women.

Methods: This is a secondary analysis of a larger, three-arm, randomized controlled trial (NCT06345937), pooling participants assigned to the two PA-receiving arms. Inactive women (i.e., <30min/week of MVPA) were recruited from the Greater Toronto Area. The intervention included two weekly supervised 30-minute MVPA sessions (one in-person, one virtual; >40% heart rate reserve [HRR]). Independent MVPA goals reached 90 minutes by Weeks 4-12. Adherence was defined as meeting the weekly 90 min/week MVPA goal measured by Garmin Venu wearable using an individualized threshold for each participant (>40% HRR). Baseline questionnaires included M-PAC constructs for reflective (instrumental/affective attitudes, perceived opportunity/capability), regulatory (goal-setting, planning), and reflexive processes (habit, identity). Hierarchical linear regression models were conducted, controlling for age, body mass index (BMI), and menopausal status.

Results: Forty-eight women ($M_{age}=49.6 \pm 12.1$ years; $M_{BMI}=30.5 \pm 4.4$ kg/m²; 41.7% White; pre-menopause n=29; post-menopause n=19) were included. The final model $F(6,41)=4.68$, $p=0.001$, $R^2=0.41$, demonstrated that reflective ($\beta=-29.31$, $p<0.001$) and reflexive ($\beta=17.63$, $p=0.035$) processes were significant predictors of adherence. Higher scores on reflective processes (more positive attitudes/judgements) were predictive of lower MVPA minutes whereas higher scores on reflexive processes (stronger habit and identity) were predictive of higher MVPA minutes. Regulatory processes were not significant predictors of adherence ($p=0.72$).

Conclusion: Aligned with the M-PAC framework, reflexive processes were key processes for MVPA adherence in women. On the other hand, reflective processes resulted in lower MVPA minutes likely due to previously inactive females potentially having positive outcome expectations for MVPA, but were unaware of potential barriers that may arise. Findings highlight the importance of building PA habits and identities to support PA maintenance in women.

B. MOTIVATION AND BEHAVIOR CHANGE

I-P-B.29

Early-pregnancy Nutritional Intervention Targeting Diet Quality and Glucose Homeostasis in Individuals at Risk for Gestational Diabetes: Primary Results from a Randomized Controlled Trial

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Purpose:

According to Diabetes Canada latest guidelines, effective and acceptable interventions are needed to improve glucose homeostasis and support pregnant individuals at risk for GDM. This randomized control trial (RCT) aims to assess the effects of an early-pregnancy nutritional intervention on glucose homeostasis of individuals at risk for GDM, compared to usual care.

Methods: Design: Single-center, two-arm, parallel-group RCT. Study population: Pregnant adults, ≤ 14 weeks' gestation with a singleton pregnancy, ≥ 1 risk factor for GDM according to Diabetes Canada Guidelines. Intervention: Early-pregnancy nutritional intervention promoting healthy eating based on Canada's Food Guide, emphasizing motivation and self-efficacy, including: 4 individualized counselling sessions with a dietitian using motivational interviewing (12, 18, 24, and 30 weeks); 10 educational video clips on healthy eating during pregnancy; and a virtual support community moderated by a dietitian publishing weekly posts on healthy eating during pregnancy addressing all dimensions of social support. Control: Usual care (does not include nutrition counselling). Data collection: 3 on-site visits (10-14, 24-28, and 32-36 weeks) including 2-h 75g oral glucose tolerance tests and questionnaires. Primary outcome: Between-group difference in mean change in fasting plasma glucose (FPG) from 1st to 3rd visit. Primary analysis: Two-sample one-sided t-test.

Results: Of 150 randomized participants, 125 (63 intervention, 62 control) with complete primary outcome data were included in this analysis. Baseline variables were similar between groups (31.9 $\pm$ 4.1 vs 32.8 $\pm$ 4.5 years old; 29.5 $\pm$ 7.9 vs 29.1 $\pm$ 6.3 kg/m²; 1.6 $\pm$ 0.8 vs 1.5 $\pm$ 0.7 GDM risk factors, $p > 0.05$), except for baseline FPG which was lower in the intervention group (4.5 $\pm$ 0.3 vs 4.7 $\pm$ 0.4 mmol/L, $p < 0.05$). Change in FPG from 1st to 3rd visits did not differ between groups, even after adjusting for baseline FPG (-0.1 $\pm$ 0.3 vs -0.1 $\pm$ 0.4 mmol/L, $p > 0.05$). Higher baseline FPG predicted greater FPG reduction, independent of group ($\beta = -0.47$, $p < 0.0001$).

Conclusion: No significant effect of the intervention was observed on the primary outcome. Further exploratory analyses on other glucose homeostasis markers will be conducted.

I-P-B.30

Lifestyle Behaviors Contribute to the Expression of Genetic Susceptibility to Obesity: Results from the Quebec CARTaGENE Cohort

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Purpose: Mediation analysis can be used to understand how an exposure leads to an outcome but has rarely been used to identify lifestyle mediators of the genetic risk of obesity. We hypothesize that healthy lifestyle behaviors partly explain genetic predisposition to obesity. The objective is to investigate the role of lifestyle behaviors in mediating genetic predisposition to obesity.

B. MOTIVATION AND BEHAVIOR CHANGE

Methods: The study included 20,208 adult participants from the Quebec CARTaGENE biobank. Dietary intake was assessed using a validated FFQ and the International Physical Activity Questionnaire (IPAQ) was used to assess physical activity (PA). Information on smoking and sleeping habits were obtained by questionnaire. A healthy lifestyle score (HLS) based on the adherence to five healthy behaviors was computed: 1) not smoking; 2) being physically active (≥ 150 min/week of moderate to vigorous PA); 3) eating a healthy diet (Alternate Healthy Eating Index $\geq 50\%$); 4) light to moderate alcohol consumption (1-30 g/day for men; 1-15 g/day for women) and 5) getting enough sleep (7-8 hrs/day). Causal mediation analysis was used to investigate the mediating effects of lifestyle behaviors on the relationship between genetic risk of obesity, assessed using a polygenic risk score (PRS), and BMI and percent body fat (FAT) assessed by bioimpedance. All analyses were performed on age- and sex-adjusted data.

Results: The proportion of participants with a healthy lifestyle (HLS $\geq 4/5$) was 36% among men and 39% among women. The PRS was significantly ($p < 0.0001$) associated with BMI ($R^2 = 14.0\%$) and FAT ($R^2 = 6.6\%$). The HLS was inversely associated with BMI and FAT and the association between the PRS and obesity outcomes was partly explained by the HLS for BMI ($\beta_{\text{indirect}} = 0.052 \pm 0.015$; percent mediation 1.74%) and for FAT ($\beta_{\text{indirect}} = 0.094 \pm 0.025$; 2.67%). Being physically active and getting enough sleep were the two lifestyle behaviors driving this mediating effect.

Conclusion: Healthy lifestyle behaviors, particularly being physically active and having adequate sleep, partly explain genetic susceptibility to obesity. In a precision lifestyle medicine framework, targeting these behaviors may be helpful to manage obesity in individuals with a genetic predisposition to obesity.

I-P-B.31

How Personality Traits Influence Response to a 5-month Digital Physical Activity Intervention

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Purpose: Lack of physical activity (PA) is a public health problem. Although observational studies demonstrate associations between personality and PA, understanding the influence of personality on PA change across an intervention may provide novel insights into personality-tailored interventions. The current study examined how personality and sensation-seeking traits influenced change in monitor-based PA during a 5-month digital therapeutic crossover intervention among inactive adults with overweight/obesity.

Methods: Participants (N=212; 19-85-years, 63% female) received 16 weeks of heart-rate and affect-based PA goals, with a two-week washout between conditions. Personality (e.g., extraversion, agreeableness) and sensation-seeking (e.g., disinhibition, experience-seeking) traits were reported at baseline using the Ten-Item Personality Inventory and Brief Sensation Seeking Scale, respectively. PA was measured continuously by a Fitbit Versa 3 smartwatch. Multivariable multilevel linear models examined the effects of personality and sensation-seeking traits on within-person changes in weekly PA across time, controlling for time-invariant (i.e., age, gender, condition order) and time-varying (i.e., intervention condition) covariates. All subscales were grand-mean-centered.

Results: Higher boredom susceptibility (Linear: $p = .03$, Quadratic: $p = .02$) and lower disinhibition (Linear: $p = .01$, Quadratic: $p = .01$) were associated with a steep decrease, followed by a slight increase in moderate PA starting at 11 weeks. Participants with higher conscientiousness (Linear: $p < .001$, Quadratic: $p < .001$) and lower emotional stability (Linear: $p = .05$, Quadratic: $p = .02$) showed a steep decrease in moderate PA, followed by a slight increase starting at 11 weeks. Greater disinhibition (Linear: $p = .02$, Quadratic: $p = .01$) and lower conscientiousness (Linear: $p < .001$, Quadratic: $p < .001$) were associated with a steep increase, followed by a slight decrease in light PA starting at 10 and 8 weeks, respectively. There were no significant effects of condition order or intervention condition, nor the sedentary time outcome.

Conclusion: More impulsive individuals showed immediate positive changes in light PA, whereas those more calm, disciplined, or prone to boredom showed negative changes in moderate PA with delayed increases. The results could support efforts for developing personalized interventions based on personality traits (e.g., tailored content). Future studies should examine how personality influences engagement, adherence, and compliance to further inform personalized PA interventions.

B. MOTIVATION AND BEHAVIOR CHANGE

I-P-B.33

Reallocating Time across Sleep, Sedentary Behaviour, and Physical Activity is Associated with Composite Sleep Health in Shift-workers

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Purpose: Shift workers experience disrupted sleep and constrained opportunities for physical activity, yet how 24-hour time-use trade-offs relate to multidimensional sleep health in this population is poorly understood. This study examined associations between 24-hour time use and composite sleep health (CSH) in shift workers using compositional data analysis, extending integrative behavioural modelling to a high-risk occupational group.

Methods: Shift workers from a major South Pacific airline completed 7 days of continuous monitoring using thigh-worn and low-back-worn accelerometers. Daily time use was summarised as a four-part 24-hour composition (sleep, sedentary time, light physical activity [LPA], and moderate-to-vigorous physical activity [MVPA]) averaged across valid days. CSH was operationalised as a week-level score (0–10) derived from five accelerometer-based sleep dimensions: duration, variability, efficiency, timing, and regularity. Associations between the time-use composition and CSH were examined using isometric log-ratio-transformed compositional regression models adjusted for age, sex, BMI, and wear time. Compositional isotemporal substitution models estimated predicted differences in CSH for 60-minute reallocations (in 15-minute increments) between behaviours.

Results: The analytic sample included 101 shift workers (mean age 41.0 years; 63% women) contributing a mean of 6.7 valid monitoring days, with a mean CSH score of 2.9/10. The average daily composition comprised 864 minutes sedentary time, 82 minutes LPA, 81 minutes MVPA, and 414 minutes sleep. Greater relative sedentary time was associated with lower CSH ($B = -5.7$, $p < 0.001$), while greater relative sleep was associated with higher CSH ($B = 6.6$, $p < 0.001$). Associations with LPA and MVPA were weaker. Reallocating 60 minutes away from sedentary time was associated with higher predicted CSH ($\Delta = +0.85$; 95% CI 0.43 to 1.26), whereas reallocating 60 minutes away from sleep was associated with lower predicted CSH ($\Delta = -1.22$; 95% CI -1.84 to -0.60).

Conclusion: Applying 24-hour compositional modelling to shift workers demonstrates how constrained behavioural trade-offs relate to multidimensional sleep health and translates complex associations into interpretable reallocations. These findings highlight sedentary time and sleep as key behavioural targets and support further integration of behavioural timing, context, and roster characteristics in shift-work health research.

I-P-B.34

Correlates of Physical Activity, Sedentary Behavior and Sleep in Adults with Type 1 Diabetes Mellitus

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Purpose: Adopting a healthy lifestyle that includes sufficient physical activity (PA), limited sedentary behavior (SB), and adequate sleep, collectively referred to as 24-hour movement behaviors (24h-MBs), is an essential component of type 1 diabetes (T1D) management. However, many adults with T1D struggle to achieve and maintain optimal levels of PA, SB and sleep. To effectively promote healthy 24h-MBs in this population, a better understanding of the correlates of these behaviors is needed.

Methods: The 24h-MBs were objectively measured using an ActiGraph GT3X+ accelerometer worn for fourteen consecutive days. Potential correlates were assessed using a reliable self-reported questionnaire, capturing correlates across three levels of the SEM: intrapersonal (5 constructs e.g. attitude), interpersonal (two constructs e.g. social support), and environmental (one construct e.g. neighborhood). The association between the correlates and each individual behavior (total PA, SB and sleep in minutes) was investigated via the Confidence Interval-Based Estimation of Relevance method. This method identifies the most relevant correlates to include in intervention development by evaluating both the room for improvement of each correlate (mean, 99.9% CI) and their strength of correlation (r , 95% CI) with the behaviours of interest.

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Results: Data of sixty adults with T1DM (mean age 43.9 years; 50% male) were analyzed. Participants generally reported a positive attitude and a high autonomous motivation toward PA, both of which were positively correlated with total PA levels. Social modeling, such as having a physically active partner or colleague, was correlated with higher PA levels, as did living in a green and safe neighborhood. Participants also reported a generally positive attitude toward interrupting SB, which was correlated with lower SB. However, self-efficacy to interrupt SB was rated low to moderate, indicating potential for improvement. Autonomous motivation also emerged as a relevant correlate of sleep duration, showing both room for improvement and a significant positive association.

Conclusion: These results provide insight into the determinants that should be targeted in the development of interventions aimed at promoting healthier 24h-MBs in adults with T1DM. The results emphasize the importance of targeting correlates across intrapersonal, interpersonal, and environmental level, highlighting the multilevel and complex nature behavior change.

I-P-B.35

Is There an Association between 24-Hour Movement Behaviors and Glycemic Control in Adults with Type 1 Diabetes?

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Purpose: Maintaining glucose levels within the target range of 70-180 mg/dl (time in range; TIR) is key in the management of type 1 diabetes mellitus (T1DM) to prevent long-term complications. A healthy lifestyle, characterized by sufficient physical activity (PA), adequate sleep, and limited sedentary behavior (SB), collectively referred to as 24-hour movement behaviors (24h-MBs), may play an important role in achieving optimal glycemic control. This study investigates the association between the composition of 24h-MB composition and TIR in adults with T1DM.

Methods: Over a 14-day monitoring period, 24h-MBs were assessed using ActiGraph GT3X+ accelerometers, and glucose levels were measured using continuous glucose monitors. Compositional data analysis was used to construct daily compositions of 24h-MBs (sleep, SB, light PA (LPA) and moderate-to-vigorous PA (MVPA)) and daily composition of time spent in different glucose ranges (time below range, TIR and time above range). Multilevel models were used to examine associations between 24h-MBs and TIR at both the between-person and within-person level. Time reallocation models were conducted when significant associations were identified.

Results: Sixty-three adults with T1DM (mean age 44±12.3 years; 49% male) were included. At the between-person level, a significant negative association was observed between TIR and MVPA, relative to the remaining behaviors (p=0.02). Proportional reallocation of 30 minutes from the other behaviors to MVPA was associated with a decrease of 20 min/day in TIR. At the within-person level, a significant positive association was found between TIR and LPA (p=0.001). Proportional reallocation of 30 minutes to LPA was associated with an increase of TIR of 10 min/day.

Conclusion: These findings highlight the importance of a balanced 24h-MB profile in adults with T1DM. Greater time spent in MVPA was associated with lower TIR, potentially due to exercise-related insulin adjustments, increased carbohydrate intake, and physiological responses such as adrenaline-induced hyperglycemia. In contrast, at the day-to-day within-person level, spending more time in LPA was associated with greater time in range. Although the effects are small, these results suggest that promoting LPA may be beneficial strategies for improving daily glycemic control in this population.

I-P-B.36

Feasibility, Acceptability and Preliminary Impact on Diet Quality of the Healthy Weight for Life™ Program Combined with Medical Nutrition Therapy; A Randomised Controlled Pilot Study

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B. MOTIVATION AND BEHAVIOR CHANGE

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Purpose: Poor diet quality has been associated with greater risk of developing overweight and obesity, type 2 diabetes, cardiovascular disease, and osteoarthritis. Weight management is recommended in guidelines for these conditions. The impact of current weight management interventions, including the Healthy Weight for Life™ (HWFL) program that uses meal replacements, on diet quality has not been assessed. Further, the role of a dietitian providing medical nutrition therapy (MNT) combined with the HWFL program has not been evaluated. MNT is an evidence-based approach where dietary interventions are tailored to the individual's needs, medical history, lifestyle, and dietary preferences. Therefore, the primary aim of this pilot study is to evaluate feasibility, acceptability and preliminary impact of adding personalised MNT consultations to the HWFL program on diet quality. Secondary outcomes include weight and osteoarthritis scores.

Methods: An 18-week randomised controlled pilot trial was undertaken, with eligible HWFL program participants randomised to either usual care arm (HWFL program) or HWFL with MNT. A validated food frequency questionnaire assessed diet quality (% energy from nutrient-dense core food) and provided intervention participants with personalised feedback on food and nutrient adequacy. Weight and knee osteoarthritis outcomes using the hip and knee osteoarthritis outcome scores, were self-reported and used to assess outcomes. Project acceptability was assessed by process evaluation questionnaire. An intention-to-treat analysis was undertaken using generalised linear mixed models with post-estimations reported as mean (95% CI).

Results: Forty participants (75% female, 62±10years, 78% osteoarthritis) enrolled in the study. Baseline diet quality was poor (34% energy from non-core foods). Post-intervention both intervention and usual care groups significantly improved their diet quality and reduced weight, but there were no significant differences between groups. Sub-scores for knee osteoarthritis function significantly improved in the intervention compared to the control group (mean between group difference 17.4, 95%CI 1.6, 33.1), though after correcting for multiple testing this was no longer significant. Overall intervention acceptability was high.

Conclusion: Both intervention and usual care arms demonstrated significant improvements in diet quality. All intervention participants found MNT was a highly acceptable addition to HWFL. Significant improvements in knee osteoarthritis function were reported in the intervention group.

I-P-B.37

Parent Weight-loss Methods and Parent-child Communication about Weight, Eating, and Physical Activity Behaviors

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Purpose: Parent-child conversations about weight and health behaviors can shape children's attitudes toward eating, physical activity, and body image. Weight-focused conversations, often referred to as "weight talk," are linked to greater risk for disordered eating, whereas discussions emphasizing healthy eating and regular physical activity, are associated with more positive outcomes. The use of glucagon-like peptide-1 receptor agonists (GLP-1RAs) for weight loss has increased rapidly among adults. However, little is known about how a parent's own weight-loss efforts, and specifically the method used, relate to the frequency and type of parent-child conversation about weight and health behaviors.

Methods: We recruited a convenience sample of parents at a Midwestern state fair (n = 118). Eligible parents had attempted structured weight loss (excluding surgery) within the past 18 months and lived with a child aged 2-18 years. Parents were grouped by weight-loss method (GLP-1RA use vs. no GLP-1RA use). Six items adapted from Project EAT assessed frequency of weight-related and health behavior conversations (e.g., discussing one's own weight, shape, or size; discussing physical activity without mentioning weight). Responses were measured on a 5-point Likert scale (never to always). Linear regression models compared conversation frequency between groups, adjusting for parent age and gender.

Results: Parents were predominantly female (70%) and White (79%), with a mean age of 42 ± 7 years; 17% reported GLP-1RA use. GLP-1RA users and non-users were similar in BMI (33.7 vs. 31.2 kg/m²) and number of recent weight-loss attempts (2.6 vs. 2.5). GLP-1RA users reported less frequent discussion of physical activity without mentioning weight compared to non-users (p = .03). No differences between groups were observed across the other conversation items.

Conclusion: These preliminary findings suggest little difference in the frequency of parent-child conversations about weight or eating behaviors based on parental weight loss method, but parents using GLP1RA may discuss physical

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activity without mentioning weight less than parents trying to lose weight via other methods. Adequately powered, longitudinal studies are needed to clarify differences observed between GLP1RA users and non-users in physical activity conversations and the potential implications for child health and body image.

I-P-B.38

Understanding Physical Activity Promotion in Primary Care: Perspectives from Family Physicians

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Purpose: We aimed to identify the behavioural influences shaping family physicians' (FPs) physical activity (PA) promotion practices in primary care (PC).

Methods: This qualitative study included 11 FPs, comprising staff physicians and postgraduate year 2 family medicine residents, recruited from two University Family Medicine Groups in Québec, Canada. Semi-structured interviews were 30-60 minutes in duration and were conducted on-site or via videoconference. Interviews were recorded, transcribed verbatim, and analyzed in NVivo using a hybrid thematic analysis guided by the Theoretical Domains Framework, which was initially designed to examine factors shaping health professionals' delivery of health recommendations.

Results: Key individual, interpersonal and organizational factors influencing FPs' practice of PA counselling in PC were identified. Beliefs about capabilities and beliefs about consequences emerged as influential domains underlying physicians' motivation to engage in PA promotion. Motivation was affected by physicians' perceptions of limited past success with PA promotion interventions. It was also driven by lack of impetus to prioritize PA assessment and counselling in routine practice. Patient-related factors further informed FP motivation. These included the presence of contraindications to PA, patients' past or current engagement in or enjoyment of PA, and patient-initiated inquiries that align with the therapeutic benefits of PA. Environmental context and resources shaped physicians' opportunities to provide PA counselling through competing clinical priorities and time-limited appointments, and variability in patients' needs and access to PA opportunities. FPs were confident in their capability to engage in PA counselling, facilitated by their knowledge of the benefits of PA for disease prevention and management.

Conclusion: Findings suggest that promoting PA in PC requires addressing motivational determinants, namely FP beliefs about capabilities and consequences, while limiting opportunity constraints related to time pressures and competing priorities. Aligning incentives, reinforcing the clinical benefits of PA, and integrating PA assessment into routine workflows may support more consistent implementation despite individual and organizational contextual variability. This study provides a foundation for designing and piloting a PC intervention to promote PA that is tailored to the needs of both patients and physicians, supporting broader efforts to reduce the global burden of disease.

I-P-B.40

Action Planning and Behavioral Automaticity Serially Mediate the Association between Trait Self-Control and Physical Activity: A Prospective Cohort Study

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Purpose: Emerging evidence indicates that behavioral automaticity (i.e., habit) mediates the association between trait self-control and physical activity (PA). However, the underlying mechanisms linking trait self-control to behavioral automaticity in PA remain poorly understood, and prior research has largely relied on small sample sizes and retrospective self-report measures of PA. Action planning represents a self-control strategy that facilitates automatic behavioral regulation and may enable individuals high in self-control to enact PA with greater automaticity, thereby supporting more frequent engagement. This study examined whether action planning and behavioral automaticity serially mediate the association between trait self-control and objectively assessed PA.

Methods: A preregistered, two-wave prospective cohort study was conducted in partnership with a corporate fitness platform operating in Germany and Austria. At baseline, participants ($N = 411$; 61.6% female; $M_{\text{age}} = 45.7 \pm 10.9$)

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completed an online survey assessing trait self-control (Brief Self-Control Scale), action planning (6-item scale: day, time, frequency, duration, place, mode), and behavioral automaticity (Self-Report Behavioral Automaticity Index). PA was operationalized as the number of fitness facility visits recorded during the subsequent month. Serial mediation analyses were conducted using PROCESS macro (version 5.0; SPSS), with action planning and behavioral automaticity specified as serial mediators and gender and body mass index included as covariates.

Results: Trait self-control was positively associated with PA (total effect: $\beta = 1.95$, $p < .001$, 95% CI [1.07, 2.83]). Serial mediation analyses indicated a significant indirect effect of trait self-control on PA through action planning and behavioral automaticity ($\beta = 0.07$, 95% CI [0.03, 0.14]). In addition, a significant indirect effect via behavioral automaticity emerged ($\beta = 0.60$, 95% CI [0.28, 0.97]). After accounting for the mediators, the direct effect of trait self-control on PA remained significant ($\beta = 1.13$, $p = .019$, 95% CI [0.19, 2.08]), indicating partial mediation (final model $R^2 = .094$).

Conclusion: Action planning appears to enable individuals high in self-control to enact PA with greater automaticity, thereby supporting more frequent engagement. PA interventions may incorporate action planning to promote habit formation, particularly among individuals low in self-control. Future research should test these pathways experimentally to elucidate causal relationships.

II-P-B.01

Substituting Baseline Moderate to Vigorous Physical Activity with Sleep, Sedentary Behavior or Light Physical Activity: Associations with Subsequent 12-month Exercise Motivation

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Purpose: „Every move counts“. While this message is mainly focused on evidence from physiology-based studies, little is known about the potential effects of different durations of the 24h movement components on subsequent motivational variables.

This study used isothermal substitution models to investigate the relationship between baseline moderate to vigorous physical activity (MVPA) and subsequent changes in exercise motivation, when MVPA is substituted with either sleep, sedentary behavior (SB), or light-physical activity (LPA).

Methods: Participants were 1,089 adults from the NoHoW trial, a weight loss maintenance intervention (BMI = 29.5 (5.2) kg/m², initial weight loss = 11.5 (6.5) kg). Sleep, SB, LPA and MVPA were objectively measured using Fitbit Charge 2 during 14-day periods at baseline. Exercise motivation was measured at baseline at 6 and 12 months using the BREQ, assessing Autonomous and Controlled Motivation (.79 < McDonald's Omega < .93). Isothermal substitution models were used to explore the association between baseline MVPA and subsequent changes in exercise motivation in which time used for MVPA was substituted with the same time from either sleep, SB, and LPA, while adjusting for potential confounding factors (e.g. sex, age, SES, previous weight loss, among others).

Results: Each block of 30 minutes more LPA at the expense of MVPA was associated with a decrease of -0.07 ([-0.13, -0.02] $p = .007$) in autonomous exercise motivation (AEM) at 6 months. A similar pattern of decreased AEM was observed when substituting MVPA by 30-minute blocks of SB with reductions of -0.08 ([-0.12, -0.03] $p = .001$) or in sleep with reductions of -0.08 ([-0.13, -0.03] $p = .003$). The 12-month change in AEM mirrored the 6-month changes. No significant associations were seen for changes in controlled exercise motivation.

Conclusion: Decreases in AEM were seen at 6 and 12 months when more LPA, SB, and Sleep replaced baseline MVPA. Therefore, the notion that “Every move counts”, even LPA, is linked to sustained AEM is not accurate. Results suggest that reducing MVPA can negatively affect motivation, creating a harmful cycle of decreased movement and AEM. However, we speculate that enhancing AEM may be possible by increasing MVPA, at the expense of other activities.

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II-P-B.02

The Development of a Physical Activity and Behaviour Profile

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Purpose: Physical activity is of particular importance in stroke patients for physical and mental recovery. However, guidelines regarding healthy physical behaviour (i.e. physical activity and sedentary behaviour) are often unmet. More insight in the physical behaviour and barriers to that behaviour of an individual stroke patient could support the patient and healthcare professional (HP) in goal setting aimed at healthy physical behaviour. Therefore, the aim of this study was to develop a 'physical activity and behaviour profile' and to test this profile in clinical practice.

Methods: Mixed methods were used. Physical behaviour was measured with an Actigraph during one week and barriers to physical activity were measured with the Determinants of Physical Activity Questionnaire (DPAQ). Both outcomes were visualized in a 'physical activity and behaviour profile'. Focus groups with 6 stroke patients and 8 HPs were conducted to determine the needs and preferences of end-users regarding the content, design and functionality of the profile. Finally, the usability, applicability and feasibility of the profile was tested in a field test with 30 stroke patients and their HPs.

Results: Consensus was reached regarding a specified target behaviour consistent with the Dutch physical activity guidelines. Also, consensus was reached regarding the content, design and functionality of a 'physical activity and behaviour profile'. Preliminary results of testing the profiles in clinical practice showed that the profiles were found useful for discussing the physical behaviour and barriers to physical activity of the individual stroke patients, and as an aid for personalized goal setting. Occupational therapists, physical therapists and movement therapists found the profile applicable to their discipline and to stroke patients. Feasibility was considered sufficient in this study.

Conclusion: A 'physical activity and behaviour profile' measuring physical behaviour and barriers to physical activity, was developed in co-creation with stroke patients and healthcare professionals. The usability, applicability and feasibility of this profile in clinical practice seems promising.

II-P-B.03

Mixed-methods Exploration of the Role of Teacher Motivation and Habit Formation in Delivering Daily Physical Activity 12 Months Into a State-wide School Physical Activity Program

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Purpose: Resources and population health improvements are forfeited each year as physical activity initiatives fail to sustain. Behaviour change theories highlight the pivotal role of motivation in behaviour. However, research often overlooks the influence of implementer motivation in health initiative sustainment. Teachers commonly report being motivated by a desire to help students and personal career progression, yet it is unclear whether these motivating factors extend to the implementation of physical activity initiatives. Further, evidence on teachers' automatic motivation and habit use for sustainment is limited.

The primary aim of the study was to explore teachers' perceived motivation and how motivation and habits impact the delivery of classroom physical activity 12 months into a state-wide sustainment trial.

Methods: Complementary embedded sequential mixed-methods (QUAL->quant) research design was used to address the research aims. Interviews and surveys were collected and analysed concurrently, then assessed sequentially. Teachers completed 30-minute interviews on their motivation to schedule Energisers and automatic-motivation processes, such as habits. Teachers also completed surveys assessing the perceived influence of pre-identified evidence-based determinants to sustainment. Quantitative survey items relevant to the qualitative results were

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identified and integrated using meta-inference to form the results.

Results: The results suggest that planned and unplanned habits are being utilised to sustain the delivery of the physical activity program. Three key themes were identified: (1) High motivation to deliver Energisers, (2) Energisers are a team sport, and (3) Implementation intentions and naturally occurring cues. All four stages of habit development were described in the interviews. Further subthemes were identified and explained. Recurring topics of discussion include the benefits of routine, whole-school buy-in, and cues. Quantitative results supported all the themes identified, highlighting specific influential factors within the themes, such as executive leadership.

Conclusion: Whilst evidence-based studies highlight the importance of motivation in personal health behaviours and clinical settings, the role of implementer motivation and habit formation in sustaining physical activity initiatives in community settings remains understudied. Findings suggest that, whilst teachers describe a strong reflective desire to sustain the initiative, automatic motivation and habitual behaviours could be a less burdensome method to sustain the delivery of school physical activity initiatives.

II-P-B.04

Life after a Combined Lifestyle Intervention. Do Participants Maintain Behavior Changes?

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Purpose: Behavior change support is important to reach personalized health goals in people with obesity. Since 2019, multiple evidence-based two-year combined lifestyle interventions (CLI), aimed at reducing weight-related health risks through behavior change, have been reimbursed by Dutch health insurance. It is unknown whether behavior changes obtained during a CLI persist after the program ends, and which behavior change techniques help to sustain healthy behavior. This study examines health and lifestyle outcomes up to 9 months post-CLI, aiming to provide insights into sustaining healthy lifestyle changes.

Methods: In this prospective cohort study, we used online questionnaires to assess multiple outcomes in individuals (BMI ≥ 30) who had recently completed a CLI. We measured health and lifestyle outcomes, including anthropometric data and behavioral outcomes, at four time points: directly after CLI (T0), and after 3 (T1), 6 (T2), and 9 (T3) months. Descriptive statistics and sum score calculations were calculated.

Results: The study sample (n=51; Female: 93%; mean age 56 yrs) included participants with an average Body Mass Index (BMI) of 34.3 at baseline and 33.7 at T2. Most participants (57%) maintained their eating habits 6 months post CLI, while 16% reported unhealthier habits, and 27% adopted healthier eating habits. Physical activity levels varied 6 months post CLI: 44% increased, 35% decreased and 21% remained unchanged. Participants were asked what helps them maintain their behavior. In summary, they indicated: seeing visible results of lifestyle changes, keeping goals in mind, having increased structure in day or week, feeling better due to lifestyle changes, experiencing accountability, and having action plans to sustain healthy behaviors. At the time of writing, results of T3 were not yet complete; however, complete results will be presented at the conference.

Conclusion: The preliminary findings show that BMI scores remained stable 6 months post CLI. Overall, the factors that helped participants sustain their healthy behaviors align closely with behavior change techniques, such as direct experience of positive outcomes, goal setting, self-monitoring, action planning, and social support. Findings emphasize the complexity of behavior change and the need for personalized, supportive approaches to maintain a healthy lifestyle.

II-P-B.05

Cardiorespiratory Fitness as Mediator in the Association between Physical Activity and Health-related Quality of Life in Patients with Cardiovascular Disease or Osteoarthritis

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Purpose: Non-communicable diseases impact health-related quality of life (hr-QoL). In the general population, mental and physical aspects of hr-QoL are associated with physical activity (PA) and sedentary time (ST), where the measuring methods (device-based v.s. self-reported) may lead to variances within these associations. Cardiorespiratory fitness (CRF) may also play a significant role as higher CRF levels are linked to better hr-QoL, in both healthy and clinical populations. Therefore, this study aims to examine

- 1) associations between device-based and self-reported PA and ST, and hr-QoL, and
- 2) the influence of self-reported CRF in these associations in people with (or at risk for) CVD and/or OA.

Methods: Baseline data from the Lifestyle front Office For Integrating lifestyle medicine in the Treatment of patients (LOFIT) study was used. Participants included patients with (or at risk for) CVD and/or OA (n=273). PA and ST were measured using device-based (activPAL™) and self-reported methods (International Physical Activity Questionnaire – Short Form and Marshall Sitting Questionnaire). CRF was assessed by estimating peak oxygen uptake per kilogram bodyweight (VO2peak) using the FitMáx questionnaire. Hr-QoL was assessed using the EQ-5D-5L. Associations between PA, ST, CRF, and hr-QoL were examined using linear regression and mediation models.

Results: The average BMI of the participants was 34.0 kg/m² (SD=5.5) and the majority had CVD. Overall, the population was highly sedentary (mean 604.5 minutes sitting per day, SD=120.4). Higher levels of device-based, and self-reported PA were associated with higher hr-QoL (b=0.007, 95% CI=0.000, 0.013 per 1000 steps, b=0.001 95% CI= 0.000, 0.002 per 30 minutes). Higher levels of device-based and self-reported ST were associated with lower hr-QoL (b=-0.006, 95% CI=-0.012, -0.000 per 30 minutes, b=-0.004, 95% CI=-0.007, -0.001 per 30 minutes). An indirect path via CRF was observed in the association between PA and hr-QoL.

Conclusion: Higher PA and lower ST are associated with enhanced hr-QoL, where CRF influences the relationship between PA and hr-QoL in people with (or at risk for) CVD and/or OA. Changes in PA, ST or CRF behaviour should be realized within this population to enhance hr-QoL, which emphasizes the need for tailor-made interventions improving motivation and behavioural change.

II-P-B.06

Mapping Patient Experiences of Hospital-based Lifestyle Care: A Qualitative Study Using Patient Journey Mapping among Older Adults

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Purpose: The aim of this qualitative study was to explore how older patients experience lifestyle-related care within a Dutch academic hospital setting. While lifestyle interventions are increasingly integrated into clinical care, little is known about how older patients perceive and navigate such care trajectories across multiple departments and disciplines. This study innovatively applies patient journey mapping as a participatory research method to visualize and analyze patient experiences of lifestyle care in a hospital context. By centering patient perspectives, the study seeks to identify opportunities to improve the design and delivery of lifestyle support within specialized care.

Methods: Semi-structured interviews were held in which we combined patient journey mapping with thematic analysis. Participants (inclusion criterium: aged 65 or older; having visited a hospital-based lifestyle front office in the past year) were asked to reflect on their experiences of lifestyle-related care. During the interview the journey maps were co-created. These maps captured the sequence of touch points, activities, stakeholders, experiences, emotions, and reflections associated with different stages of their hospital-based lifestyle care trajectory. Data analysis involved two complementary steps: (1) visual and narrative examination of the patient journey maps, and (2) thematic analysis of the interview transcripts to identify overarching themes and patterns in patient experiences. Coding software used was MAXQDA24.

Results: Analysis will be finished in December 2025 and final results will be presented by May 2026. Preliminary finding include a variety in experiences throughout the care pathway. Together, the journey maps and thematic

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insights are expected to illustrate how patients perceive the coherence, accessibility, and personalization of hospital-based lifestyle interventions.

Conclusion: This study contributes to the growing field of behavioral nutrition and lifestyle medicine by demonstrating the value of patient journey mapping as a tool for capturing the experiences of hospital-based lifestyle care. Insights from this research may inform more person-centered approaches to integrating lifestyle support into clinical pathways, particularly for older adults with complex health needs. The findings underscore the importance of aligning institutional care processes with patients' values, motivations, and capacities to sustain behavioral change.

II-P-B.07

Effects of an Active Break Intervention with Brain Gym on Work Environment Perception and Sedentary Behaviors in Administrative Health Staff: A Feasibility Intervention

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Purpose: To evaluate the effects of an intervention based on active breaks incorporating brain gym exercises on the perception of the work environment and patterns of sedentary behavior among administrative health staff.

Methods: A quasi-experimental pre-post study was conducted with an initial sample of 22 workers from the Department of Preventive Medicine. The intervention consisted of active break sessions with Brain Gym exercises in small spaces, lasting 7-10 minutes, three times per week for 9 months. Data collection was performed using two instruments: the OFFESS work environment questionnaire (Duncan et al., 2013) and the Occupational Sitting and Physical Activity Questionnaire (OSPAQ) (Chau et al., 2012), both adapted for the local context. The reliability and validity of the original instruments have been previously reported. The attrition rate was 9.1% (n=2). Statistical analysis included descriptive statistics (frequencies, percentages) and inferential analysis using Spearman's correlation test to assess associations between work environment variables and sedentary behaviors.

Results: Pre-intervention analysis (n=22) revealed a high prevalence of sedentary behavior, with 77.3% of workers remaining seated for 5 to 8 hours daily. Only 9.1% perceived movement spaces as „very adequate.“ Post-intervention analysis (n=20) showed a positive, statistically significant association between improved perception of the work environment and a higher frequency of sedentary breaks (Spearman's rho = 0.52, p < 0.05). Sixty percent of participants reported feeling „very good“ in their post-intervention environment, and 87.5% considered active breaks „very important.“ No substantial quantitative change was observed in self-reported total sitting time.

Conclusion: The implementation of an active break program with Brain Gym was significantly associated with improved perceptions of the work environment and increased frequency of sedentary breaks. Although perceptions of the environment and „breaks“ improved, self-reported total sedentary time did not show an apparent reduction. This strategy is feasible for promoting sedentary breaks and improving perceived well-being at work. More research is needed to explore the associations between different brain gym activities and well-being in work environments.

II-P-B.08

Understanding How Postnatal Mental Health Influences Engagement and Impact of a Postpartum Behavioural Weight Management Intervention: Qualitative Findings from the Supporting MumS (SMS) RCT

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Purpose: Mental health conditions, such as anxiety and depression, are common in the postpartum period and are associated with postpartum weight retention. However, few postpartum behavioural weight management interventions consider how mental health influences outcomes. The Supporting MumS (SMS) randomised controlled trial examined the effectiveness of an automated, text message-delivered behavioural intervention to support weight management for postpartum women with overweight or obesity in 892 women from across the UK. Qualitative interviews explored the mental health experiences of intervention participants and how this influenced engagement and impact of the intervention.

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Methods: Semi-structured interviews were conducted with a purposive sample of intervention group participants via telephone or MS teams at 6 and 12 months. Purposive sampling was based on study site, baseline weeks postpartum, parity, ethnicity, socioeconomic status, and Edinburgh Postnatal Depression Scores (EPDS). Interviews were audio-recorded, transcribed verbatim and then pseudonymised. Data were analysed thematically using NVivo.

Results: Forty-nine participants completed interviews at 6 (n=33) and 12 (n=16) months. Purposive sampling ensured inclusion of a wide diversity of sample characteristics. Nearly half of the sample (48.9%) had a high EPDS score (> 9) at baseline. Many women voiced that poor mental health reduced their engagement with the intervention and their ability to enact specific behaviour change techniques, negatively impacting behaviours such as eating patterns and physical activity. Women described how they felt receiving the intervention had enhanced their mental wellbeing through provision of emotional support and increased self-esteem and self-advocacy. This, in turn, boosted motivation for engaging in physical activity and making healthier choices. For some participants, prioritising their mental health meant choosing not to engage with the intervention, for example to avoid guilt. Whereas for others, the intervention gave them “something positive to focus on” when they were struggling with their mental health.

Conclusion: Findings highlight the complexity of the relationship between mental health and health behaviours, particularly in this vulnerable population. Consideration of mental wellbeing as part of behaviour change interventions may enhance engagement and improve health outcomes. It is important to monitor the impact of behavioural interventions on mental health in terms of benefits and potential harms.

II-P-B.09

Exploring Health-related Behaviour Patterns in Remote Call Centre Workers; A STROBE Compliant Cross-sectional Study

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Purpose: Since Covid-19, remote working has increased. Remote working can lead to reduced physical activity (PA), increased sedentary time, and poor diet. Call centre workers are particularly vulnerable, spending more of their workday sedentary than those in other sectors. However, the impact of remote working on this already at-risk population is unknown. This study explored the health-related behaviour patterns of remote call centre workers (RCCW), to support the planning of a future intervention. A secondary aim was to explore associations between PA and work performance.

Methods: A cross-sectional study was conducted with RCCW from a UK charity. An online questionnaire including demographics, physical and psychological health measures, and anthropometrics was completed. Participants wore an activPAL v4 over eight consecutive days, completed a daily log (working hours, sleep time, self-rated work performance), and recorded dietary intake via a smartphone app. Paired t-tests or Wilcoxon tests compared working days (WDs) and non-working days (NWDs) for aspects including sitting time, prolonged sitting bouts, steps, and calorific intake. WD data were analysed to identify inactive periods. Pearson's correlation assessed the relationship between PA and performance.

Results: Forty-two RCCW (93% female, mean/SD age 51.5 ± 9.1 years) were recruited; 35 provided valid activPAL data, and 19 recorded dietary intake. BMI was elevated (29.6 ± 6.7 kg/m²), and 75% reported musculoskeletal pain. During waking hours, RCCW spent significantly more time sitting on WDs (74.5% ± 9.8) than NWDs (60.9% ± 9.7, p<.001), and in prolonged sitting bouts >30-60 (p<0.001) and >60 minutes (p<0.001). Total steps were less on WDs (median {IQR} 5109 {4002-7418} steps/day) than NWDs (9338 {6327-1462}, p<0.001). Calorific intake did not differ between WDs and NWDs. The most inactive WD periods were occupational periods either side of lunch, with over 86% of time spent sitting. A small-to-moderate correlation (r=0.32, p=0.029) was found between increased WD PA and performance.

Conclusion: RCCW are more sedentary on WDs than NWDs, particularly during occupational periods before and after lunch. Future qualitative research is needed to understand the experiences of RCCW lifestyle behaviours. Together, this can inform the development of tailored interventions to target prolonged inactive periods to improve health and potentially work performance.

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II-P-B.11

A Nutrient Profiling Model for Addressing Paraguay's Nutritional Challenges

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Purpose: In Paraguay, inadequate nutrition education persists, and people continue to die from non-communicable diseases caused by obesity. Nutrient profiling models that can visually assess a food's nutritional value are used worldwide, allowing individuals to select nutrient-dense foods even without comprehensive nutrition education. Using this model in Paraguay may facilitate the selection of nutrient-dense foods, thereby promoting dietary behavioral changes. This study aimed to develop a nutrient profiling model based on Paraguay's nutritional challenges.

Methods: Between September and November 2023, a dietary survey using direct weight measurements was conducted in Paraguay. Average recipes for 28 food items and dishes were calculated from these records and categorized into three dietary groups associated with obesity: "traditional dishes prepared with meat," "processed wheat flour-based foods," and "carbohydrate-rich traditional dishes." Based on Paraguay's nutritional challenges, key nutrients were selected and weighted relative to their reference intake to create a Nutrient Rich Food (NRF) score. The calculated scores were then classified into five categories: "excellent," "good," "average," "poor," and "very poor," and compared across the dietary groups.

Results: Among the 22 items for which NRF scores could be calculated from average recipes, the highest value was for boiled cassava (66.7) in the carbohydrate-rich group, and the lowest was for fried dumpling with meat and boiled egg (empanada) (-6.0) in the meat group. The five items classified as "excellent" were from the carbohydrate-rich group. Nine items classified as "poor" or "very poor" were dishes containing fried, cheese, or processed foods.

Conclusion: The nutrient profiling model constructed based on the nutrients affecting obesity revealed that dishes containing fried, cheese, and processed foods had poor scores. Since the scores were calculated using average recipes, calculating the scores for each individual recipe could provide a more detailed understanding of the nutritional value.

II-P-B.12

Perceptions of Nature Contact across Environments in American Adults

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Purpose: Physical activity (PA) in natural settings provides additional mental health benefits than PA performed indoors. People who live near natural settings, like greenspaces, are also more physically active. As we communicate the benefits of spending time in nature to the public, it is essential to understand what "time in nature" means to them; to date, there is little agreement. The goal was to assess how nature-rich various environments were perceived to be.

Methods: American adults were recruited to participate in an on-line survey through Prolific. Respondents (n=303) rated 16 environments on a scale from 0 (no nature contact) to 100 (complete and full nature experience), reflecting the degree to which each environment would be considered time in nature. These 16 items were grouped into three subscales measuring different types of nature: wild nature (e.g., National parks), curated nature (e.g., zoos), and mediated nature (e.g., virtual reality). Participants also reported their time in nature over the past week, nature connectedness, and demographics.

Results: Only 5 environments had a mean greater than 50, including State or National Parks (M=90.8), ponds, lakes, streams or other bodies of water (M=84.6), local parks (M=74.6), botanical gardens (M=73.2), and home yards or gardens (M=61.5). Mediated experiences ranked the lowest and included: virtual reality nature (M=13.1), videos of nature (M=15.8), nature art (M=17.3), and recorded nature sounds (M=19.1). The standard deviations were high (>20) for 14 of the 16 items. For subcategories, wild nature had the highest endorsement (M=83.3), followed by curated nature (M=43.4) and mediated nature (M=16.3). Nature connectedness was significantly correlated ($p < .05$) with all three subscales (wild $r = .20$, curated $r = .20$ and mediated $r = .16$). Females rated curated nature higher than males. Black Americans rated mediated nature twice as high as other racial/ethnic groups.

Conclusion: While most respondents agreed that wild nature counted as spending time in nature and mediated nature did not, there was substantial disagreement for curated nature. Black Americans rated mediated nature much higher than other respondents. Black Americans get less physical activity than their White counterparts, mediated activities are typically sedentary and may exacerbate this trend.

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Exploring the Effects of Psychedelic Microdosing on Health Behaviour Change

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Purpose: Psychedelic research has predominantly examined high-dose applications for psychiatric conditions such as depression and anxiety, but emerging perspectives suggest broader applicability. Teixeira et al. (2022) propose that psychedelics may facilitate health behavior change by disrupting maladaptive patterns across general populations, prompting the conceptualization of „behavioral psychedelics“—defined as the application of psychedelics to promote intentional habit modification and enhance health and resilience (Neuhaus and Slavich, 2022). Classic psychedelics (e.g., psilocybin, LSD) function as serotonin 5-HT_{2A} receptor agonists, inducing alterations in neural connectivity and enhancing neuroplasticity. Despite the growing prevalence of psychedelic microdosing as a self-directed wellness intervention, empirical evidence regarding its impact on health behavior change remains limited. This study examined self-reported change in health-related behaviors and explored potential psychological mechanisms underlying these changes among individuals engaging in naturalistic psychedelic microdosing.

Methods: A retrospective cross-sectional survey utilizing mixed methodologies was administered to 365 participants with prior psychedelic microdosing experience. Participants provided both quantitative and qualitative data regarding perceived changes in health behaviors and hypothesized psychological mechanisms attributable to microdosing practice. Qualitative data underwent thematic analysis, while logistic regression models examined relationships between behavioral modifications and individual-level and contextual predictor variables.

Results: The sample comprised 365 participants (mean age of 44.59 years [SD = 11.77]), with a gender distribution of 187 males (51.23%), 174 females (47.67%), and three non-binary individuals (0.82%). The most prevalent self-reported behavioral modifications included enhanced sleep quality (47.1%, n = 172), increased engagement in contemplative practices (46.8%, n = 171), elevated physical activity levels (44.1%, n = 161), improved work-life balance (37.5%, n = 137), and augmented social activity participation (37.3%, n = 136). Behavioral change intention demonstrated the strongest predictive association with reported outcomes, whereas dosage parameters, dosing protocols, and psychiatric diagnostic status did not significantly predict behavioral change. Thematic analysis revealed several candidate psychological mechanisms, including enhanced mental health status, improved cognitive clarity, heightened self-awareness, increased autonomous motivation, and strengthened interpersonal connection.

Conclusion: These findings offer preliminary insights into health behavior modifications associated with psychedelic microdosing. Prospective controlled investigations are warranted to elucidate whether and how microdosing protocols may be optimally integrated into intentional health promotion interventions.

II-P-B.14

Motivation, Enjoyment, and Exercise Motives in Fitness-class Participants

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Purpose: Self-Determination Theory (SDT) posits that more autonomous forms of motivation enhance positive affective responses to exercise, particularly enjoyment, which is pivotal for sustained participation. This study examined how motivational regulations and exercise motives are associated with enjoyment among adults attending fitness classes.

Methods: Participants completed an online survey including the BREQ-4 (assessing amotivation, external, introjected, identified, and integrated regulations to compute a Relative Autonomy Index, RAI), the EMI-2 (evaluating health, appearance, enjoyment, affiliation, strength/fitness, stress management, weight management, and challenge/competition motives), and the PACES (measuring exercise enjoyment). All available responses were analyzed using pairwise completion when appropriate. Scale scores were computed following standard scoring guidelines, and internal consistency was examined using Cronbach's α . Relationships between RAI, PACES, and EMI-2 motives were analyzed through Pearson correlations, applying the Benjamini–Hochberg FDR correction for multiple comparisons.

Results: The analytic sample comprised 114 adults (67.5% women). Internal consistency was acceptable to good for several measures: BREQ-identified ($\alpha=0.78$), BREQ-intrinsic ($\alpha=0.66$), and PACES ($\alpha=0.64$). Within EMI-2, challenge/competition showed strong reliability ($\alpha=0.87$), while enjoyment and appearance were acceptable ($\alpha=0.65$ and $\alpha=0.63$),

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and health was marginal ($\alpha=0.55$). Correlational analyses aligned with the SDT framework, linking more autonomous regulation and enjoyment-related motives to higher PACES scores. Findings supported this hypothesis—enjoyment constructs clustered together—though some effects involving BREQ-4 subscales were weaker due to incomplete item coverage and should be interpreted cautiously.

Conclusion: Among fitness-class participants, enjoyment demonstrated satisfactory psychometric properties and was conceptually associated with autonomous motivation and enjoyment-oriented motives, consistent with SDT tenets. These findings highlight the practical relevance of fostering autonomy-supportive contexts and enjoyable class experiences to enhance long-term adherence. Future studies should apply validated Portuguese scoring protocols and longitudinal designs to clarify causal pathways between motivation and enjoyment.

II-P-B.17

Beliefs Shape Behaviour: A Qualitative Grounded Theory Study on Beliefs of People with First-ever Stroke About 24-hour Movement Behaviour

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Purpose: There is growing global recognition that a balanced 24-hour movement behaviour pattern, comprising sedentary behaviour, physical activity and sleep, is a key determinant of health. Beliefs may shape their 24-hour movement behaviour pattern. This study aimed to explore beliefs of people with first-ever stroke about sedentary behaviour, physical activity and sleep.

Methods: A qualitative, grounded theory study was performed using face-to-face, semi-structured interviews in people with first-ever stroke. Purposeful sampling was used based on 24-hour movement behaviour pattern, age, gender, cognitive status and body mass index. Two independent analysts applied initial, focused and selective coding to construct a conceptual model.

Results: Eighteen people with stroke were interviewed. Selective code “Balance” indicated that people believe that they need to alternate between sitting, moving and sleeping to cope with daily demands. “Importance” captured the belief that physical activity contributes to health and sleep aids recovery and rest, whereas sitting is seen as unimportant. “Emotions” showed how emotions shape activity, and vice versa. “Context” reflected how participants believe that physical, social, cultural and medical context shape their 24-hour movement behaviour pattern. The conceptual model showed that participants were aware of the health benefits of physical activity, which often translated into consciously participating in physical activity. Beliefs about sedentary behaviour, sleep and balance in 24-hour movement behaviour were limited or lacking.

Conclusion: Beliefs about sedentary behaviour, physical activity and sleep - shaped by balance, importance, emotions, and context - are perceived to influence the 24-hour movement behaviour pattern after stroke. Behaviour interventions targeting 24-hour movement behaviour after stroke should consider these beliefs. The limited beliefs about sedentary behaviour and 24-hour balance indicate a need for broader (public) awareness and education about the importance of striking the balance in 24-hour movement behaviour.

II-P-B.18

Feasibility of a Low-dose Physical Therapy Model to Promote Exercise in People with Multiple Sclerosis

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Purpose: Despite strong evidence supporting exercise to alleviate symptoms in persons with multiple sclerosis (MS), engagement rates remain low. Traditional physical therapy (PT) often focuses on function restoration following disability rather than proactive prevention of morbidity advancement. This feasibility study explored a low-dose, consultative PT model designed to increase exercise behavior and improve MS-related symptoms.

Methods: In a single-arm, pre-post design, participants attended six in-person PT visits over six months (Weeks 0, 2, 6, 10, 16, 24). The intervention provided individualized exercise prescription, education, and goal-setting, promoting home-based aerobic and strengthening to achieve MS-specific physical activity guidelines by the study completion. The primary outcome was the Godin Leisure-Time Exercise Questionnaire (GLTEQ). Secondary outcomes included patient-reported PROMIS measures (fatigue, pain, sleep, anxiety, depression) and MS-specific scales (MSWS-12, MSIS-29, Late-Life Function and Disability Instrument (LLFDI)).

Results: Thirteen of 16 participants completed the study (81% retention). GLTEQ scores significantly increased ($p=0.05$), with participants moving from moderately active (Mean=17.62) to sufficiently active (Mean=29.62). LLFDI also showed a statistically significant trend ($p=0.05$). No significant changes were found for MSWS-12, MSIS-29, or PROMIS measures; however, moderate effect sizes were noted for GLTEQ (Cohen's $d=0.55$), LLFDI ($d=0.36$), and psychological impact of MS ($d=-0.35$), denoting clinically meaningful improvements. All participants rated the program as highly acceptable and appropriate, and unanimously indicated they would recommend it to others with MS.

Conclusion: This feasibility study demonstrates that a low-dose, consultative PT model is a promising strategy for persons with MS. Significant gains in self-reported exercise and functional trends highlight its potential for broader implementation. This approach is reimbursable under current U.S. healthcare models, supporting scalability. Larger, randomized controlled trials are justified to confirm benefit and establish best practice for MS management.

II-P-B.19

Experiences with Participatory Support in Facilitating Sustainable Behavior Change: A Qualitative Thematic Analysis Protocol

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Purpose: Secondary prevention is crucial to reduce stroke recurrence and improve long-term outcomes. Lifestyle interventions are central to this process, but long-term success depends on achieving sustainable behavioral change. Such change requires emotional and psychosocial support that extends beyond medical care. These forms of support are most effective when provided by individuals within a person's close social network but are often underutilized. Therefore, the RISE (*Reduce and Interrupt Sedentary behavior using a blended behavioral intervention to Empower people at risk towards sustainable 24-hour movement behavior change*) intervention introduces the novel concept of participatory support, reimagining the role of these close others as equal partners in lifestyle interventions and facilitates sustainable behavior change after stroke.

Methods: A qualitative thematic analysis will be conducted to explore the experiences and perceived negative and positive value of *participatory support* in facilitating sustainable behavior change within a *movement-focused intervention*, from the perspectives of stroke survivors and their partners. Individual semi-structured interviews will be conducted with stroke survivors and partners who have completed the 15-week RISE intervention. Sampling starts with a convenience approach, supplemented by purposive sampling to ensure variation in stroke survivors' gender, age, and cognitive status, as well as the partner's level of involvement and nature of the relationship (e.g. partner, child, sibling). Data will be analyzed through open, focused, and selective coding. Two independent researchers will carry out the analysis, engaging in discussions to enhance reflexivity and ensure consistency in theme development. Emerging themes will be finalized through consensus meetings with the extended research group.

Results: -

Conclusion: Implications: Participatory support is a novel concept in healthcare practice, with limited evidence on its effectiveness and the experiences of those involved. This study will explore how stroke survivors and their partners perceive and value participatory support, highlighting key conditions for successful implementation within post-stroke lifestyle interventions. Findings may guide new collaborative approaches, enabling patients and partners to take a more active, equal role in rehabilitation and promote sustainable behavior change. Moreover, these insights

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may serve as the first building blocks for the further development and implementation of participatory support within the broader context of healthcare practice.

II-P-B.20

Understanding Physical Activity Experiences among Individuals with Multiple Sclerosis in Saudi Arabia: A Qualitative Study

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Purpose: Physical activity (PA) engagement remains limited among individuals with multiple sclerosis (MS), despite its established physical and psychological benefits. Limited evidence exists regarding PA experiences of individuals with MS in Saudi Arabia. This study explored the experiences, barriers, and facilitators of PA among individuals with MS in Saudi Arabia.

Methods: A qualitative case study design using semi-structured interviews was conducted. Eighteen individuals with mild-to-moderate MS (6 males and 12 females) were recruited through purposive sampling from Saudi Arabia. Interviews were conducted face-to-face or via Zoom, audio-recorded, transcribed verbatim, and translated into English. Data were imported into NVivo 14 and analysed inductively using Braun and Clarke's six-phase reflexive thematic analysis. Ethical approval was obtained, and informed consent was secured from all participants.

Results: Preliminary thematic analysis identified six major themes influencing PA engagement among individuals with MS: (1) living within MS boundaries, (2) motivational dynamics, (3) social relationships, (4) knowledge gaps and information navigation, (5) cultural influences, and (6) environmental and structural barriers.

MS-related symptoms, particularly fatigue, substantially limited participation despite awareness of PA importance; however, participants employed coping strategies to navigate these challenges. Key motivational facilitators included self-efficacy, future-oriented goals, perceived physical and psychological benefits, and accountability through group exercises or self-monitoring, while lack of enjoyment, low intrinsic drive, and time constraints demotivated participation. Social relationships had dual influences: family support and peer encouragement facilitated engagement, while overprotection and social stigma discouraged it. Regarding knowledge and information, inadequate and inconsistent guidance from healthcare professionals created uncertainty about appropriate activity levels and prompted information-seeking through peer networks and online resources. Cultural influences constrained PA through sedentary lifestyle norms and gender expectations, yet growing public awareness of PA and increased support for women's participation represented cultural shifts supporting PA engagement. Finally, extreme heat, limited accessibility, high costs, and lack of inclusive facilities further limited opportunities for sustained engagement.

Conclusion: These preliminary findings highlight the complex, multifactorial influences shaping PA engagement among individuals with MS in Saudi Arabia. Results will inform the development of culturally tailored, evidence-based interventions to promote and sustain PA participation in this population.

II-P-B.21

Running Wild: Forest Running Enhances Performance, Enjoyment, Mood and Future Exercise Intentions

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Purpose: Physical inactivity remains a global public health crisis, driving non-communicable disease and generating billions of dollars in healthcare costs annually. While nature-based physical activity (PA) is theorised to enhance both the quantity and quality of PA, empirical evidence remains limited. Drawing on the recently proposed Environmental Mismatch Hypothesis - which posits that natural environments may optimise physical performance due to evolutionary adaptations - we hypothesised that forest-based exercise would improve performance, enjoyment, mood and future PA intentions compared to urban exercise.

Methods: Forty-seven healthy adults (31 male; mean±SD age: 25±3 years; BMI 22.8±2.5kg/m²) completed a randomised, counterbalanced crossover trial involving a 30-minute self-paced run/walk at a prescribed moderate intensity (target

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perceived exertion = 4 on the Borg CR10 scale of 0-10) in a forest and urban environment. Outcomes included distance covered, heart rate (HR), enjoyment (PACES), mood (Profile of Mood States) and short- and long-term intentions to repeat the activity. Data were analysed using linear mixed-effects models with environment, sex and trial order as fixed effects and participant ID as a random effect.

Results: Participants ran significantly further in the forest compared with the urban condition (+171m; $F(1,46) = 5.3$, $p = 0.025$, Cohen's $d = 0.2$), despite more challenging terrain. This performance enhancement occurred without increases in HR or perceived exertion. Forest-based exercise also elicited greater enjoyment ($F(1,91) = 67.479$, $p < 0.001$; $d = 1.5$), improved post-exercise mood ($F(1,138) = 24.594$, $p < 0.001$; $d = 0.7$) and stronger short- and long-term intentions to engage in future PA (short-term $F(1,89) = 131.724$, $p < 0.001$; $d = 2.4$; long-term: $F(1,89) = 114.856$, $p < 0.001$; $d = 2.2$). Enjoyment was a strong predictor of future PA intentions, independent of environment and mood. Effects were consistent across sex, age, BMI, baseline fitness, and environmental preference.

Conclusion: A single bout of forest-based exercise enhanced performance and affective responses without additional physiological strain. These findings suggest that natural environments may facilitate higher quality PA and foster intrinsic motivation for sustained engagement. Nature-based interventions could therefore represent an effective, scalable strategy to reduce physical inactivity and improve population health.

II-P-B.22

Impact of Two Short Behavioral Theory-driven Professional Training Programs Targeting Attendance in Fitness Centers: Protocol for a Randomized Controlled Trial

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Purpose: Fitness centers are privileged settings for promoting population health; however, they are affected by high attrition rates and low attendance. At the same time, several motivational theories are claimed to be relevant for behavioral improvement in exercise contexts, although they are virtually devoid of experimental evidence in this regard. As such, the main objective of this study is to analyze the impact of two short training programs, designed for exercise professionals and based on two theories of human behavior (self-determination theory [SDT] and hedonic theory [HT]), on fitness center adherence. As a secondary objective, the study will examine the impact of these trainings on attrition rates, motivational variables, and other behavioral outcomes.

Methods: This is a pre-registered, randomized, controlled, pragmatic, single-blind trial with three parallel arms and an allocation ratio of 1:1:1. Professionals will receive a short training session at the start of the sports season, according to their assigned arm (SDT, HT, and general prescription guidelines as control), followed by successive reinforcement sessions every 10–12 weeks. From September 2025 to August 2026, data on new memberships, dropouts, and training attendance among new clients will be collected. A subsample of 114 exercisers will be assessed over one year to monitor motivational profiles.

Results: The primary outcomes will be exercise frequency; secondary outcomes will include attrition rate, motivation, intention to continue exercising, behavioral automaticity, subjective affective experience, and enjoyment. Agreement with exercise intensity, self-control state, and ratings of the extent and frequency of training content application will be used as control variables.

Conclusion: Improvements in exercise frequency would reflect individual health gains; reductions in attrition rates would enhance the financial sustainability of fitness clubs. Moreover, the findings would simultaneously validate hypotheses concerning the utility and validity of prominent behavioral theories and reinforce the importance of modifying current approaches in these contexts.

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II-P-B.23

Using Street Art as a Novel Approach to Physical Activity Messaging in South Africa

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Purpose: Low-resource settings such as South Africa often report the highest levels of insufficient physical activity, yet traditional surveillance methods fail to capture comprehensive data. Consequently, health promotion strategies struggle to sustain the attention of adults. Public street art is a common cultural expression. It remains an underutilised medium for contextual health messaging that integrates active living into daily routines. Leveraging existing public spaces, outward-facing artwork can transform zones with high foot and vehicle traffic into areas of connection for people, curiosity, and reflection, aligning with global frameworks for physical activity promotion. This study explores whether mural street art can engage adults at a South African university in conversations about movement, and whether such engagement translates into increased awareness and participation in physical activity.

Methods: Murals will be co-designed with local artists, embedding evidence-based imagery related to movement and active living. The murals will be painted on a wall in a known high-density zone at a South African institution. Engagement will be assessed through observational metrics, including time spent interacting with murals, photography, and social media sharing. The interactions will be collated and coded into themes for analysis.

Results: The mural street art is anticipated to lead engagement, curiosity, social connection, and dialogue in person and on social media, around movement and active living.

Conclusion: In low-and-middle income contexts with significant physical inactivity, integrating mural street art as a cultural expression with public health messaging offers a novel, and inclusive approach to promoting active living.

II-P-B.24

A culturally tailored comic series to promote everyday physical activity in South Africa

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Purpose: Sedentary behaviour is a well-established independent contributor to non-communicable diseases and has emerged as a global public health concern. South African universities are no exception: staff and students' work often involves prolonged sitting, which is particularly concerning given the prevalence of obesity in this setting. Despite this, there is limited evidence on effective strategies to promote movement whilst reducing sedentary behaviour in these settings. This study aims to design and implement a compelling video content campaign to reduce sedentary behaviour and promote regular movement. Therefore, addressing barriers such as social norms, perceptions, and environmental constraints and showcasing practical solutions, this approach offers a scalable model for shifting attitudes toward movement and fostering inclusive spaces for physical activity. Evidence indicates that culturally relevant video media can play a pivotal role in health communication by turning research findings into actionable behaviours.

Methods: This exploratory campaign's core message is that 'every move counts', emphasising the integration of movement throughout waking hours, such as walking during lunch breaks, standing during phone calls, taking the stairs, active commuting, and even short movements. A brief, visually engaging video that educates and encourages reflection on personal habits. Engagement metrics, including video views, shares, and comments, will be collected to determine reach and initial impact. Descriptive statistics will be used to analyse engagement data, and thematic coding of user responses will be used to identify shifts in awareness and attitudes.

Results: Data analysis will focus on reach, engagement, and indicators of behavioural intention, such as expressed willingness to integrate movement into daily routines and advocate for supportive environments.

Conclusion: Findings will yield novel insight into the efficacy of a visually engaging video campaign in fostering active lifestyles. Leveraging social norms and digital platforms, these campaigns offer scalable solutions to encourage movement-related behaviours.

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II-P-B.25

The Feasibility of Detecting Leg Fidgeting Using Wearable Sensors and Estimating Its Energetic Cost via Indirect Calorimetry

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Purpose: Leg fidgeting, characterised by rhythmic lower limb movement while seated, is a spontaneous, low-intensity behaviour that may serve as a practical strategy to interrupt prolonged sedentary time. This study aimed to evaluate the feasibility of detecting leg fidgeting using a wearable thigh-mounted accelerometer, and to quantify its energetic cost in comparison to sitting, standing, and slow walking under controlled settings.

Methods: Fifteen healthy adults (mean age = 35.6 ± 12 years; 33.3% male) completed semi-structured five-minute bouts of sitting, fidgeting, standing, and slow walking while wearing a thigh-mounted accelerometer (SENS motion system). Behaviour classification was validated against direct observation, and energy expenditure was measured using breath-by-breath indirect calorimetry. The SENS classification of fidgeting was evaluated using sensitivity, specificity, and balanced accuracy metrics. Energy expenditure was compared across activities using linear mixed-effects models, controlling for age, gender, and BMI.

Results: A total of 305 mins of activity data were recorded. Balanced accuracy for activity classification ranged from 90.6% (slow walking) to 99.1% (standing), with fidgeting classified at 95.0%. The energy expenditure of fidgeting (mean = 1.69 kcal/min) was significantly different from sitting (1.49 kcal/min), standing (1.47 kcal/min), and slow walking (mean = 4.10 kcal/min).

Conclusion: This study demonstrates that leg fidgeting can be detected using wearable sensors under controlled conditions. Furthermore, leg fidgeting expends slightly greater energy than expenditure compared to sitting and standing. Future research should examine its metabolic relevance in free-living settings and explore its role in daily movement patterns and in strategies to reduce prolonged sedentary time.

II-P-B.26

Impacts of Working from Home on Sedentary Behaviour, Physical Activity and Diet in the Post Pandemic Era- a Within-subject Measures Study in Hybrid Workers

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Purpose: The prevalence of home/remote working has increased significantly post pandemic, leading to concerns about potential negative impacts on sedentary behaviour, physical activity, and dietary habits within remote/hybrid workers. Limited research has examined these behaviours in the post-pandemic context, however. This study examined whether differences existed in sedentary behaviour, physical activity, and dietary intake between home and office working days in hybrid workers.

Methods: Sedentary behaviour, physical activity and dietary intake were measured over 8-consecutive days using a thigh-worn accelerometer (activPAL micro 3) and diet diary (Nutritics app), in a sample of desk-based hybrid workers. Participants recorded their time in bed, sleep time, working hours and work location in a daily log. Participants were required to provide valid activPAL data on at least one work from home and one office day for inclusion in the analyses. Lifestyle behaviours were compared between home and office working days using either paired sample t-tests or Wilcoxon signed-rank tests.

Results: Of 111 consenting hybrid workers, 88 (79%) provided valid activPAL data (67% female; mean (SD) age: 36 (13) years; BMI: $24.8 (4.6) \text{ kg/m}^2$). Waking wear time was significantly higher on office days compared to home working days (15.8 vs 15.4 hours/day, $p < 0.05$). The proportion of sitting time was significantly higher on home working days in comparison to office days (70% vs 67%, $p < 0.05$), while step counts were significantly lower on home working days in comparison to office days (7571 vs 9669 steps/day, $p < 0.01$). A sub-sample ($n=39$, 82% female) provided dietary data, revealing that total energy intake was significantly higher on home working days (1732 vs 1554 kcal/day, $p=0.012$). No differences were seen in proportions of macronutrients contributing to total energy intake ($p > 0.05$) across working environments. Snacking behaviours did not differ between environments ($p > 0.05$).

Conclusion: Findings suggest working from home is associated with higher levels of sedentary behaviour, reduced physical activity and increased energy intake. Further work should examine perceived barriers and facilitators to

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increasing movement within the home working environment, with the view of creating tailored behaviour change interventions for this, now common working environment.

II-P-B.27

A Systematic Review and Meta-analysis on Actionable Dietary Behaviours and the Development of Obesity: An OBCT Study

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Purpose: Obesity burden is partially driven by dietary behaviours. Young adults are especially vulnerable to weight gain due to life transitions disrupting eating habits (e.g. new family or job). We evaluated longitudinal evidence on actionable dietary behaviours and obesity development in adults.

Methods: The systematic review followed PRISMA 2020 guidelines and was registered in PROSPERO [ID:CRD42024611490]. Prospective cohorts and randomized controlled trials on meal frequency, -timing, -skipping, snacking, portion size, eating speed, cooking skills, mindful eating, shopping habits, social eating, and eating out were included. Studies eligible were conducted in the general population with participants aged 18–65 years at baseline, with a focus on young adults (18–40 years), depending on data availability. The primary outcome was obesity incidence (BMI ≥ 30 kg/m²); secondary outcomes: incidence of overweight (BMI ≥ 25 kg/m²), BMI-, weight-, waist circumference changes. Screening was supported by ASReview, data extraction, synthesis and quality appraisal by Elicit AI. Bias was assessed through Newcastle-Ottawa scale and ROBIS. Random-effects meta-analyses and vote counting based on direction of associations were used for data synthesis.

Results: We included 88 studies: 68 cohorts, 20 RCTs. No studies were found for social eating and shopping habits. Only a few studies per behaviour could be meta-analyzed, and not all behaviours were represented. Examples of results for cohorts: each additional weekly eating-out occasion was associated with a small annual BMI gain (+0.02 kg/m²/year; 95%CI 0.00-0.04; I²=89.1%; 4 cohorts); snacking versus not snacking was associated with higher incident obesity (OR 1.58; 95% CI 0.09–2.56; I²=49%; 2 cohorts); adding one extra eating occasion per day was associated with a small annual weight gain (+0.01 kg/year; 95%CI -0.01-0.02; I²=0.0%; 2 cohorts); and delay in the average time of the first meal was associated with an annual increase in BMI (+0.06 kg/m²/year; 95%CI -0.16-0.29; I²=38.3%; 2 cohorts). Vote counts support these patterns. Results for RCTs will be ready at the time of the conference.

Conclusion: Longitudinal observational evidence suggested that more frequent eating out, snacking, higher meal frequency and delayed meal timing are associated with higher development of obesity; effects are small but may accumulate over time. High heterogeneity requires cautious interpretation.

II-P-B.28

The Associations of Sedentary Behavior and Physical Activity with Musculoskeletal Symptoms in Hybrid Office Workers: A Compositional Data Analysis

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Purpose: Hybrid work is the new norm for those in desk-based jobs. This modality of work further increases sedentary time, and may subsequently increase the behaviors related effects on health, such as musculoskeletal symptoms. However, little is known about accumulated physical activity (PA) patterns and sedentary behaviors (SB) (and their associations with health) since the adoption of hybrid work after the COVID-19 pandemic. Therefore, the aims of the study are to (i) examine patterns of SB and PA among hybrid office workers, (ii) assess their associations with musculoskeletal symptoms, and (iii) assess the impact of replacing time spent in SB with PA on musculoskeletal symptoms.

B. MOTIVATION AND BEHAVIOR CHANGE

Methods: Hybrid office employees from Ireland, Slovenia, Spain and the Netherlands were enrolled in the study. Self-reported measures assessed musculoskeletal symptoms, along with sociodemographic and home environment. Total, occupational and non-occupational SB, standing, light-intensity PA and moderate-to-vigorous PA (MVPA) were assessed by the activPALTM. A compositional data analysis was employed to investigate the associations between SB and PA patterns and musculoskeletal symptoms. For significantly associated patterns, isotemporal substitution analyses were conducted.

Results: A total of 163 hybrid office workers (71.8% female; median age 39 years) participated in the study. On average, participants sat for 10.95 h/day. Participants accumulated 18 minutes more sitting time while working during home-office work than in the traditional office location ($p < 0.001$). The proportion of sitting time on days of home-office work was associated with musculoskeletal symptoms (OR: 2.75, 95% CI: 1.24, 6.55). Reallocating sitting time with MVPA reduced the predicted probability of experiencing musculoskeletal symptoms at home, with greater reductions observed at higher amounts of substitution.

Conclusion: Sitting time during home-office working days is associated with musculoskeletal symptoms, while replacing it with MVPA is associated with lower odds of such symptoms. These findings support the need for home-office interventions that reduce SB and replace SB with more active breaks of MVPA.

II-P-B.29

Autonomous Motivation Predicts Mental Health without Mediation from Physical Activity or Screen Time

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Purpose: Increased autonomous motivation for physical activity (PA) is theoretically expected to drive higher participation levels and also lead to decreased sedentary screen time (ST) according to the displacement hypothesis. Both of these behavioural changes are thought to benefit mental health. In this study grounded in Self-Determination Theory, we explored if the association between autonomous motivation for PA and mental health is mediated by time spent on PA and ST.

Methods: We analyzed cross-sectional data from 330 participants (mean age = 18.2 ± 2.0 years; range 14–21). The sample included secondary (33.3%) and university (59.7%) students, with 55.2% identifying as male. PA volume was measured using an adapted version of the Self-Administered Physical Activity Checklist, and ST were assessed using an adapted Questionnaire for the Screen Time of Adolescents. Motivation for PA was assessed using an adapted version of the Behavioural Regulation in Exercise Questionnaire (BREQ-3) to calculate the Relative Autonomy Index, and mental health was measured using the Mental Health Inventory-5. We fit a parallel mediation model where motivation predicted mental health both directly and indirectly through PA volume and a latent ST factor (combining video watching, gaming, and social media time).

Results: The parallel mediation model demonstrated adequate fit to the data (CFI=0.973; SRMR=0.035; RMSEA=0.071). Autonomous motivation predicted both PA volume ($b=0.33$, $p < .001$) and ST ($b=0.46$, $p < .001$). However, neither PA volume ($b=-0.04$, $p=.528$) nor ST ($b=0.09$, $p=.183$) significantly predicted mental health scores. Consequently, the indirect effects through PA ($p=.530$) and ST ($p=.190$) were non-significant. The only significant predictor of mental health was the direct path from autonomous motivation ($b=0.37$, $p < .001$).

Conclusion: The volume of PA and ST did not explain the relationship between motivation for PA and mental health. These findings suggest that the mental health benefits often attributed to lifestyle behaviours may be driven more by the underlying autonomous motivation than by the volume of the behaviour itself. Interventions targeting mental health in youth should prioritize autonomous motivation over simply prescribing behavioural targets.

II-P-B.30

Exploring Professionals' Perspectives on Healthcare and Lifestyle Coaching Experiences for People with a Migration Background: A Qualitative Study

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Purpose: This study aims to explore the experiences and perceptions of professionals in health and lifestyle coaching for people with a migration background to inform the development and scale-up of the lifestyle coaching service *Healthy Habits Coaching (HHC)*. HHC stands out by specifically targeting individuals with chronic conditions and/or physical disabilities. This inclusive approach recognizes the unique challenges people with chronic conditions and/or physical disabilities face in adopting a healthy lifestyle. HHC provides free online or phone coaching, facilitated by volunteers who bring both personal experiences as peers and professionals' expertise as lifestyle coaches. Their aim is to motivate individuals to develop and maintain healthy habits across multiple lifestyle domains, including physical activity, nutrition, sleep, and relaxation.

Methods: This qualitative study was conducted in partnership with a Dutch community organization (Stichting Special Heroes) using a pragmatic approach. Semi-structured interviews were conducted with professionals (n=11) with professional experiences in migration, diversity and/or health (e.g., lifestyle coaches, academics, policy makers). The data were analysed using a reflexive thematic approach.

Results: We identified three main themes. The first theme described the *participants' perceptions of the impact of cultural background on the experiences in healthcare and lifestyle coaching*. The second theme focused on *recognition as key aspect to promote effective communication and understanding between lifestyle coach and client*. The third theme emphasized the *need for integrating diversity into lifestyle coaching programs to ensure accessibility, availability, and awareness among people with a migration background*.

Conclusion: The findings of this study emphasizes the importance of cultural competence and recognition of diverse identities among lifestyle coaches, with the need for inclusive strategies to effectively reach and engage people with a migration background in lifestyle coaching. The insights of this study will be used to inform the optimization and implementation of Healthy Habits Coaching program and, subsequently contribute to improving inclusive lifestyle coaching services for people with a migration background.

II-P-B.31

Long-term Effect of a Person-centred Lifestyle Intervention on Cancer-related Fatigue and Lifestyle Behaviour Change: Six-month Follow-up after a Randomized Controlled Trial

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Purpose: We previously reported that a six-month lifestyle intervention improved diet and physical activity but did not reduce cancer-related fatigue among colorectal cancer (CRC) survivors. This follow-up study examined the long-term effect of the intervention on cancer-related fatigue and the maintenance of lifestyle behaviour changes six months after study completion.

Methods: 161 stage I-III CRC survivors who were experiencing cancer-related fatigue, were randomized to the intervention group (n=80), receiving six months of lifestyle coaching to improve adherence to the World Cancer Research Fund (WCRF/AICR) dietary and physical activity guidelines, or to the control group (n=81), receiving usual care. Data were collected at baseline and six months as part of the original trial, and six months beyond completion of the trial for this long-term follow-up study. Data on diet, physical activity and cancer-related fatigue were assessed with questionnaires.

Results: During the six months of the randomized controlled trial, there were favourable changes in dietary behaviours and physical activity in the intervention group; the control group did not show changes to the same extent. Six months beyond completion of the randomized trial, changes in diet quality appeared to be largely maintained in the intervention group, while physical activity declined in both groups. Six months beyond completion, cancer-related fatigue did not significantly differ between the intervention and control groups (1.5, 95% CI: -1.4, 4.3).

Sensitivity analyses were conducted including only those participants of the intervention group who implemented the largest improvements in diet and/or physical activity and only those participants of the control group who did not implement changes in diet and/or physical activity over the total 12 months of follow-up. Across those sensitivity analyses, reductions in cancer-related fatigue consistently favoured the intervention group.

Conclusion: The intervention did not result in long-term effects on cancer-related fatigue. Nevertheless, our sensitivity analyses may putatively suggest that larger changes in diet and or physical activity are needed to exert an effect on cancer-related fatigue.

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Effects of a Combined Self-management and Exercise Intervention on Sedentary Time and Patterns in Community-dwelling Older Adults: A Randomized Controlled Trial

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Purpose: The aim of this study was to assess the effectiveness of adding self-management strategies (SMS) to reduce sedentary behavior (SB) to a multicomponent exercise (ME) program, compared with the exercise program alone, in reducing sedentary time (ST) and modifying SB patterns among community-dwelling older adults.

Methods: In this randomized, blinded clinical trial, 46 community-dwelling older adults were assigned to an intervention group (IG= 23) receiving ME plus SMS to reduce SB, or to a control group (CG= 23) receiving exercise alone. Both groups participated in the ME program for 40 weeks, while SMS to reduce SB were delivered only to the IG during the first 16 weeks. ST and SB patterns (number of sedentary bouts >30 minutes and >60 minutes) were assessed using the activPAL3 micro accelerometer at baseline, 16 weeks, and 40 weeks (24-week follow-up after SMS withdrawal). Intervention effects were analyzed using generalized linear mixed models.

Results: Participants had a mean age of 73.5 ± 6.7 years, and 73.9% were female. Both groups significantly reduced ST after 16 weeks (difference= -0.95 hours; 95%CI= -1.37 to -0.52 ; $p < 0.001$), but values returned to baseline levels at 40 weeks. The IG reduced ST from 8.56 (0.60) hours to 7.53 (0.60) hours after 16 weeks, returning to 8.59 (0.62) hours at 40 weeks. Similarly, the CG reduced ST from 9.41 [0.62] hours to 8.55 (0.63) hours after 16 weeks, increasing to 8.86 (0.64) hours at 40 weeks. We also observed that the IG was not superior to the CG in reducing ST or the number of sedentary bouts >30 minutes and >60 minutes at either 16 or 40 weeks ($p > 0.05$).

Conclusion: The addition of SMS to reduce SB for 16 weeks was not superior to a ME program alone in reducing ST or modifying SB patterns in community-dwelling older adults. Although short-term reductions were observed, effects were not sustained at follow-up, suggesting that longer or more intensive behavioral components may be needed. Further studies should explore alternative approaches, contexts, and extended intervention periods.

II-P-B.33

Precision Emotion and Affective Context (PEAC) Process Model: A Theoretical Framework for Creating the Affective Circumstances that Promote Engagement

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Purpose: Behavior change interventions are key to improving health and well-being. Existing models of behavior change, however, often overlook the importance of dynamic affective states. We propose the “precision emotion and affective context (PEAC) process model of engagement for behavior change” as a theoretical framework to advance our understanding of how affect drives engagement and subsequent behavior.

Methods: We integrate extant literatures on affective science, engagement, and behavior change to develop a novel theoretical model that highlights the importance of accounting for affective circumstances when designing and implementing behavior change interventions, including those promoting physical activity. PEAC accounts for affect that is both incidental and integral to the intervention: ongoing affective states that may work for or against the likelihood of engaging with the intervention (incidental), and affective states that are elicited by the intervention and consequently shape behavior change (integral). We emphasize the importance of moderate levels of arousal and positive affective states, along with the need for contextual congruence, social acceptability, and personally meaningful approaches, to sustain engagement and promote behavior change.

Results: The PEAC model is illustrated through dynamic valence and arousal processes guiding real-time engagement in interventions intended to promote every day physical activity. For instance, an individual enrolled in a digital physical activity intervention experiencing a high arousal state may not notice the intervention prompt, may perceive

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the intervention as distracting, and/or feel too overwhelmed to engage. While in a low arousal state they may lack motivation to read the prompt or lack energy to engage in the behavior (e.g., go for a walk). Negative affect (e.g., anxiety about an upcoming appointment) may lead to ignoring the prompt or increased anxiety (e.g., reminder to exercise). However, when experiencing a positive, moderate arousal state, a prompt suggesting a brief walk is likely to capture attention, generate more positive affect, and promote engagement in the intended behavior.

Conclusion: PEAC advances our understanding of the relationship between affect and behavior change by providing novel and testable predictions for how to construct and harness the affective circumstances necessary to promote sustained intervention engagement.

II-P-B.35

Barriers, Motivators and Response to the First 10 Weeks of a Physical Activity Intervention in Patients with Heart Failure: Preliminary Analyses from the STEP-IN Trial

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Purpose: Despite the benefits of physical activity to manage heart failure, adherence to structured exercise programs remains low, highlighting the need for accessible and scalable alternatives. The aim was to describe: (i) participant-reported barriers and facilitators to be more active; (ii) preliminary changes in daily steps during the first 10 weeks of intervention in participants of the STEP-IN trial.

Methods: STEP-IN is a 9-month randomized controlled trial in patients with heart failure (ejection fraction <50%) and NYHA class II-III. Intervention participants are remotely monitored and receive individualized daily step goals every two weeks. The first 3 months target steps/day and from month 4 step cadence is introduced. To promote behaviour change, the intervention incorporates: wearable self-monitoring (Fitbit Inspire 3); graded goal setting; visual feedback (HealthyChronos platform); personalized WhatsApp prompts; motivational badges; and 3 face-to-face coaching sessions. Barriers and motivators were assessed at the first coaching session using a questionnaire. An exploratory paired t-test compared baseline with week 10.

Results: Nine participants (66.7 years [± 8.8]; 55.6% male; 66.7% HFrEF; 88.9% NYHA class II) who had completed the first 10 weeks of the intervention were included. The most frequently endorsed barriers were: concerns that the heart may not tolerate activity (44.4%); physical condition/comorbidities limiting movement (44.4%); fear when their heart beats fast (33.3%) and lack of a safe environment or favourable weather to walk (33.3%). The most common motivators were to: improve energy and reduce fatigue (100%); reduce joint discomfort (88.9%) and maintain independence (88.9%).

Mean steps/day increased from 9,609 ($\pm 5,128$) at baseline to 11,933 ($\pm 5,710$) at week 10 (mean change, +2,324 [$\pm 2,904$]; 95% CI; t-test $p=0.043$). Seven participants (77 increased $\geq 1,000$ steps/day and 66.7% achieved at least half of prescribed step goals (≥ 2 of 4).

Conclusion: Early STEP-IN data indicate symptom-related concerns and comorbidities as common constraints, whereas reduced fatigue/joint discomfort and maintaining independence are key motivators. These analyses show a relevant increment in daily steps during these first weeks, but full-sample analyses will assess effectiveness of this trial.

II-P-B.36

Understanding Student Motivation to Participate in GutGirl (GUT Health and GIRL Fitness): A Physical Activity-microbiome Intervention Study among Female University Students

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Purpose:

Understanding what motivates female university students to engage in research-based interventions is important for improving recruitment and retention in health studies. This is particularly relevant for gut microbiome research, where sustained adherence to physical activity protocols is essential. This study explored incentives that motivated female undergraduate students to participate in GutGirl, a RCT examining links between physical activity and the gut microbiome. The intervention ran from September to December 2025 and included two experimental and one control groups, combining endurance and endurance–strength training. To inform recruitment and the preparatory phase, we conducted a preliminary survey to assess interest and identify key motivational factors influencing participation.

Methods: A cross-sectional survey was conducted among 391 Slovak female undergraduate students to identify motivational factors for participating in an intervention on physical activity and the gut microbiome. The questionnaire was developed based on a focus group discussion with experts and included items on willingness to participate and perceived incentives. Participants were recruited during physical activity classes and completed the survey online. Participation was voluntary and anonymous. Only complete responses were analyzed using descriptive statistics.

Results: A total of 391 responses were collected, of which 241 were valid. Of these, 9% [A1] expressed definite willingness to participate, 17% probable willingness, and 37% were undecided. The strongest motivating factors were academic credit for physical education (65%), access to a free comprehensive fitness assessment (59%), the opportunity to improve personal health (59%), and an individualized training plan (53%). Financial incentives (36%), participation certificates (40%), and free gym membership (36%) were rated as less important.

Conclusion: Our findings highlight that intrinsic and academically aligned incentives are more effective motivators than purely material or symbolic rewards. This suggests that for young adult populations, particularly female university students, the perceived educational and health-related value of participation outweighs short-term financial gain. Understanding these preferences is essential not only for the successful implementation of the intervention but also for informing strategies to recruit and engage participants in health and exercise science research. Tailoring recruitment efforts to emphasize academic credit, personalized feedback, and health improvement may enhance enrollment and adherence in similar intervention studies.

II-P-B.37

Motivation Matters: Predicting Multiple Healthy Lifestyle Behaviors in a Longitudinal Study

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Purpose: The adoption of healthy lifestyle behaviors is essential for long-term health and disease prevention, yet engagement varies widely across individuals. Motivational processes play a central role in how health-related behaviors are evaluated, initiated, and maintained. In this study, we examined how key constructs from self-determination theory, social cognitive theory, and the transtheoretical model of behavior change relate to healthy lifestyle behaviors.

Methods: We conducted a pre-registered longitudinal study in Austria using a nationally representative sample. In Wave 1 (N = 1,321), we tested cross-sectional associations between self-determined motivation, basic psychological need satisfaction, self-efficacy, knowledge of health guidelines, social network size, and multiple health behaviors. Fifty-six percent of participants from Wave 1 completed Wave 2 five months later (N = 744). Motivational readiness for health behavior change was reassessed to test whether stage-standardized self-efficacy and decisional balance at T1 predicted positive health behavior at T2 (i.e., progression to the next stage of behavioral change or maintenance of positive health behaviors).

Results: Cross-sectionally, self-determined motivation and basic psychological need satisfaction were associated with higher levels of physical activity and fruit and vegetable consumption. Self-efficacy was positively associated with physical activity and fruit and vegetable consumption and negatively associated with tobacco and nicotine consumption and alcohol intake. Knowledge of health guidelines was not a consistent predictor of health behavior when motivational factors were included in the analyses. Longitudinally, both self-efficacy and decisional balance predicted positive health behavior in physical activity, but not fruit and vegetable consumption. Self-efficacy additionally predicted positive health behavior in tobacco and nicotine consumption and alcohol intake. Decisional

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balance was not assessed for these behaviors.

Conclusion: Overall, the findings highlight motivational processes as key cognitive mechanisms underlying healthy lifestyle behaviors, suggesting that interventions should prioritize strengthening motivation in addition to providing health information. Longitudinal results further indicate that behavior-change mechanisms may differ across health behaviors, underscoring the importance of tailoring interventions to specific behavioral targets. Together, these findings highlight the central role of motivational processes in health behavior and suggest that integrating constructs across health behavior theories may improve our understanding of how healthy lifestyle changes emerge and are sustained.

II-P-B.38

Healthy Eating Research to Overcome Barriers and Empower with Strategies to Improve Health Equity in SCI (HEROES - SCI)

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Purpose: Adults living with SCI do not meet dietary recommendations and face numerous nutrition-related challenges that adversely impact their health and well-being. These challenges include physiological changes that exacerbate development of chronic conditions, such as obesity, as well as physical changes that inhibit their ability to make healthy food choices, such as support for food shopping and preparation. This pilot study aims to integrate quantitative and qualitative data to identify and understand barriers and facilitators of healthy eating among adults with SCI. This information will be used to co-design an intervention to improve dietary intakes among adults with SCI in real-life settings.

Methods: We are collecting surveys and dietary assessments from 150 adults (18+ years) living with SCI in the U.S. Surveys query information on participants' sociodemographic characteristics, health conditions, health behaviors, and food environment, and include a Theoretical Domains Framework (TDF) self-evaluation of barriers and facilitators of healthy eating. The self-administered Vioscreen food frequency questionnaire, with 155 food and beverage items, collects usual dietary intakes during the previous three months. Following quantitative data collection, we will conduct one-on-one, semi-structured in-depth interviews with 15 participants with SCI, 15 family member/caregivers, and 10 key informants within in the SCI community. Interviews with participants with SCI will incorporate photo-elicitation.

Results: To-date, we have 122 completed surveys and dietary assessments. The mean (SD) age of participants is 49.0 (15.3) years, half are female (49.5%), and 74.7% identify as non-Hispanic White. Nearly a third (31.9%) report being at risk for food insecurity, 16.5% describe their diet as unhealthy, 40.7% have never received nutrition counseling, and 58.3% are dissatisfied with their body. On the TDF self-evaluation, the following domains emerged for further probing during qualitative data collection: skills; identity; beliefs and capabilities; optimism; memory, attention, and decision process; social influences; emotion; and behavioral regulation.

Conclusion: We will present formal analyses of the survey and dietary assessment at the conference, providing an explanation of the development of the TDF self-evaluation. We will also present next steps for this pilot research.

II-P-B.39

From Access to Action: Testing Self-determination Theory Mechanisms Linking Perceived Facility Access to Recreational Physical Activity

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Purpose: Recreational physical activity (RPA) is discretionary and self-initiated, yet socio-ecological research rarely examines how perceived environmental access relates to RPA through motivational processes. Guided by Self-Determination Theory (SDT), this study examined pathways linking perceived access to exercise facilities with RPA in adults. Specifically, we tested whether perceived access was indirectly associated with RPA through basic psychological need satisfaction (BPNs) and motivational regulations, and whether competence, autonomy, and relatedness differed in their explanatory role.

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Methods: A cross-sectional survey was conducted among Portuguese adults aged 18–65 years (N = 916). Participants reported perceived access to exercise facilities, basic psychological need satisfaction for RPA (competence, autonomy, relatedness), motivational regulations (autonomous, controlled, amotivation), and RPA derived from the recreational domain of the Global Physical Activity Questionnaire. Models adjusted for age, sex, socioeconomic status, and population density. Hierarchical linear regressions examined incremental variance explained (covariates → access → needs → motivation). Need-differentiated models estimated unique associations of competence, autonomy, and relatedness. SDT-consistent indirect associations were tested using bootstrapping, with HC3 robust standard errors as a sensitivity analysis.

Results: Regression models explained substantial variance in RPA. Adding perceived access increased explained variance modestly ($\Delta R^2 = 0.014$), whereas adding need satisfaction produced a large increment ($\Delta R^2 = 0.320$); adding motivational regulations further improved prediction ($\Delta R^2 = 0.039$). In need-differentiated models, competence was the strongest unique correlate of RPA ($\beta = 0.470$, $p < .001$), autonomy was smaller ($\beta = 0.131$, $p = .050$), and relatedness was not significant ($\beta = 0.000$, $p = .994$). In the full SDT model, competence ($\beta = 0.357$, $p < .001$; HC3 95% CI [0.226, 0.488]) and autonomous motivation ($\beta = 0.306$, $p < .001$; HC3 95% CI [0.185, 0.426]) remained positively associated with RPA. Indirect effects were consistent with an access–need satisfaction–autonomous motivation pathway (standardised indirect $\beta = 0.070$, 95% CI [0.040, 0.100]). No moderation by socioeconomic status or population density was observed.

Conclusion: For discretionary RPA, perceived facility access relates to behaviour primarily through competence satisfaction and autonomous motivation. These findings extend SDT-informed research by clarifying motivational pathways through which environmental perceptions relate to recreational physical activity.

C. CANCER PREVENTION AND MANAGEMENT

I-P-C.02

Cardiorespiratory Fitness and Physical Activity with Cognitive Changes in Women with Breast Cancer Undergoing Chemotherapy: A Prospective Match-control Study

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Purpose: Breast cancer (BC) patients who have undergone adjuvant chemotherapy are at high risk for cancer-related cognitive impairment (CRCI). The primary study objective was to characterize longitudinal changes in cognitive function and between-group differences between BC patients receiving chemotherapy and age-matched, healthy controls. Secondary objectives examined cross-sectional associations of cardiorespiratory fitness (CRF) and moderate-to-vigorous physical activity (MVPA) with cognitive function.

Methods: A prospective cohort study included 55 women (n = 32 stage I – III BC; n = 23 age-matched controls) from baseline (pre-chemotherapy) to follow-up (5 months post-chemotherapy). Participants were recruited via BC clinics at the Odette Cancer Centre (patients) and the community (controls). Cognitive function was assessed remotely using the NIH Toolbox Cognition Battery v2. CRF was assessed using the six-minute walk test and MVPA was objectively assessed using GT3X+ ActiGraph accelerometers. Analyses in Stata 17 used longitudinal mixed-effects models, entering CRF and MVPA separately and adjusting for anxiety and depression.

Results: Most participants were White (BC = 53%; controls = 65%), married/partnered (BC = 69%; controls = 74%), and highly educated (>90%). In CRF-adjusted models, Picture Sequence Memory improved from baseline to follow-up ($\beta = 4.92$, 95% CI [0.91, 8.92], $p = 0.016$) and higher CRF showed a small improvement List Sorting ($\beta = 0.02$, 95% CI [-0.00, 0.03], $p = 0.059$) in both groups. Oral Reading Recognition ($\beta = -5.60$, 95% CI [-11.33, 0.12], $p = 0.055$) and Auditory Verbal Learning ($\beta = -2.99$, 95% CI [-6.05, 0.07], $p = 0.055$) were lower among BC patients. No significant group x time interactions were observed.

In MVPA-adjusted models, there was a small, non-significant improvement in both groups ($\beta = 4.01$, 95% CI [-0.23, 8.25], $p = 0.064$), with no significant group x time interaction ($p = 0.998$). BC patients scored lower on Oral Reading Recognition ($\beta = -8.31$, 95% CI [-14.24, -2.38], $p = 0.006$) and Auditory Verbal Learning ($\beta = -3.96$, 95% CI [-7.07, -0.86], $p = 0.012$).

Conclusion: CRF and MVPA may modestly influence cognitive outcomes after breast cancer treatment, and thus should be important targets for CRCI interventions.

I-P-C.03

Integrating Artificial Intelligence in Personalized Biofeedback Messaging: Implications for Future mHealth Behavioral Interventions

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Purpose: Physical activity (PA) can reduce mortality in survivors of several cancers. One key behavioral change strategy in PA interventions is performance feedback. Combining wearable sensors that continuously monitor biological data (e.g., activity, sleep, glucose) with artificial intelligence (AI) provides opportunities to further develop and deliver personalized biofeedback. This study assessed the acceptability of a remotely delivered physical activity intervention using personalized text messages based on wearable sensor data. Specifically, we examined how artificial intelligence (AI) could be used to support such interventions moving forward.

Methods: Thirteen insufficiently active adult cancer survivors who completed primary treatment at least three months prior to enrollment and had a smartphone with daily internet access participated in individual interviews at the conclusion of their 12-week intervention periods (October 2024-August 2025). Participants discussed their previous AI tool usage, feelings about using AI technologies in analyzing and interpreting health-related data, concerns about using AI-generated health information, and compared AI health information with online and healthcare provider sources. Coders transcribed and analyzed a total of 363 pages using Braun and Clarke's thematic analysis method.

Results: Participants had a mean age of 57 (SD±12; ranged 23-73), and were predominantly women (92.3%), White

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(76.9%), and non-Hispanic (76.9%). Most participants had a bachelor's degree or higher (76.9%) and had an income of \$75,000+ (61.5%). The average digital health literacy score was 33.6 out of 40 (SD±6.2; ranged 21-40). Over half of the participants used AI tools in their daily lives. There were mixed results in the perceived accuracy of AI-facilitated health information, with some saying that AI information would be the least accurate, and others saying it would be the most accurate. While some concerns related to trust were identified, nearly half of the participants said they had no concerns about AI using and interpreting their health-related data. Participants highlighted that the AI-produced data could help facilitate conversations with their healthcare provider.

Conclusion: AI has the potential to augment personalized feedback messaging for physical activity interventions and is perceived positively by participants of such health interventions. AI-produced biofeedback messaging among cancer survivors should be prioritized to reduce mortality among cancer survivors.

I-P-C.04

Lifestyle and Dietary Inflammation Scores and Risks of Recurrence and Progression among Patients with Non-muscle Invasive Bladder Cancer

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Purpose: A healthy lifestyle and diet may improve outcomes among patients with non-muscle invasive bladder cancer (NMIBC), possibly by reducing systemic inflammation. Yet, this relationship has not been explored using large cohorts and validated scores. Therefore, this study investigated the association of an inflammation biomarker panel-weighted Lifestyle (LIS) and Dietary Inflammation Score (DIS) after diagnosis with the risks of recurrence and progression in patients with NMIBC, and performed a secondary analysis of high-sensitivity C-reactive protein (hsCRP) in relation to these outcomes.

Methods: Patients with newly diagnosed NMIBC between 2014 and 2021 were recruited for the prospective multi-center cohort UroLife. Self-reported information about lifestyle (n=1,334) and/or diet (n=1,306) were collected at 3 months after diagnosis using lifestyle and Food Frequency Questionnaires. The LIS and DIS were calculated to capture the inflammatory potential of lifestyle and diet, with higher scores reflecting more pro-inflammatory exposures. Plasma hsCRP was measured at 3 months after diagnosis, and log₂-transformed for the analyses. The association of LIS and DIS with hsCRP was ascertained in multivariable linear regression models. The association of the LIS and DIS, as well as hsCRP, with the risks of first or multiple recurrence(s), and stage and/or grade progression was assessed using multivariable Cox proportional hazards models.

Results: Over a median follow-up time of 4.7 years, 466 patients had at least one recurrence, and 155 had progression. Each 1-point increment in LIS and DIS was associated with a 43% (95%CI 28-53%) and 6% (95%CI 3-10%) increase in hsCRP, respectively. Higher LIS and DIS were not associated with the risks of first recurrence, multiple recurrences, and progression. However, a 1-point increase in DIS, i.e. a more pro-inflammatory diet, showed a non-significant linear trend of a higher recurrence risk (HR 1.02, 95%CI 0.98, 1.07). There was no association between hsCRP and risks of first or multiple recurrence(s), or progression.

Conclusion: A pro-inflammatory lifestyle and diet, and systemic inflammation, were not associated with the risks of NMIBC recurrence and progression. Regardless, adopting or maintaining a healthy lifestyle after diagnosis remains critical for overall health, and future research should explore further how inflammatory pathways may contribute to NMIBC prognosis.

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I-P-C.05

The Perceptions of a Home-based Blood Flow Restriction Training Program during and after Treatment for Hepatopancreatobiliary Cancer

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Purpose: Blood-flow restricted resistance training (BFR-T), which relies on low training loads, may support faster muscle recovery by minimizing the mechanical stress typically linked to heavy-load resistance exercise. When implemented in a home-based setting, it could improve exercise accessibility for cancer survivors; however, research exploring their perspectives remains scarce. This study aims to qualitatively investigate participant's perspectives of a home-based BFR-T training program, specifically identifying barriers and facilitators to participation and adherence, as well as experiences related to the use of an activity tracker and protein supplementation during the intervention.

Methods: Individual interviews with a total of 9 participants were conducted between October to November 2024. These individuals had participated in a two-armed randomised controlled trial that investigated whether BFR-T could prevent or slow down the loss of skeletal muscle mass and enhance the functional capacity and mental health of patients with pancreatic, biliary tract, and liver cancer. The semi-structured discussions were transcribed verbatim and analyzed using reflexive thematic analysis with an inductive approach.

Results: A total of 142 codes were generated as part of the reflexive thematic analysis that were grouped into 4 initial themes summarizing participation and adherence, prior knowledge and experience of exercise benefits, experiences with BFR-T and additional components of the intervention. The analysis with the final themes will be completed by December 2025.

Conclusion: We anticipate that this study will offer valuable and novel insights into experiences, barriers, motivators, and patient preferences regarding BFR-T. Identifying key factors that influence exercise engagement in the context of a relatively new modality such as remote BFR-T is crucial for designing and implementing interventions that ensure accessible, integrated exercise to optimize post-treatment well-being for cancer survivors.

I-P-C.06

Improvements in Strength Following a 12-week Structured Exercise Programme for Post-treatment Adult Cancer Survivors: A Secondary Data Analysis from the Battle Cancer Program

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Purpose: Strength is a key component of fitness, underpinning overall health and function of cancer survivors. Structured exercise improves clinical, functional, and survival outcomes in these individuals, but little research has assessed the potential effects of individualised programmes run by trained coaches in community fitness centres/gymnasiums. This study assessed strength changes after the structured Battle Cancer Program, and whether % change differed by cancer type or treatment.

Methods: Secondary data analysis of 142 cancer survivors (80% women; mean age=49.3 years) who completed the 12-week Battle Cancer exercise programme (<https://www.battlecancer.com/>), and had complete data on the strength tests, demographic and cancer-related information. The programme included two 1-hour supervised sessions/week of resistance, aerobic and conditioning exercises, adapted to participants' initial fitness level. Strength measurements included left/right handgrip 1 maximum repetition tests, and back squat, deadlift, and strict press 3 maximum repetition tests (kg), undertaken by trained coaches at the start (pre-) and end (post-) of the programme. Participants reported demographic, cancer type and treatment information via a survey. Cancer type was categorised as breast cancer (64.8%), haematological malignancies (12.7%), central (10.6%) or peripheral (12%) solid tumours. Differences between pre- and post-programme strength measures were calculated (in kg and % from initial measurement), and significance of change was tested with Wilcoxon signed-rank tests. Multiple linear regressions assessed whether cancer type or treatment predicted % change for each strength outcome, controlling for sex and age.

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Results: All strength measures increased significantly ($p < 0.001$), and % change was not predicted by cancer type or treatment (all $p > 0.07$). Back squat, deadlift, and strict press showed the greatest improvements (median: +12.5kg (42.9%), +17.5kg (42.3%), and +5.0kg (25.0%), respectively) and no loss of strength was recorded. Median change in grip strength was slightly larger for the right than the left hand (+0.9kg (3.08%) vs. +0.8kg (2.79%)), but about one third of participants showed decreases (-0.26.1% to -0.3%).

Conclusion: Results suggest that a supervised 12-week structured exercise programme in community fitness centres significantly improves adult cancer survivors' strength, independently of cancer type and treatment. Further research is needed with a larger, more diverse cohort, and comparing gains with a control group to establish causality.

I-P-C.07

Understanding Physical Activity Behaviors in Immigrant Middle-age Central-American Men with Overweight or Obesity to Inform an Intervention to Reduce Cancer Risk: A Concept Mapping Study

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Purpose: Cancer is the second-leading cause of death among Hispanics in the U.S. Physical activity (PA) is linked to lower cancer risk. Understanding the PAs Hispanic men engage in and the frequency of such activities is an important step toward the development of culturally appropriate health promotion interventions. This research aimed to engage Central American men with overweight/obesity in mixed-method concept mapping to develop a conceptual framework of the healthy PA activities they engage in and explore the frequency of those behaviors by sociodemographic characteristics.

Methods: 130 Central American men aged 45-64 years living in the Washington D.C metropolitan area completed one or more of the following activities: (a) brainstorming in response to, "Something healthy I do related to PA is..."; (b) sorting of ideas; and (c) rating the frequency they engaged in each PA behavior from 1 (0 times/week) to 5 (6-7 times/week). Similarity matrices, multidimensional scaling, and hierarchical cluster analysis produced a series of interpretable concept maps. Go-zone and pattern match displays were produced to identify points of consensus and discordance between demographic groups.

Results: 27 PA behaviors were identified and conceptualized in a 6-cluster solution. Clusters ranked from highest to lowest frequency were: (1) Household Chores, 3.05; (2) Work-related PA, 2.36; (3) Outdoor PA, 2.15; (4) Family and Friends PA, 1.85; (5) Gym-type Exercises, 1.84; and (6) Structured Sport Activities, 1.49. The most frequently rated PA statements were "yard work" and "cleaning and repairing the house." Men with overweight/obesity showed similar PA behaviors regardless of weight status ($r = 0.94$). Similarly, the PAs of men with $\leq$ high school education were comparable to participants with any college education ($r = 0.99$). Participants ≥ 55 years engaged in PA with family and friends less frequently than those < 55 years ($p < 0.01$).

Conclusion: Men engaged in household chores more frequently than structured sports. Across body weight statuses and education levels, participants engaged in comparable PA behaviors, though men under 55 were more likely to participate in social forms of PA. Health promotion interventions to reduce cancer risk among Central American men with overweight/obesity should address challenges of increasing the frequency of activities they already perform.

I-P-C.08

Body Composition Changes in Patients with Localized Breast Cancer Experiencing Overweight, Obesity, or Recent Weight Gain and Receiving Nutritional Support

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Purpose: In breast cancer patients, overweight, obesity, and weight gain are linked to poorer treatment tolerance, worse prognosis, and higher recurrence risk. Despite this, many patients are overweight at diagnosis, and over half gain weight during or after treatment. Recent evidence highlights the need to monitor patients during treatments to prevent both weight gain and muscle loss, that should be assessed via body composition analysis.

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This study aimed to evaluate changes in body composition among patients with localized breast cancer who were overweight, obese, or had recently gained weight, and who received nutritional care, in order to identify patients who benefited most from the intervention.

Methods: This retrospective, single-center observational study included women under 70 with localized breast cancer and either overweight, obesity, or >5% weight gain in the past six months, who were treated at a comprehensive cancer center (Centre Léon Bérard, Lyon, France) between 2019 and 2025, and who received multidisciplinary care including dietary assessment (with bioimpedance analysis), physical fitness evaluation, and medical synthesis. Assessments were conducted twice, six months apart, with optional intermediate follow-up and personalized support (dietary follow-up, nutritionist consultations, therapeutic education workshops, and adapted physical activity programs). Changes in measured body composition, body mass index, and weight between were evaluated using linear mixed effect models.

Results: Among 662 patients (mean age 52), 55% were obese, 37% overweight, and the rest had recent weight gain. At baseline, mean weight was 83.0 kg, with a prior six-month gain of +0.8 kg. Among 261 patients with complete bioimpedance data, BMI ($P=0.001$) and fat mass ($p < 0.001$) significantly decreased, while muscle mass remained stable overall ($p = 0.948$). There was no evidence of heterogeneity by treatment type.

Conclusion: Preliminary results show favorable changes in weight and fat mass, and stable muscle mass, supporting the integration of nutritional care into breast cancer treatment pathways. Body composition assessment and initial weight status should be considered in patient management.

I-P-C.09

Food Insecurity and Sugar-sweetened Beverage Consumption among Cancer Survivors

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Purpose: Food insecurity is associated with worse treatment adherence and adverse health outcomes, and low diet quality characterized by low consumption of fruits, vegetables, whole grains, and high consumption of processed foods, high fat, and added sugars among cancer survivors. The current study examined the determinants of food insecurity and associations with diet quality among cancer survivors.

Methods: From December 2021–May 2022, 440 cancer survivors living in the US and UK were surveyed on Prolific. English-speaking individuals reporting a cancer diagnosis were included. Respondents reported sociodemographic, diet-related behaviors (dietary screener questionnaire), and food insecurity- “How often have you been worried about running out of food and not having enough money to buy more?” (not at all vs. some of the time, most of the time, or close to every day). Logistic regression tested sociodemographic characteristics association with food insecurity. Multivariate regressions examine associations between food insecurity and diet quality.

Results: Participants ($M=50.3$ years old; $SD=13.6$) were predominantly white (90.4%), married (77%), female (70%), had overweight or obesity (66%), and employed (60.1%). Additionally, 33% of the households had children under 18. Cancer of the breast ($n = 135$; 31.4%), head/neck ($n = 34$; 8.9%), and cervix ($n = 30$; 8.4%) were most reported. Roughly 27.2% were classified as food insecure. The odds of food insecurity increased among those with a high school degree or less (OR 2.49, CI: 1.37-4.52), some college but not college degree (OR 2.9, CI: 1.75-4.80), unmarried individuals (OR 2.01, CI: 1.17-3.44), and those with children under 18 in the household (OR 1.84, CI: 1.11-3.05). Additionally, food insecurity was associated with increased daily intake of sugar-sweetened beverages ($B = .55$; $p = .0002$).

Conclusion: One in four cancer survivors in this sample were food insecure. Sociodemographic variables were associated with food insecurity, and food insecurity was associated with increased daily intake of sugar-sweetened beverages. These findings can inform behavioral interventions designed to reduce food insecurity, improve diet quality, and reduce adverse health outcomes among cancer survivors throughout treatment and survivorship.

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A Novel Measure of Metabolic Obesity Phenotype and Its Association with Risk of Colorectal Adenoma

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Purpose: Obesity is a probable cause for colorectal cancer (CRC). Commonly used anthropometric measures of obesity, such as BMI, do not completely capture the metabolic dysfunction associated with obesity and risk of CRC. Insulin resistance is a key factor underlying the mechanistic link of obesity to CRC. We here propose a new measure combining waist-to-height ratio (WHtR) and homeostasis model assessment of insulin resistance (HOMA-IR) to define metabolic obesity phenotype and assess its associations with colorectal adenoma, circulating adipokines, and cardiometabolic profile.

Methods: We collected lifestyle risk factors and fasting blood samples from 908 individuals undergoing screening colonoscopy between 2006-2018. Of these, 253 patients had screening detected colorectal adenoma (i.e., cases), and 655 patients were free of any lesions (i.e., controls). HOMA-IR was dichotomized using a clinical cutoff of 2.0. WHtR was dichotomized at the median among controls not using anti-diabetic medication. We defined metabolic obesity phenotype by combining dichotomized HOMA-IR and WHtR, and evaluated its association with risk of colorectal adenoma and circulating biomarkers using multivariable regression models adjusted for potential confounders.

Results: HOMA-IR and WHtR were each independently associated with the risk of colorectal adenoma. The metabolic obesity phenotype HOMA-IR_WHtR showed much stronger risk association (odds ratios [ORs]=1.69–2.56 compared with the low-low reference group, all $P < 0.05$) than either component separately (ORs = 1.68–1.71, $P < 0.05$). HOMA-IR_WHtR was also significantly associated with advanced colorectal adenoma (ORs =2.14–4.17, $P < 0.05$), while for HOMA-IR and WHtR separately, the association was insignificant). In addition, HOMA-IR_WHtR was strongly associated with an adverse cardiometabolic profile, including lower IGFBP1 and adiponectin ($P < 0.01$), higher leptin and leptin-to-adiponectin ratio ($P < 0.01$), elevated triglycerides ($P < 0.01$), reduced HDL cholesterol ($P < 0.01$), and increased systolic blood pressure and hypertension ($P < 0.01$).

Conclusion: These findings suggest that metabolic obesity, defined by the combination of insulin resistance, i.e., HOMA-IR, and central adiposity, i.e., WHtR, captures a broad cardiometabolic profile encompassing both metabolic and vascular risk. This new measure may enhance CRC risk assessment associated with obesity.

I-P-C.11

Psychosocial and Behavioural Predictors of Symptom Burden in Prostate Cancer Survivors: A Latent Profile Analysis

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Purpose: Prostate cancer survivors (PCS) experience treatment-related side effects (e.g., fatigue). Identifying lifestyle factors contributing to symptom burden can inform tailored supportive care interventions. This study aims to: (a) identify classes of symptom burden in PCS; and (b) examine psychosocial and behavioural factors of classes.

Methods: A cross-sectional analysis of baseline data from a randomized controlled trial among sedentary (>8 h/day) PCS was conducted. A latent profile analysis identified classes of PCS based on anxiety, depression, and fatigue. Logistic regression examined psychosocial (e.g., Multi-Process Action Control Framework), behavioural (e.g., sedentary behaviour [SED]; moderate-to-vigorous intensity physical activity [MVPA]), and demographic/clinical (e.g., treatment type) predictors.

Results: Among PCS ($N=115$; $M_{age}=69.4\pm9.9$ years), the two-class model demonstrated optimal fit (entropy=0.9; smallest class=29.8%). Class 1 “Low Symptom Burden” (70.4%, $N=81$) reported lower fatigue ($M=45.1$, $SE=\pm0.7$), anxiety ($M=2.9\pm0.3$), and depression ($M=2.2\pm0.2$). Class 2 “High Symptom Burden” (29.6%, $N=34$) reported higher fatigue ($M=29.8\pm1.1$), anxiety ($M=7.1\pm0.4$), and depression ($M=6.9\pm0.4$); all $p < .001$. Higher perceived capability for

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reducing SED (OR=0.57, 95% CI:0.3-0.9, $p=.025$), self-reported MVPA (OR=0.49, CI:0.3-0.8, $p=.009$), and older age (OR=0.44, CI:0.21-0.92, $p=.030$) were associated with lower odds of Class 2. Higher habit formation for reducing SED (OR=0.59, CI:0.3-1.9, $p=.087$) was marginally associated with lower odds of Class 2. University/college education (OR=3.15, CI:1.1-9.5, $p=.041$) was associated with higher odds of Class 2, and higher SED (OR=1.59, CI:0.9-2.7, $p=.081$) was marginally associated with higher odds of Class 2.

Conclusion: Higher MVPA, perceived capability, and habit regarding SED were associated with lower symptom burden, while higher SED was associated with higher burden. Future interventions should enhance self-regulatory skills and habit formation to reduce SED, which may alleviate symptom burden in PCS.

I-P-C.12

Using the TICD Framework and the Behaviour Change Wheel to Understand Implementation of Physical Activity Interventions in the PAC-WOMAN Trial

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Purpose: Despite strong evidence supporting physical activity (PA) in cancer care, multiple barriers hinder real-world implementation of recommendations and interventions. A structured approach to process evaluation, guided by implementation science frameworks, can clarify these barriers, but such a process remains underused among cancer survivor trials. This study explored implementation determinants (barriers and facilitators) of two PA interventions for breast cancer survivors in the PAC-WOMAN trial, using the Tailored Implementation for Chronic Diseases (TICD) framework and the Behaviour Change Wheel (BCW).

Methods: This process evaluation was embedded in the PAC-WOMAN trial, which compared brief PA counselling (PAC) with a supervised exercise programme (ExG). Data were collected from twenty-four participants (six focus groups), three implementers (individual semistructured interviews with exercise professionals), and six stakeholders (interviews with oncology doctors and fitness club managers). Content analysis employed an adapted version of the TICD checklist to identify determinants, while the BCW guided the classification of strategies to address these barriers. Implementation monitoring logbooks were analysed for triangulation.

Results: Fifty-one determinants were identified across six TICD domains. Facilitators were mainly individual or interpersonal (e.g., trust, motivation, group dynamics, supportive setting), whereas barriers were mainly structural or systemic (e.g., time constraints, limited financial coverage, lack of policy support). Both interventions demonstrated similar feasibility and attrition rates. BCWinformed strategies to address these barriers encompassed education, training, modelling, enablement, environmental restructuring, and policy actions.

Conclusion: Evidence-based PA interventions require enabling systems for successful implementation. The feasibility of both counselling and supervised exercise programmes was shaped by participants' motivation, implementers' capability, stakeholder engagement, and available resources. To ensure sustainable integration of PA into cancer care, implementation efforts should prioritise policy reform, cross-sector partnerships, professional training, and financial incentives. Using BCW-aligned strategies to strengthen capability, opportunity, and motivation, alongside systemic support, appears to be essential for embedding PA into routine cancer care pathways.

I-P-C.13

Longitudinal Associations of Cardiorespiratory Fitness and Physical Activity with Cognitive Change in Breast Cancer Undergoing Chemotherapy for Breast Cancer: A Prospective Matched-control Study

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Purpose: Cancer-related cognitive impairment is frequently reported among breast cancer patients receiving chemotherapy. Cardiorespiratory fitness (CRF) and moderate-to-vigorous physical activity (MVPA) are modifiable behavioral factors that may support cognitive health, yet longitudinal evidence during active treatment is limited.

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This study examined whether baseline CRF and MVPA were associated with changes in objectively assessed cognitive function from pre- to post-chemotherapy in breast cancer (BC) patients compared with age-matched healthy controls.

Methods: This was a prospective study with two time points: baseline (pre-chemotherapy) and approximately five-month follow-up (post-chemotherapy). Participants were stage I–III BC patients undergoing chemotherapy and age-matched healthy controls. Patients were recruited from breast cancer clinics at the Odette Cancer Centre, and controls were recruited from the broader community. Cognitive function was assessed remotely with the NIH Remote Cognition Toolbox Battery (Picture Sequence Memory, List Sorting Working Memory, Oral Reading Recognition, Auditory Verbal Learning). CRF was measured using the remotely delivered 6-minute walk test via Zoom, and MVPA was assessed by accelerometry (i.e., ActiGraph GT3X+). Linear mixed-effects models were adjusted for anxiety and depression.

Results: Participants (N=55; BC N=32; controls N=23) were mostly White (BC 53%, controls 65%), largely married/partnered (BC 69%, controls 74%), and highly educated (>90% post-secondary). Group $\times$ time effects on cognition were not significant across domains in both groups. Higher baseline CRF trended to a positive association with better List Sorting working memory ($\beta=0.02$, 95% CI -0.01 to 0.05 ; $p=0.077$) and Auditory Verbal Learning ($\beta=0.02$, 95% CI -0.01 to 0.03 ; $p=0.077$) but did not predict cognitive changes. In the MVPA models, BC patients had a non-significant lower baseline Auditory Verbal Learning than healthy controls ($\beta=-4.63$, 95% CI -9.84 , 0.57 ; $p=0.081$), time and group $\times$ time terms were likewise non-significant across outcomes.

Conclusion: Higher baseline CRF showed trends toward better cognitive function, but no meaningful changes in cognitive function were observed over the five-month interval. Larger samples with longer, more frequent follow-up are needed to clarify whether CRF or MVPA truly predict domain-specific changes in cognitive function.

I-P-C.14

A Multi-site Mind-body Intervention to Reduce Sitting and Promote Movement in Black Adults

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Purpose: The purpose of this study was to explore the effects of Harmony & Health (HH), a faith-based mind-body intervention, on device-measured ST and PA among urban and rural Black adults.

Methods: We partnered with churches and community organizations to recruit participants to this multi-site feasibility and acceptability trial. Black adults who were at higher risk of developing cancer (reported not meeting PA recommendations, being sedentary, with overweight/obesity) were randomized to the HH intervention or a health education (HE) attention control group. All sessions were held in-person twice a week for 8 weeks (16 sessions). HH sessions focused on stretching, breathing, and guided relaxation with scripture; HE covered topics related to cancer and chronic disease prevention. Participants completed assessments at weeks 0 and 9 (post-intervention). Thigh-worn accelerometers were used to assess ST, total sedentary time, step count, and PA, and descriptive statistics were used to explore changes in ST and PA from week 0-9 between groups.

Results: 100 Black adults (50 per site) enrolled in the study; 88.0% were retained at week 9. Participants were mostly women (95.0%) in their 50s (M age=54.2 $\pm$ 14.2 years) with obesity (M BMI=35.6 $\pm$ 7.7 kg/m²). HH participants reported positive changes in ST ($\Delta=-18.5$ vs. 4.0 hours/week; $d=0.2$), total sedentary time ($\Delta=-18.4$ vs. 8.5 hours/week; $d=0.3$), and steps ($\Delta=310.5$ vs. -155.7 steps/day; $d=0.4$) compared to HE participants. Participants in HH reported small increases in PA ($\Delta=0.3$ vs. -0.03 MET-hours/week; $d=0.4$) compared to HE participants.

Conclusion: Trends suggest HH led to reductions in ST and slight improvements in PA. HH successfully reached participants and could be an innovative, scalable approach to reduce ST, cancer risk, and premature deaths among Black adults residing in rural and urban communities.

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II-P-C.01

Physical Activity and Unmet Support Needs of Young Adults Living with and beyond Cancer

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Purpose: Young adults living with and beyond cancer experience a number of unique challenges to their physical and mental wellbeing in contrast to peers. Facing a cancer diagnosis during early adulthood can often result in an extended period of survivorship laden with a multitude of support needs. Accordingly, understanding the unmet supportive care needs of young adults living with and beyond cancer is crucial to the development of future interventions and the optimisation of overall survivorship care. As such, this study aims to explore the most prevalent unmet needs within this population group

Methods: This cross-sectional, questionnaire-based study explores the unmet support needs of young adults aged 20-39 living with and beyond cancer. Data was collected via self-report questionnaire, including the validated Cancer Survivor Unmet Needs Survey (CaSUN) and quality of life measures (WHO-5). Lifestyle behaviours such as physical activity (GLTEQ) were also explored as a concept in this study, owing to the widely recognised benefits of increased physical activity within this population group

Results: Regression analysis was used to assess the responses given by a group of young adult cancer survivors to the Cancer Survivor Unmet Need Survey. While recruitment is in early stages, preliminary data analysis suggests younger participants experience a high burden of perceived unmet needs, particularly across the quality of life (66%) and information (60%) domains post-diagnosis. Findings to date also highlight a significant reduction in physical activity following a cancer diagnosis, with the majority of participants reportedly not meeting current physical activity recommendations (90%). Further analysis will explore if unmet needs are associated with physical activity levels and quality of life outcomes.

Conclusion: The present study aims to contribute to the literature exploring the unmet supportive care needs of young people diagnosed with cancer, aiding the development and optimisation of cancer support services. Findings thus far suggest there is a need to enhance supportive care services for young adults, with physical activity interventions offering a potential vehicle to support young adults to live well with and beyond cancer.

II-P-C.02

Physical Activity and Quality of Life in Younger Breast Cancer Survivors with Cardiometabolic Comorbidities: Baseline Results from a Dance-exercise Intervention Pilot Study

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Purpose: The growing population of younger breast cancer (BC) survivors faces elevated risks of cardiometabolic comorbidities and reduced health-related quality of life (HRQoL), yet few lifestyle interventions are tailored to their unique needs. To address this gap, we developed an 8-week dance-exercise program for BC survivors under age 50 with cardiometabolic comorbidities, consisting of twice-weekly, one-hour online classes led by fitness instructors trained in cancer survivorship. This analysis evaluated the baseline association between physical activity and HRQoL in this population before the intervention.

Methods: We conducted a single-arm pilot study to evaluate the feasibility, acceptability, and preliminary efficacy of an 8-week dance-exercise intervention for younger BC survivors (n=20). Participants were recruited from a New York City academic cancer center and were eligible if they were under age 50, diagnosed with BC within the past five years, and had at least one cardiometabolic condition (obesity, hypertension, or hypercholesterolemia). At baseline, participants completed questionnaires assessing current physical activity habits and HRQoL using the Functional Assessment of Cancer Therapy–Breast (FACT-B), which includes overall and subscale measures of physical, social/family, emotional, functional, and BC-specific well-being. We used two-sample t-tests to compare HRQoL scores between participants who were regularly active and those who were inactive at baseline.

Results: At baseline, 62% of participants reported not engaging in regular physical activity, although all intended to begin exercising within 30 days. Additionally, 65% reported being somewhat or much less active following their

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diagnosis. The most cited barriers to exercise during or after cancer treatment were fatigue, depression, and stress/worry. Women who participated in regular physical activity at baseline had significantly higher overall HRQoL scores (105.1 ± 22.1 versus 73.3 ± 19.3 ; $p=0.01$), as well as higher functional (21.8 ± 3.7 versus 14.2 ± 6.2 ; $p=0.01$) and emotional well-being (19.6 ± 5.5 versus 13.8 ± 3.1 ; $p=0.04$) scores compared to inactive women. Although not statistically significant, active women also had higher physical, social/family, and BC-specific well-being scores.

Conclusion: Engaging in regular physical activity is associated with higher HRQoL among younger BC survivors with cardiometabolic comorbidities. Ongoing analyses will evaluate whether participation in the 8-week dance-exercise intervention further improves physical activity levels and HRQoL in this population.

II-P-C.03

Enhancing Intentions for Cancer-preventive Behaviors: Evaluation of Web-based Educational Interventions

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Purpose: Modifiable lifestyle risk factors are estimated to account for nearly 40% of all cancer cases. Despite this, awareness of behaviors such as physical inactivity and poor diet as cancer risk factors remains low, highlighting the need for effective health communication strategies. This study aimed to develop and evaluate four educational materials designed to increase cancer literacy and intentions to adopt healthier lifestyles, particularly regarding nutrition and physical activity.

Methods: As part of the CLARO project, a web-based randomized intervention study was conducted. The intervention materials emphasized the modifiability of health behaviors and varied by modality (textual vs. audiovisual) and communication mode (non-narrative vs. narrative). Participants were randomly assigned to one of five groups: non-narrative text, narrative text, non-narrative animation, narrative animation, or control. Health-related behaviors assessed included fruit and vegetable consumption, red and processed meat intake, and physical activity. Participants' intentions to adopt healthier behaviors were measured for each behavior using a single item on a five-point Likert scale.

Results: A total of 1,191 residents of Stuttgart, Germany (53.4% female; $M = 41.0$ years, $SD = 14.4$) participated between January and May 2025. Randomization ensured no significant baseline differences between groups. Post-intervention, all intervention groups reported significantly higher intentions to adopt a healthier diet and increase physical activity compared with the control group (all $p < .01$). For physical activity, the non-narrative animation was associated with the highest intention for being physically active in the future ($\beta = 0.12$, $p = .003$), followed by the non-narrative text and narrative animation. In the narrative animation condition, identification with the characters was positively associated with intentions to pursue a physically active lifestyle, particularly among participants with lower educational attainment ($\beta = 0.30$, $p < .001$).

Conclusion: The CLARO study demonstrates that brief, web-based educational interventions can effectively enhance intentions to adopt healthier lifestyles. Besides text-based approaches, audiovisual materials appear a promising approach for promoting physical activity. Narrative communication elements seem especially effective when integrated into audiovisual formats.

II-P-C.04

Exercise Intensity Responses during Vigorous Intensity Lifestyle Physical Activity (VILPA) in a Sedentary Healthy Population

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Purpose: Integrating short bouts of Vigorous Intensity Lifestyle Physical Activity (VILPA)—brief episodes of vigorous effort embedded in daily routines—has emerged as a promising strategy to reduce sedentary behavior, enhance cardiovascular health and reduce cancer risk. Identifying which common activities achieve vigorous intensity levels

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is essential to guide exercise recommendations for both healthy and chronic disease populations. This pilot study aimed to characterize heart rate (HR) responses during various VILPA activities in sedentary adults and to assess the validity of different wearable HR monitoring devices to be implemented in large-scale interventions.

Methods: Sixteen sedentary healthy adults (44 ± 14 years) performed a standardized laboratory protocol while wearing four HR monitoring devices (Polar H10, Polar Verity Sense, Coros Armband, Coros Pace3, and Apple Watch Series 9). Following an incremental exercise test (IET) to determine maximal heart rate (HRmax), participants completed several 1-minute VILPA tasks with 5-minute seated recovery intervals: sit-to-stand (STS-1min), fast walking (FW), fast walking carrying 5 kg (FW5kg), fast walking on a 14% slope (FW14%), fast walking on a 14% slope carrying 5 kg (FW14%-5kg), stair climbing (SC), descending stairs (DS), and 40-second sprints. Participants also performed free-living VILPA bouts for 3 days while wearing HR monitors.

Results: Mean HRmax during the IET was 177 ± 12 bpm. The peak HR achieved during VILPA activities was: STS-1min 158 ± 11 bpm; FW 156 ± 16 bpm; FW5kg 160 ± 15 bpm; FW14% 155 ± 13 bpm; FW14%-5kg 161 ± 15 bpm; SC 169 ± 15 bpm; DS 150 ± 17 bpm; Sprint 168 ± 22 bpm. All VILPA activities in the lab and during free-living, elicited HRs exceeding 80% of HRmax, indicating vigorous intensity. HR measurements were consistent across devices, except for the Apple Watch, which tended to underestimate intensity.

Conclusion: Common daily-life activities can elicit vigorous intensity when performed with sufficient effort, supporting VILPA as a feasible and time-efficient approach to improve exercise capacity and cardiovascular health. Moreover, affordable HR sensors proved reliable for monitoring VILPA intensity, highlighting their potential use in large-scale interventions and chronic disease populations.

II-P-C.05

Exploring Prostate Cancer Survivors' Views on the Role of a Low-carbohydrate Diet

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Purpose: Based on Epidemiological data, diet could be a risk factor for prostate cancer (PCa) incidence and recurrence. With an increase in PCa survivorship, focus has been placed on the role that modifiable lifestyle factors such as physical activity and diet can have in improving health-related outcomes in PCa survivors. Emerging research indicates that a low-carbohydrate dietary approach could be beneficial for PCa patients and survivors. This study had two main aims: (1) To identify what PCa survivors perceive to be the benefits of a low-carbohydrate dietary approach, and (2) to ascertain if PCa survivors would consider following a low-carbohydrate dietary approach.

Methods: Participants were 16 PCa survivors from Auckland, New Zealand. Participants ranged in age from 57 to 88 years of age. Time since diagnosis ranged from 1 to 17 years (6.5 ± 5.6 years). At recruitment six men were receiving androgen deprivation therapy (ADT) for their PCa. The remaining ten men were in remission and were treatment free. An interview schedule was developed, and participants were individually interviewed. Interview transcripts were analysed using an indicative thematic approach.

Results: A low-carbohydrate dietary approach was perceived to be beneficial for cardiovascular health and weight management. Two participants had adopted this dietary approach because of their PCa diagnosis and to help mitigate treatment-related side effects. In comparison, other participants discussed the need for information regarding how a low-carbohydrate dietary approach could benefit men who were currently receiving treatment for their PCa, as well as for those who were in remission.

Conclusion: A low-carbohydrate dietary approach that focuses on minimising or eliminating simple refined carbohydrates can be beneficial throughout the PCa continuum (from diagnosis and treatment, through to remission and survivorship). This dietary approach can counteract treatment-related side effects associated with androgen deprivation therapy, such as abdominal weight gain, therefore, minimising the associated risk factors for both metabolic syndrome and type 2 diabetes. Men who plan to undertake this dietary approach need to discuss this first with their healthcare practitioner and/or a dietitian to ensure safety in relation to what level and type of carbohydrate intake is appropriate.

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II-P-C.09

Environmental Exposure in Mining Areas and Lung Cancer Risk: A Retrospective Analysis in Atacama, Chile

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Purpose: The Atacama Region presents high levels of environmental exposure due to mining activity, with pollutants such as PM_{2.5} and arsenic associated with lung cancer. This preliminary study evaluates the association between residence in mining municipalities and lung cancer risk, adjusting for demographic and exploratory environmental variables.

Methods: A retrospective analysis was conducted on 121 lung cancer cases (regional databases HRC/HPH, total n = 3,567). Incidence rates were standardized by population (2024 Census, National Institute of Statistics of Chile). Preliminary environmental data included average PM_{2.5} and arsenic levels based on SINCA reports (2020–2023). Statistical analysis was performed using a Cox proportional hazards model (Cox PH) to estimate hazard ratios (HR) for adverse events (death or closed case), adjusted for age, sex, mining municipality, and incidence rate. Pearson correlations were calculated for pollutants. Analyses were performed in Python (statsmodels).

Results: Higher incidence rates were found in mining municipalities (Vallenar: 55.3 per 100,000 inhabitants; Copiapó: 46.2) compared with non-mining ones (e.g., Caldera: 5.3). The Cox model (n = 121, events = 15) showed HR = 3.72 (95% CI: 0.78–17.78, p = 0.1001) for mining municipalities, indicating a non-significant trend toward higher risk. Age (HR = 1.03, p = 0.2937) and sex (HR = 0.96, p = 0.9380) were not significant. Unexpected correlations were observed between pollutants and cancer incidence: r = -0.45 (PM_{2.5}) and r = -0.47 (arsenic), suggesting confounding factors such as migration or limited environmental data.

Conclusion: Preliminary results suggest a trend toward increased lung cancer risk in mining areas, possibly mediated by environmental exposure, although not statistically significant due to limited statistical power (few events). Future studies should integrate verified SINCA data and longitudinal cohorts to enhance the evidence base and support the implementation of air decontamination programs (PDA) in Atacama.

II-P-C.10

Implementation Adaptations and Lessons Learned from a Community-based Exercise Trial for Breast Cancer Survivors: Year 1 of a Hybrid Type I Effectiveness-implementation Study

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Purpose: This study describes initial implementation outcomes, adaptations, and lessons in a Hybrid Type I effectiveness-implementation study testing a community-based exercise trial for breast cancer survivors (BCS).

Methods: The trial examines effectiveness of a 6-month aerobic exercise program (AE; n=80), compared to health education (HE; n=80), on neurocognition in 160 BCS. The secondary aim gathers information on implementation success following the RE-AIM framework. BCS are recruited in an urban, academic medical center setting and randomized to AE or HE. AE is led by community fitness center personal trainers (PTs) and follows a titrated schedule of supervision (sessions increasingly unsupervised). HE includes small-group education delivered by hospital-based health educators. This presentation reports preliminary reach and implementation outcomes, adaptations, and lessons from Year 1 of the trial. Reach includes participant yield, rate, and representativeness; implementation includes PT competency/training; fidelity monitoring via direct observation of AE sessions; and AE session completion among BCS.

Results: Of 1,271 BCS contacted, 36 (n=18 AE, n=18 HE) are accrued (2.9% yield). Recruitment began with patient letters and follow-up calls (n=601), yielding 16 accruals at 1.5 per month. Patient portal messages were adopted (n=572), yielding 11 accruals at 2.2 per month and reducing coordinator burden. Despite efforts to engage outside

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health systems, only three participants were recruited outside the study site. Participants are 64.9±8.7 years-old and 75.0% non-Hispanic White. Among 18 PTs trained (33% experience with cancer populations, competency quiz performance: 70.0±15.7% BCS-specific exercise to 96.7±7.7% adverse events), 9 were maintained based upon engagement and performance. Quarterly learning collaboratives were added to provide updates, augment training, and foster PT peer support. Direct observation is conducted for all first supervised sessions and randomly across remaining supervised sessions. Observations indicate research staff presence at first sessions is essential. AE session completion is 94.1±15.1% and 70.1±53.0% for supervised and unsupervised, respectively.

Conclusion: While the hybrid approach yields rich information on reach and implementation, efforts to prioritize accrual, reduce burden, and overcome recruitment barriers are critical to achieving the primary effectiveness aim. Supervised session completion is high; however, heterogeneity in unsupervised session completion warrants greater monitoring and promotion of unsupervised exercise.

II-P-C.11

A Remotely-delivered Resistance Training Program for Cognitive Function in Prostate Cancer Survivors: A Feasibility Study

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Purpose: Prostate cancer and its treatment are associated with many long-term adverse effects including cancer-related cognitive impairment (CRCI). Remotely-delivered resistance training (RT) offers a promising strategy to address CRCI and support overall physical health and well-being in prostate cancer survivors (PCS) undergoing androgen deprivation therapy (ADT). This study assessed the feasibility of an 8-week, supervised, remotely-delivered RT program. Secondary objectives examined changes in objective and self-reported cognitive function, objective physical function, and self-reported exercise.

Methods: This two-arm, randomized controlled trial (RCT) recruited Stage I-IV PCS through community organizations across Canada between April–September 2025, enrolling participants who were currently or previously on ADT. Participants were randomized to either an 8-week remotely delivered RT program (one live-remote session and one unsupervised session per week) or health education group that received exercise guidelines. Feasibility outcomes included enrolment rate, completion rate, attrition, adherence, adverse events, and participant satisfaction. Secondary outcomes were assessed pre- and post-intervention. Objective cognitive function was measured using the NIH Remote Toolbox Cognition Battery and PsyToolkit, and self-reported cognitive function was evaluated using the Functional Assessment of Cancer Therapy - Cognitive Function (v3). Physical function was measured using the 30s sit-to-stand test (remotely-delivered), and self-reported exercise was measured using the Godin Leisure-Time Exercise Questionnaire. Descriptive analyses were conducted for demographic, clinical, and feasibility outcomes. Secondary outcomes will be analyzed using repeated measures ANOVA.

Results: PCS (N=19; M_{age}=73.1) were randomized to RT (n=9) or usual care (n=10). PCS were White (88.9%) and were ~38.2±48.0 months post-treatment. Enrollment rate was 41.4%, with no attrition. Baseline assessment completion rates were 100% for questionnaires, and cognitive and physical function tests. Post-intervention data collection will be completed in December 2025 and will be presented at the conference. Among the participants who have completed the RT intervention (n=8), adherence to the RT program was high (96% overall), including 98% for live-remote sessions and 94% for unsupervised sessions, with no adverse events. Additionally, participants reported high satisfaction in terms of intervention safety, clarity of exercise instruction, and exercise difficulty.

Conclusion: Preliminary evidence supports the feasibility of an 8-week remotely-delivered RT intervention in PCS, informing the design of future efficacy trials.

II-P-C.12

Does Quality of Life Improve for Adult Cancer Survivors after a 12-Week Structured Exercise Programme? A Secondary Analysis of the Battle Cancer Programme

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Purpose: Cancer survivors experience health challenges that negatively affect their quality of life (QoL). Exercise interventions have been proposed as an effective strategy to counteract this; however, evidence from standardised community-based structured exercise programmes is limited. This study aimed to assess the changes on the QoL of adult cancer survivors following the Battle Cancer Programme, and check whether change is predicted by age, sex or cancer type.

Methods: A secondary data analysis was conducted with 29 cancer survivors (79% women; mean age 50 years (24-69 years); 62% breast cancer) who had complete QoL data pre- and post-exercise programme. The Battle Cancer Programme (<https://www.battlecancer.com/>) consists of two 1-hour sessions/week of resistance, aerobic, and conditioning exercises. Participants reported age, sex and cancer type via a survey; cancer type was classified as breast or other cancers. QoL was assessed pre- and post-programme completion, using the World Health Organization's WHOQOL-BREF assessment, which assesses QoL in 4 domains: Physical Health, Psychological Health, Social Relationships, and Environment. Participants score items on a 5-point Likert scale, and these are converted to a standardised 0-100 points scale (higher scores represent higher QoL). We calculated the difference between post- and pre-programme scores and used paired- t-tests to assess if there were significant changes in each of the WHOQOL-BREF domains. Multiple linear regressions were used to assess whether age, sex or cancer type predicted change in each of the WHOQOL-BREF domains.

Results: Significant improvements were observed in the Physical Health (mean change: +12.44; $p=0.002$), Psychological Health (+16.38; $p=0.002$), and Environment (+7.97; $p=0.010$) domains, with medium effect sizes (Cohen's $d=0.51-0.65$). The Social Relationships domain showed a small but not significant improvement (+8.91; $p=0.149$). Age, sex and cancer type did not significantly predict change in any of the 4 QoL domains.

Conclusion: The Battle Cancer Programme shows potential to enhance QoL in cancer survivors, independent of age, sex and cancer type. Future research using a randomised-control trial and cancer-specific outcomes (e.g., cancer-related fatigue) are needed to confirm these findings and provide evidence for causal inference.

II-P-C.13

A Habit-based, Randomized Controlled Trial for Reducing Sedentary Behaviour in People Living with and beyond Cancer: A Feasibility Study Protocol

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Purpose: People living with and beyond cancer (LWBC) experience long-term treatment-related side effects such as reduced quality of life (QoL). Although reducing sedentary behaviour (SED) improves health outcomes, there are few sedentary behaviour interventions conducted in individuals LWBC and none explicitly grounded in habit theory, which targets automatic behavioural processes. Therefore, the primary objective of this study is to examine the feasibility of an 8-week habit-based intervention to reduce SED in individuals LWBC. Secondary objectives include examining changes in physical function, QoL, habit, and SED.

Methods: Individuals LWBC (N=30) will be recruited through cancer care organizations, cancer support groups, and posting recruitment posters on community boards and social media. Eligibility criteria include: (1) ≥ 18 years old; (2) localized or asymptomatic metastatic cancer diagnosis; (3) primary cancer treatment completion; and (4) sedentary (self-report >8 hours per day). Participants will be randomized into an intervention group (weekly habit-based tick-sheets consisting of tips to reduce SED) or active control group (movement guidelines and handout about SED). An example of a tip is "during ad breaks, climb up and down your staircase to reduce cancer-related fatigue associated with prolonged sitting." The intervention group will receive check-in sessions for further tailoring of tips. Outcomes will be measured pre- and post-intervention. SED will be measured using inclinometers and the AusDiab3 Sedentary Behaviour Questionnaire. Physical function will be measured remotely using the 30s sit-to-stand test and the 6-minute walk test. Habit will be measured using the Self-Report Behavioural Automaticity Index. QoL will be measured using the Functional Assessment of Cancer Therapy- General and Short Form-12 questionnaires.

Results: A priori feasibility indicators of success are $\geq 70\%$ check-in session adherence, $\geq 70\%$ tip adherence, $<30\%$ attrition, and no adverse events. Descriptive statistics will be used to characterize the sample's demographic, clinical, and feasibility outcomes. Preliminary intervention effects on secondary outcomes will be explored using intention-to-treat analyses and analysis of covariance models while controlling for the baseline value of the outcome.

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Conclusion: Study findings will inform larger randomized controlled trials to reduce SED in people LWBC. This intervention may be a cost-effective and accessible option for individuals LWBC to optimize their health.

II-P-C.14

Feasibility of Implementing a Tailored Rehabilitation Programme as Standard Care among People diagnosed with Lung Cancer: CanBenefit 3 Protocol

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Purpose: Lung cancer is third most common cancer in United Kingdom and most common cause of cancer death. Lifestyle interventions show improvement in quality of life (QoL), physical function, cancer treatment completion, recovery, and survival rates among breast, bowel, and prostate cancer, with promising evidence for lung cancer. Previously, we examined feasibility and acceptability of wellbeing counselling to people with lung cancer during treatment. We found benefits for overall wellbeing, but significant trial recruitment issues lead to small and unrepresentative samples. If standard care, all eligible patients could be referred and potentially benefit. This study aims to understand how best to embed a service (exercise physiologist (EP)) referral, routine measures collection, and tailored rehabilitation programme) into lung cancer care pathways.

Methods: In this multisite, feasibility, implementation study, clinicians will identify eligible patients in clinics and refer them to the EP. All patients attending the referral appointment receive the initial assessment and a personalised wellbeing programme with tailored information, with pre-defined criteria for more support based on need. Programmes are delivered “digital first” with paper-based options. All outcome measures are collected as part of standard care and recorded in electronic health records. A 12-month referral period aims to engage at least 300 people in the service. Follow-up assessments are completed at 3, 6, and 12 months.

Results: Primary feasibility aims are assessed by clinician referral rates, referral uptake rates, programme acceptability and engagement, ease of routine measures collection, and programme-related injuries. Secondary objectives will determine potential impact of the programme on changes in clinical outcomes (treatment completion rates, 1-year survival), physical function (cardiovascular endurance, muscular strength and endurance), patient-reported outcomes (cancer-specific QoL, breathlessness) and lifestyle behaviours (activity, nutrition, and sleep).

Conclusion: 25% of lung cancer diagnoses in England among those least deprived survive five years or more, compared to 18% of those most deprived. As standard care, referring all eligible patients reaches outside the usual wealthier, more educated, motivated, white women. Beyond survival gains, the intervention’s patient-centred approach affirms the worthiness of supportive care for underserved groups, often denied access, paving the way for broad culture change around lung cancer outcomes among disadvantaged populations.

II-P-C.15

Reclaiming Identity Through Exercise: Insights from the Battle Cancer Program

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Purpose: Cancer survivorship often disrupts individuals’ sense of identity, with changes to physical capacity, appearance and social roles contributing to psychological distress and diminished self-concept. Although exercise is increasingly recognised as a tool to support physical and emotional recovery, limited research has explored how structured, communitybased exercise programs support identity reconstruction after cancer. This study aimed to explore how participation in the 12-week Battle Cancer Program, a functional fitness intervention integrating physical, psychological and social support, influences identity reconstruction and psychosocial recovery among cancer survivors.

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Methods: Semi-structured interviews were conducted with 8 participants who have completed cancer treatment, aged over 18 years, and attended the Battle Cancer Program (<https://www.battlecancer.com/>). Interviews included open ended questions designed to encourage participants to reflect on their experiences of identity, recovery and the role of exercise following the completion of cancer treatment. All interviews were audio recorded, transcribed verbatim and analysed using Braun and Clarke's reflexive thematic analysis.

Results: Three interconnected themes were generated: (1) Reclaiming Identity Through Physical Empowerment, (2) Community as a Catalyst for Recovery (3) Exercise Continuity and Future Self. Together these themes demonstrated how the Battle Cancer Program supported cancer survivors in rebuilding identity through the combined effects of physical gains, social connection and sustained engagement with exercise, enabling participants to move beyond illness-defined identities. Collectively, they highlight the programs role in fostering confidence, autonomy and a renewed sense of capability as individuals navigated life after cancer.

Conclusion: Findings demonstrated that exercise enabled participants to regain strength, rebuild self-concept, resist illness defined identities and encouraged the development of pride and autonomy. Participation in a supportive group environment reinforced social connection, motivation and a sense of belonging, while lifestyle integration of exercise promoted sustained engagement and future oriented goal setting. The Battle Cancer Program therefore functioned as both a rehabilitative tool and a catalyst for psychosocial adaptation, illustrating how structured, community-based exercise supports identity reconstruction among cancer survivors. Implications include the value of designing exercise programs for cancer survivors that extend beyond physical rehabilitation, by embedding social, psychological and personalised elements into survivorship support.

II-P-C.16

Walking in Nature (WIN) for Rural Cancer Survivors: Feasibility and Preliminary Outcomes of a Pilot Nature-based Physical Activity Intervention

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Purpose: Advances in cancer treatment have led to a growing population of survivors who experience long-term physical and mental health challenges, including fatigue, reduced physical function, anxiety, and depression. Physical activity (PA) can help mitigate these effects, but rural cancer survivors often face barriers to participation, including limited access to programs. Nature-based PA interventions represent a promising yet understudied approach for survivorship in rural contexts. This pilot study evaluated the feasibility, acceptability, and preliminary effectiveness of Walking in Nature (WIN), a nature-based PA intervention for rural cancer survivors.

Methods: WIN used a mixed-methods, single-group pre/post pilot design. Data were collected in Summer/Fall 2025. Participants attended twice-weekly, 60-minute outdoor PA sessions for 12 weeks led by an ACSM-certified Cancer Exercise Specialist. Sessions included walking, light resistance training, mindfulness activities, and behavioral support. Feasibility and acceptability were assessed through attendance, session enjoyment, and post-program interviews. Preliminary effectiveness outcomes included changes in fitness (6-Minute Walk Test), fatigue, pain, anxiety, depression, and quality of life (QOL). Paired t-tests examined quantitative outcomes. Qualitative data were analyzed thematically.

Results: Participants (n=13) were primarily White (100%), female (84.6%), and older adults ($M=65.7, SD=10.0$), representing multiple cancer types. Attendance benchmarks were met (72.5%), and acceptability was high (mean enjoyment=4.5/5). Fitness significantly improved from pre6MWT ($M=1296.44, SD=187.28$) to post6MWT ($M=1455.91, SD=184.92$), $t(9)=5.43, p<.001$. Most participants (7/9) reported improved social support from friends, though not significant. Self-efficacy for exercise and spending time in nature decreased slightly ($t(9)=-2.35, p=.043$; $t(9)=-2.84, p=.19$). Qualitative findings highlighted the social, restorative, and motivational aspects of nature-based PA. One participant noted, "This [program] has changed my life. I now enjoy walking. I do it on purpose now."

Conclusion: Findings support the feasibility and acceptability of a nature-based PA intervention for rural cancer survivors. Preliminary improvements in fitness and positive participant experiences suggest promise for this approach and warrant a larger randomized controlled trial. Nature-based PA may represent a scalable strategy to enhance survivorship care in rural communities.

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I-P-D.01

Analytical Validation of Wrist- and Hip-step Count Algorithms: The Importance of Physical Function

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Purpose: Accurate step counting is vital for population surveillance and physical activity interventions, yet device placement and user mobility may influence measurement accuracy. This study compared the accuracy of open-source accelerometer step counting algorithms from wrist- and hip-worn devices across different levels of physical function (PF).

Methods: For this cross-sectional observational validation study conducted under free-living conditions, 148 adults (mean age = 61.7 ± 20.3 y) completed the Short Physical Performance Battery (SPPB) and participated in three free-living 2-hour observation periods (FL-2hr) while wearing accelerometers on the left wrist and hip (ActiGraph; AG) and thigh (activPAL; AP). Participants then wore all devices for seven consecutive days (FL-Week). ActiGraph wrist (AG-Wrist) and hip (AG-Hip) step estimates were extracted and the open-source Ducharme step algorithm estimates were derived using raw wrist data (D-Wrist). Criterion step counts were obtained from the thigh-worn AP. Linear mixed-effects models with random intercepts for participants estimated group-level bias (percent error; PE) and individual-level precision (absolute percent error; APE). Nested mixed-effects models with and without SPPB were compared using likelihood ratio tests, adjusting for age and total AP steps ($\alpha = 0.05$).

Results: Steps were underestimated using AG-Hip (-18.0% [-21.1%, -15.0%]) and overestimated using AG-Wrist (60.2% [51.0%, 69.4%]) and D-Wrist (61.4% [51.1%, 71.8%]). Performance of wrist-based step algorithms differed by visit type ($p < 0.05$), whereas AG-Hip performance was comparable between FL-2hr and FL-Week ($p > 0.05$). For AG-Hip, inclusion of SPPB improved model fit for both PE ($\chi^2(1) = 7.87$, $p = 0.005$) and APE ($\chi^2(1) = 15.01$, $p < 0.001$), and remained after adjusting for total AP steps (PE: $\chi^2(1) = 24.27$, $p < 0.001$; APE: $\chi^2(1) = 31.59$, $p < 0.001$). In contrast, SPPB did not improve model fit for either wrist-based algorithm—AG-Wrist (all $p \geq 0.89$) or D-Wrist (all $p \geq 0.18$)—indicating wrist step counting accuracy was not influenced by PF.

Conclusion: Physical function influenced the accuracy of the hip-worn but not wrist-worn step counting algorithms. Hip placement may better capture function-related differences in mobility, whereas wrist-based estimates may lack precision and reliability to attribute measurement error to PF status. Wear location and mobility should be considered when interpreting device-based step counts in public health and behavioral research.

I-P-D.02

Effectiveness of Dynamically Tailored Mhealth Interventions for the Promotion of Healthy Diet-related Behaviours among Adolescents: A Systematic Review

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Purpose: Globally, adolescents fail to meet dietary guidelines and engage in unhealthy eating behaviours. Dynamically tailored mobile health (mHealth) interventions offer a promising platform for improving adolescent diet, as smartphone ownership among youth has surpassed 90% in most middle to high income countries. These interventions can deliver timely, personalized information to enhance access, relevance, and behavioural impact. This systematic review explored dynamically tailored mHealth interventions aimed at improving diet-related behaviours among adolescents, examining key components, theoretical underpinnings, feasibility, acceptability, and sustained behaviour changes.

Methods: Seven electronic databases were searched using keywords related to adolescents, mHealth interventions, and diet-related behaviours. Study quality was assessed using mHealth Evidence reporting and assessment checklist (mERA) and Cochrane's risk of bias tool for randomized trials (ROB-2), as applicable. Findings were narratively synthesized to summarize intervention characteristics, quality, and effectiveness.

Results: Nine studies involving 2,613 adolescents (mean age 12.7-18.3 years) with average sample sizes of 20-1,198 participants. Interventions targeted various diet-related behaviours, including general healthy eating habits (e.g., fruit and vegetable consumption), sugar consumption, iron intake, eating rate and disordered eating. Three of nine

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studies were informed by a behaviour change theory. Common app components included feedback mechanisms (automated messages, human-delivered feedback, or gamification; $n=8$), self-monitoring ($n=6$), social supports ($n=4$), and cognitive tools ($n=2$). Several studies reported improvement in at least one dietary, psychosocial, or anthropometric outcome, however effects were often modest or not sustained. Feasibility and acceptability of the mHealth interventions ($n=3$) were mixed. Attrition was a common limitation, with 8 studies reporting rates $>55\%$. While most studies ($n=5$) detailed intervention delivery and content, few reported on the feasibility or acceptability of the intervention ($n=3$) or details of app cost, adaptability, or regulatory compliance ($n=8$). Two out of three studies assessed for risk of bias using the RoB-2 were considered to have a risk of bias.

Conclusion: Dynamically tailored mHealth interventions show emerging potential to support diet-related behaviours among adolescents. Although several studies demonstrated positive outcomes, effectiveness remain limited by high attrition rates and lack of sustained impact. Addressing these gaps may enhance effectiveness and sustainability of adolescent nutrition interventions.

I-P-D.03

Using Artificial Intelligence (AI) to Assist Students' Behavior Management for Obesity Prevention in Middle Schools: A Feasibility Study

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Purpose: Adolescent obesity remains a pressing public health challenge, particularly among socioeconomically disadvantaged populations. This study evaluated the feasibility and preliminary behavioral impact of *ProudMe Tech*, an AI-assisted web application designed to help middle school students self-manage obesity-related behaviors: physical activity, screen time, diet, and sleep, within naturalistic school settings.

Methods: As part of a larger multi-component obesity prevention intervention, this study focused on evaluating *ProudMe Tech* used by students at five public middle schools in Louisiana, USA. Of the 487 students who created an account, 172 submitted parent consent and assent. The participants ($N=172$) used *ProudMe Tech* to set SMART (specific, measurable, attainable, realistic, and timely) goals, record behaviors, write reflections, and receive AI-generated feedback. Engagement data (journal entries, reflections, AI feedback) were recorded and processed for analysis. Natural language processing examined sentiment of the user reflections and AI feedback. Paired t-tests were conducted to compare the four health behaviors at two points (first week vs. last week) to gauge behavioral impact.

Results: Participants logged 6,164 goals over eight weeks, 63.8% of which were self-reported as achieved. Participants entered 8.9(95% CI[7.8, 10.0]) behaviors, wrote 30(95% CI[25.8, 34.3]) reflections, and received 33.5(95% CI[29.1, 38.0]) AI feedback messages. Sentiment analysis indicated predominantly neutral-to-positive tones in both user reflections and AI feedback messages. Feedback patterns were dominated by positive reinforcement (60%) and educational prompts (28%), followed by constructive suggestions (12%). Significant pre-to-post reductions were observed for screen time (4.3(95% CI[3.9, 4.7]) to 3.4(95% CI[3.0, 3.7]) h/day; $\Delta M = -0.93$ h/day; $p < 0.001$) and slight reduction in fruits/vegetable intake 5.7(95% CI[5.1, 6.3]) to 5.2(95% CI[4.7, 5.7]) servings/day; $\Delta M = -0.50$; $p = 0.024$). Physical activity and sleep did not show significant changes.

Conclusion: The findings demonstrate the feasibility of *ProudMe Tech* as an AI-assisted behavior management tool in school settings. The AI feedback patterns, predominantly positive reinforcement, reflected supportive behavioral strategies consistent with promoting user engagement. While these patterns supported engagement and behavioral impact (notably in screen time), future iterations should explore diversifying feedback strategies, such as increasing constructive suggestions and integrating parental engagement, to sustain broader health behavior changes.

I-P-D.04

Snacktivity™ to Promote Physical Activity during Pregnancy: Feasibility Randomised Controlled Trial and Nested Qualitative Study

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Purpose: Pregnant women are advised to complete ≥ 150 minutes of moderate-intensity physical activity per/week for optimal health, yet many fall short. Updated guidelines for pregnant women now support any duration of activity, removing the stipulation that activity should be performed in ≥ 10 -minute bouts. Consequently, a short bout Snacktivity™ intervention was adapted for pregnant women and a feasibility randomised controlled trial with nested qualitative study was conducted.

Methods: Pregnant women between 10⁺ and 16⁺ weeks gestation were recruited at their antenatal dating scan appointments, or via social media. Participants were enrolled from (~18-weeks gestation) until 36-weeks gestation (~18 weeks total duration), and individually randomised (2:1 ratio) to a Snacktivity™ physical activity intervention plus standard antenatal care, or to standard antenatal care (comparator). The Snacktivity™ intervention focused on promoting participation in 2-5 mins activity snacks throughout the day to achieve ≥ 150 minutes of moderate intensity activity per/week. The intervention involved a mobile health app, tailored to pregnant women, which was linked to Fitbit smartwatch to support participation in Snacktivity™ and physical activity during pregnancy. The primary outcome was the feasibility and acceptability (recruitment rate, adherence Snacktivity™ and attrition) of the trial and Snacktivity™ intervention according to traffic light stop-go criteria (red/amber/green). Accelerometer-measured physical activity, gestational weight gain and psychological health outcomes were assessed via exploratory analyses at baseline and 36 weeks follow-up. At the end of trial, 15 participants in the Snacktivity™ intervention group completed an interview about their experiences.

Results: Ninety-six participants were recruited in six months (against target of 90) and 14/96 (14.6%) participants did not provide follow-up data (green for both criteria). Snacktivity™ adherence met the red criteria as 13/54 (24.1%) participants completed on average ≥ 4 activity snacks per/day across the whole intervention. Adjusted mean differences in total minutes of physical activity, gestational weight gain, and depression scores favoured the Snacktivity™ intervention group at follow-up. Qualitative insights found that intervention participants viewed the Snacktivity™ intervention positively, and new physical activity habits were developed.

Conclusion: With modifications to increase adherence, the Snacktivity™ intervention has potential to be a feasible and acceptable approach to promoting physical activity during pregnancy.

I-P-D.05

Do AI-driven Physical Activity and Sedentary Behaviour Interventions Impact Glycemic Outcomes in Adults Living with Type 2 Diabetes? A Rapid Review

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Purpose: This review aimed to evaluate the effects of artificial intelligence (AI)-driven physical activity (PA) and sedentary behavior (SB) interventions on glycemic outcomes in adults with type 2 diabetes (T2DM). By synthesizing recent evidence (post-2020), this study addressed whether AI-integrated tools improve HbA1c, insulin sensitivity, or glucose variability. This research provides an innovative focus that bridges AI technology, T2DM self-management, and PA/SB research.

Methods: Following Cochrane Rapid Review Guidelines, Embase, CENTRAL and PubMed were searched for peer-reviewed studies published since March 2020. Eligible studies included quantitative research evaluating AI-driven interventions targeting PA or SB in adults living with T2DM. Studies reporting the following glycemic outcomes were included: glycated hemoglobin (HbA1c), insulin sensitivity (e.g., Homeostasis Model Assessment of Insulin Resistance [HOMA-IR]), and glucose variability e.g., (Time in Range [TIR]).

Results: Three studies were included (two pre-post single cohort studies, one randomized controlled trial; n=277; mean age 54.52 years, 40.07% female). All three examined the impact of AI-integrated mobile health applications (mHealth apps) for PA on HbA1c. None examined impact on SB. Two studies reported clinically significant HbA1c reductions (0.40% and 0.49%, respectively), with one revealing significant reductions in sub-group analyses only (0.80% among those with baseline blood glucose >180 mg/dL). One study found a modest overall increase of 1.1% in TIR, which was more pronounced in subgroups with elevated baseline glucose (15%, equivalent to 3.5 hours per day). Insulin sensitivity and glucose variability were not reported in any study.

Conclusion: Overall, the limited evidence suggests AI-driven PA interventions improve glycemic outcomes in adults with T2DM, with HbA1c reductions comparable to those achieved in broader digital self-management interventions. However, evidence quality was limited by the short intervention durations (12-16 weeks), heterogeneity in study design, and potential conflicts of interest. Importantly, no study assessed AI tools for SB reduction, a missed opportunity given its independent role in glycemic health. More, higher-quality studies (e.g., RCTs) examining whether AI-driven tools can support PA and/or SB in T2DM self-management are needed.

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I-P-D.06

Validation of the SENS Monitor for Physical Activity Assessment in Free-living Adolescents Using Video and Ecological Momentary Assessment: A Study Protocol

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Purpose: Development of accurate Physical Activity (PA) measurement devices is critical as self-reported data is subject to biases, and many objective tools fail to capture the sporadic nature of PA in adolescents. The SENS motion® activity monitor (SENS motion, Copenhagen, Denmark) is a novel, lightweight, thigh-worn device. SENS outputs have not previously been assessed compared to indirect calorimetry in adolescents, nor is behavioural identification available for adolescents using SENS. This study aims to (1) validate the SENS monitor for PA intensity classification and behaviour recognition in adolescents aged 12–14 years, and (2) employ machine-learning methods to develop and evaluate algorithms to identify movement behaviours using ground truth data from both worn video cameras and from smartphone-based responses to ecological momentary assessment (EMA) questions during free living. This study is funded by the European Union under Agreement #101120480.

Methods: Following ethics committee approval, a total of 100 healthy adolescents aged 12–14 years old will be recruited in Limerick, Ireland and Kristiansand, Norway. Participants will complete a lab-based session fitted with portable metabolic analyzers and SENS monitors. The lab session includes a structured protocol of an hour of 16 activities of varying intensities and an hour of semi-structured activities simulating free-living. Participants then complete a 3-day free-living protocol, wearing the SENS monitor, during which they will receive daily EMA prompts on their phones to report PA behaviours. For the first 10 hours free-living, a downward-facing video camera will capture contextual information about their activities. Video annotations and EMA responses will be employed to label accelerometer data, and this will be used to train machine-learning algorithms for the SENS device.

Results: Data collection is planned for March–May 2026. The video and EMA labelled accelerometer data will be used to develop machine-learning models to predict PA energy expenditure and PA behaviour. These methods will later be employed in the INDEEP project's main data collection across Europe.

Conclusion: This study will provide the first free-living validation of the SENS accelerometer in adolescents. Findings will advance PA measurement accuracy, support improved PA behaviour assessment methods, and add to the literature exploring the potential of EMA for PA behaviour measurement.

I-P-D.07

Interactional Preferences during Supervised Live-remote Exercise Programs: An International Concept Mapping Study with Individuals Living beyond Cancer

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Purpose: The recent surge in live-remote exercise programs may facilitate greater patient access to rehabilitation and support restorative habits, but concerns have been raised about altered or weakened interpersonal dynamics between participants and trainers. As part of the EU-funded PREFERABLE II LION-RCT, investigating the effectiveness of a live-remote exercise program for people living beyond cancer who still experience side-effects, we conducted a concept mapping study assessing participants' preferences regarding social dynamics. In doing so, we identify aspects of social interaction considered to be essential within these programs. This study contributes to the growing body of literature aiming to promote positive affect towards live-remote exercise initiatives and improve their design for this population.

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Methods: Individuals living beyond cancer from six countries (Australia, the Netherlands, Germany, Sweden, Spain, and Portugal) were included in this mixed methods concept mapping study after completion of a 12-week live-remote exercise program targeting the negative side effects of their treatment. Participants completed (1) a brainstorm phase (generating statements in response to two focus prompts; one related to peer-interaction and one to interaction with the trainer); and/or (2) a sorting and rating phase. In the latter phase, patients sorted statements into groups of related concepts and rated them according to perceived importance. Trainers or involved researchers simultaneously rated whether these preferences can be realistically implemented in practice. The survey was completed using an online concept mapping platform (GroupWisdom) and participant data were pseudonymised.

Results: (Results Pending) Participants generated 101 unique statements reflecting their preferences for interacting with their peers and the trainers. Data collection and analysis will be completed by April 2026. The sorted statements will be aggregated using cluster analysis. The “Go-Zone map” will combine ratings of importance and feasibility, informing which interactional features should be prioritized in online exercise interventions.

Conclusion: We expect this study will provide actionable insights on preferences of people living beyond cancer for optimizing interpersonal dynamics with their peers and trainers during live-remote exercise. The identified set of preferences – according to importance and feasibility – will contribute to guidelines for designing live-remote exercise initiatives.

I-P-D.08

AI-driven Personalised Recommendations and Real-time Monitoring for the Prevention and Management of Obesity: Design and Pilot Evaluation of the Multicentre BETTER4All Personalised Intervention

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Purpose: This abstract presents the design and implementation framework of the BETTER4All trial, a multicentre randomised controlled trial (RCT) within the EU-funded BETTER4U project. The trial aims to evaluate an artificial intelligence (AI)-driven, biologically and behaviourally personalised lifestyle intervention for the prevention and management of obesity. The project seeks to move beyond the traditional “one-size-fits-all” approach by integrating genetic, metabolic, behavioural, and environmental data into adaptive, individualised care strategies.

Methods: The BETTER4All trial will be conducted across seven European countries (Greece, Cyprus, Portugal, Spain, France, Poland and Sweden), including 1,022 adults with overweight and obesity (BMI ≥ 25 kg/m²). Participants will be randomised to an intervention group receiving AI and polygenic risk score (PRS)-based lifestyle recommendations via a smartphone application, wearable device, and structured counselling, or to a control group receiving standard care and a light version of the app for self-monitoring. The primary outcome is change in BMI at six months. Secondary outcomes include weight-loss maintenance at one year, metabolomic and gut microbiota biomarkers, lifestyle behaviours, and psychosocial parameters. A mixed-methods process evaluation will assess fidelity, acceptability, feasibility, and appropriateness, alongside adherence metrics from the digital tools through continuous behavioural and contextual monitoring.

Results: The pre-trial pilot study, conducted across all seven sites and concluding in December 2025, aims to test the

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feasibility, usability, and acceptability of the digital tools and intervention procedures. Results from the pilot's process evaluation—focusing on participant engagement, healthcare provider experience, and implementation fidelity—will be presented. These findings will inform the optimisation of the full-scale RCT, which is scheduled to commence in February 2026.

Conclusion: The BETTER4All trial will provide evidence on the effectiveness and scalability of AI-driven, biologically informed personalisation in obesity care, offering a methodological framework for integrating multimodal digital data, from omics and biomarkers to behaviour and lifestyle, contributing to the advancement of precision public health strategies across Europe.

I-P-D.09

Effectiveness and Behavioural Mechanisms of Physical Activity mHealth Interventions for Type 2 Diabetes Management: Meta-analysis

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Purpose: 1) Evaluate the effectiveness of mHealth physical activity (PA) interventions in reducing HbA1c among adults with Type 2 Diabetes (T2D). 2) Examine key intervention components, including behaviour change techniques (BCT) and their ontologies to provide an understanding of how design and behavioural mechanisms influence intervention effectiveness.

Methods: Randomized controlled trials published in English from 2010–2025 were identified through four major databases and gray literature sources. Eligible studies included adults (≥ 18 years) with T2D using smartphone-based mHealth tools that incorporated a PA component and reported HbA1c outcomes. Random-effects meta-analyses (Hedges' g) were conducted to estimate pooled effects on HbA1c, with subgroup analyses examining BCTs and BCT ontologies.

Results: A systematic search conducted in June 2025 identified 27 independent studies. Random-effects meta-analysis showed that mHealth intervention groups achieved significantly greater reductions in HbA1c compared to control groups ($g = -0.35$, 95% CI = -0.45 to -0.24) with significant heterogeneity observed ($Q = 64.57$, $p < 0.05$). Subgroup analyses revealed that including the following BCT ontologies were associated with larger HbA1c improvements ($g \approx -0.23$ to -0.32), compared to other ontologies: goal directed, monitoring, social support, increase awareness of consequences, guide how to perform a behaviour, and associative learning. Specifically, interventions using 6-10 BCTs within these ontologies yielded greater effects ($g = -0.32$, 95% CI = -0.49 to -0.51), while those with fewer or more techniques were less effective.

Conclusion: These findings aimed to advance our understanding of how specific behavioural components influence the effectiveness of mHealth PA interventions for T2D management. Using BCT ontologies provided a more comprehensive framework for identifying intervention components, particularly when studies lacked explicit reporting. By analyzing intervention and app descriptions and available content, this approach allowed for more consistent classification of techniques across studies. Our results suggest that interventions incorporating goal setting, monitoring, social support, awareness of consequences, guidance on performing behaviours, and associative learning can effectively reduce HbA1c levels. Future research should prioritize clearer reporting and operationalization of behaviour change theories and techniques to strengthen reproducibility and optimize mHealth intervention design.

I-P-D.10

Step Count Changes before a Walking Challenge: Comparing New and Existing Activity Tracker Users

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Purpose: Reactivity—behavioral change resulting from awareness of being monitored—can influence physical activity levels when tracked by wearable trackers. This study examined whether participants enrolled in a walking challenge intervention study increased their daily step counts in the three weeks before the challenge’s start. We also assessed whether reactivity differed between individuals who were already using an Apple Watch and those newly provided with a Fitbit Inspire 3 Activity Tracker.

Methods: Study participants (N = 142) were enrolled in an ongoing clinical trial. Apple Watch users (n=71) were existing device owners, while Fitbit Tracker users who did not own a tracker received a Fitbit Tracker from the study. Daily step count data were collected from the three weeks before the challenge. A linear mixed effects model assessed changes in the weekly average daily steps for three weeks, including fixed effects for week, device type, and their interaction. Independent t-tests were used to examine the difference in step counts between devices at each week.

Results: Both user groups significantly increased their daily steps between Week 1 and Week 3. Apple Watch users increased by approximately 512 steps per week ($p < .001$), and Fitbit Tracker users by approximately 1,520 steps per week ($p < .001$). A significant interaction between device type and week ($p < .001$) indicated greater reactivity among Fitbit Tracker users. Mean daily steps rose from 7,113 (Apple Watch users) and 6,134 (Fitbit Tracker users) in Week 1 to 8,016 and 9,409, respectively, in Week 3. Across all participants, mean daily steps increased from 6,808 to 8,705. Fitbit Tracker users recorded significantly more steps than Apple Watch users by Week 3 ($p < .00001$).

Conclusion: Participants showed behavioral reactivity in the weeks preceding a walking challenge, with new Fitbit Tracker users exhibiting a steeper increase in activity than existing Apple Watch users. These findings emphasize the need to account for pre-intervention reactivity when interpreting physical activity outcomes in tracker-based studies.

I-P-D.11

Development of a Just-in-Time Adaptive Intervention to Reduce Glucose Excursions in Persons with Overweight/Obesity

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Purpose: Development of a just-in-time adaptive interventions (JITAI) requires identifying moments of opportunity for intervention, or “states of vulnerability” (i.e., moments at which an individual is at-risk for poor dietary behavior). Each state of vulnerability represents a decision point at which intervention delivery can be informed by tailoring variables. Continuous glucose monitors (CGMs) facilitate real-time, objective measurement of interstitial glucose. Glucose variability is primarily the result of postprandial glucose increases driven by meal composition, timing, and frequency, and has been identified to increase chronic disease risk in non-diabetic populations. CGMs, paired with other data sources, can provide insight into the time-varying factors that influence eating behavior. Machine learning can model these dynamic physiological and behavioral data to identify states of vulnerability. This presentation will describe the process by which we use machine learning to inform development of a JITAI to decrease glucose excursions, a measure of glucose variability.

Methods: Our approach leveraged existing data from 75 individuals with BMI ≥ 25 . In a 14-day observational study, participants wore a blinded CGM, and Fitbit Inspire 2, and received six daily ecological momentary assessments on affect, hunger, and boredom. We first developed a machine learning model to predict the likelihood of a glucose excursion. Next, we used cluster analysis to distinguish between different states of vulnerability and identify features of those unique states of vulnerability. Finally, we utilized an Intervention Mapping approach, informed by the clusters and feature importance, to develop tailored intervention messages.

Results: The machine learning model identified 634 moments of vulnerability. Cluster analysis revealed three clusters: Cluster 1 characterized by hunger and declining glucose levels, Cluster 2 characterized by increasing glucose, late in the evening (8pm or later), and no hunger; Cluster 3 characterized by stable glucose and evening (6pm or later). These clusters informed tailored messages targeting behavioral determinants congruent with specific states of vulnerability.

Conclusion: Identification of specific states of vulnerability can support the delivery of tailored JITAI. This approach aims to ensure that intervention support is matched to an individual’s specific state, which we hypothesize will lead to greater intervention efficacy and reduced habituation to intervention prompts.

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I-P-D.12

Digital Dietary Assessment for All Ages: Usability of Traqq-Belgium in (Older) Adults

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Purpose: Accurate dietary assessment remains a challenge in nutrition research. Smartphone applications offer efficient and scalable solutions, but few have been adapted to local contexts or evaluated among older adults. To our knowledge, no validated, user-friendly apps tailored to the Flemish context exist. This study aims to (1) adapt Traqq, a Dutch-developed and validated dietary assessment app, to the Belgian (Flemish) context, and (2) evaluate its usability among older adults, an underrepresented group in digital health innovations.

Methods: Traqq was adapted by (1) developing a country-specific food list using the Belgian Food Composition Database, (2) incorporating Belgian portion sizes and product packaging, and (3) integrating and reviewing content with Belgian nutritionists. The app was evaluated in 130 healthy older adults (55–75 years). Participants recorded all food and beverage intake on four non-consecutive days within one week and completed the System Usability Scale (SUS) questionnaire afterwards, which includes 10 items rated on a 5-point Likert scale. SUS-scores range from 0-100, with >68 indicating above-average and >80 considered excellent usability. Mann-Whitney U tests were performed to compare SUS-scores based on sex, jobstatus, and prior experience with nutrition apps.

Results: In total, 130 older adults (68% women, 65.6±5.9 years, mean BMI 25.4±4.4 kg/m²) completed the study. Most participants were retired (72%). The majority were omnivores (88%) and 88% had no prior experience with nutrition apps. Mean self-reported energy intake was 1820 ± 574.6 kcal/day. Usability was above-average, with a mean SUS-score of 77.1 ± 16.0. Only 28.1% of participants reported that all consumed foods could be found in the food list. No significant differences in SUS-scores were found between men and women (p=0.486), professionally active and retired participants (p=0.996), and participants with or without prior experience with nutrition apps (p=0.157).

Conclusion: The high SUS-score indicates above-average usability among older adults, even for those without prior experience using nutrition apps. This highlights its potential as an accessible and user-friendly tool for dietary assessment in this population. Future research should focus on expanding the food list to improve completeness. This could improve reporting accuracy, user experience and strengthen the role of smartphone applications in nutrition research.

I-P-D.13

How Can Hard-to-reach Postpartum Migrant Women Be Recruited for Digital Health Interventions; Insights from the PRIMI Trial

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Purpose: The PRIMI (Promoting Reproductive Health in Migrant Women) trial aims to evaluate the effectiveness of a smartphone app (the PRIMI app) on primary outcomes—diet quality and moderate-to-vigorous physical activity—and secondary outcomes, including health literacy, BMI, self-efficacy, and self-rated health, in first-generation migrant women after childbirth. The project can further provide insights and lessons learned regarding the recruitment of a hard-to-reach population for a digital intervention targeting physical activity and diet quality.

Methods: The PRIMI app provides support for physical activity, healthy diet, and health literacy using behavior change strategies such as goal setting, self-monitoring, and feedback, with content delivered via text, audio-files, and video in four languages: Arabic, Somali, English, and Swedish. A two-arm (1:1) randomized controlled trial will assess the

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6-month effectiveness of the PRIMI app compared with standard care, such as parental guidance and support within child health care. Eligible participants are first-generation migrant women ($n = 200$) who have given birth within the past 6 months, are aged ≥ 18 years, and prefer to receive health-related information in any of the provided languages. Participants will be recruited through health care services in Sweden. The recruitment strategy includes follow-ups (e.g. visits or phone calls) between the research team and professionals (e.g. nurses) at the participating health care services ($n = 20$) every two months. These follow-ups involve dialogues focusing on professionals' experiences, ideas, and suggestions for creating favorable conditions for recruiting women, thereby facilitating mutual learning to enhance the recruitment of this underrepresented and marginalized group.

Results: Recruitment began in September 2025 and is expected to continue for at least one year. While results for the primary and secondary outcomes are anticipated in 2027, preliminary findings on recruitment insights and lessons learned will be available for presentation in May 2026.

Conclusion: As most digital interventions promoting physical activity and healthy diet are insufficiently tailored for migrant populations, the PRIMI project makes a significant contribution by generating both methodological and practical insights for future interventions targeting underrepresented groups, supporting equitable access to behavior change interventions focused on physical activity and healthy diet.

I-P-D.14

A Digital Physical Activity and Healthy Diet Intervention for People around Retirement Age: Results from the SO-NUTS Feasibility Study

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Purpose: Adopting healthier lifestyle behaviours during the transition to retirement is challenging. During this phase, changes in daily routines can accelerate weight gain and muscle loss, increasing the risk of sarcopenic obesity—a condition characterized by the coexistence of excess adiposity and reduced muscle mass and function. To prevent sarcopenic obesity, we developed the SO-NUTS mobile application to empower individuals around retirement to lose weight while preserving muscle mass and function. This study aimed to evaluate the feasibility of the SO-NUTS application and explore its potential effects on sarcopenic obesity-related outcomes among healthy, overweight adults around retirement.

Methods: We conducted a 6-week, one-arm feasibility study across four European countries among 121 participants who were either approaching retirement (<3 years) or recently retired (<5 years) with a BMI >27 . Participants attended baseline and 6-week follow-up visits at local research institutes and used the co-designed SO-NUTS mobile application, which integrates evidence-based behaviour-change techniques to improve diet and physical activity. Feasibility outcomes included user experience (System Usability Scale, SUS) and exploratory outcomes included dietary quality, physical activity (steps p/d), body composition (BMI, fat mass, fat-free mass), physical performance (grip strength, gait speed, 5×chair stand), and quality of life. Data were analysed descriptively and with paired-sample t-tests.

Results: 121 participants were enrolled and 106 finished the study: Netherlands ($n=25$), Czech Republic ($n=70$), Austria ($n=13$), and Spain ($n=13$). The mean age was 67 years ($SD=7$); 77% were female. Based on the SUS, 20% rated usability as good or excellent, 42% as moderate, and 38% as poor, with an average score of 53. Compared with baseline, participants significantly increased their steps per day (mean change=646, $SD=3014$; $p=0.046$), reduced BMI (-0.50 , $SD=0.99$; $p<0.001$), reduced fat mass (-0.73 kg, $SD=2.01$, $p<0.001$), and improved quality of life (mean change=3.0, $SD=1.23$; $p=0.023$). No significant changes were observed in other outcomes.

Conclusion: Although usability ratings varied, improvements in physical activity, adiposity, and quality of life suggest that SO-NUTS is promising for supporting lifestyle change. These findings highlight the potential of digital technology to effectively deliver evidence-based behaviour-change techniques aimed at preventing sarcopenic obesity among adults in the transition to retirement.

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I-P-D.15

Use and Perceived Barriers to Mobile Health Apps among Cancer Survivors: Results from a Cross-sectional Survey

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Purpose: Mobile health (mHealth) applications are increasingly used to support behavior change and self-management among cancer, yet adoption is not fully understood. This study examined patterns of smartphone and mHealth app use, common reasons for use and nonuse, and factors associated with mHealth app engagement among cancer survivors.

Methods: Data were drawn from a cross-sectional survey of 953 cancer survivors who responded to questions about smartphone ownership and mHealth app use. Descriptive statistics summarized ownership, app use, specific apps used, reasons for use, and barriers. Logistic regression analyses examined predictors of current mHealth app use, including demographic factors, fitness tracker ownership, and reported barriers.

Results: Among 953 respondents, 913 (95.8%) owned a smartphone. Of 906 participants, 373 (41.2%) reported currently using mHealth apps. Commonly used apps included Apple Fitness (42.6%), MyFitnessPal (19.6%), and Fitbit (16.1%). The most frequent reasons for use were activity tracking (84.5%), heart rate tracking (42.1%), goal setting/progress tracking (34.9%), sleep tracking (30.3%), and motivation/reminders (28.7%).

Among current users, barriers included cost (22.8%), information overload (19.6%), lack of motivation (16.6%), limited technical skills (13.7%), and concerns about validity (13.1%). Among non app users (n=533), the most common barriers were lack of technical skills (26.1%), cost (26.1%), information overload (23.5%), lack of motivation (15.0%), belief that an app is unnecessary (14.3%), privacy concerns (12.9%), poor usability (11.3%), concerns about validity (10.9%), and preference for traditional methods (10.1%).

Multivariate analysis showed that fitness tracker ownership was strongly associated with mHealth app use (OR = 5.21; 95% CI: 3.54–7.65), while increasing age (OR = 0.98 per year; 95% CI: 0.97–1.00) and privacy concerns (OR = 0.57; 95% CI: 0.32–1.01) were linked to lower odds of use. Of 913 smartphone owners, 820 (89.8%) were willing to share mHealth data with researchers, and 654 (68.6%) wanted to learn how apps can support health management.

Conclusion: Nearly all participants owned smartphones, but fewer than half used mHealth apps. Cost, information overload, and privacy concerns were the most prevalent barriers. High willingness to share data and interest in mHealth education highlight opportunities for tailored digital literacy and engagement strategies to promote app adoption in cancer.

I-P-D.16

Integrating Diet Data Collection in Clinic: Findings from the Study of nUtrition in Postpartum and EaRly Life (SUPER)

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Purpose: Pregnancy is a prime opportunity for behavioral nutrition interventions. In addition to the influence of prenatal diet on maternal and child outcomes, pregnant patients are often especially attuned to nutritional guidance. Most pregnant patients have regular prenatal appointments, making maternal-fetal medicine clinics an ideal site for nutrition risk assessment and behavioral nutrition interventions. However, the lack of diet data in the clinical setting limits the potential of these interventions. Therefore, we assessed the feasibility of collecting diet data with the Automated Self-Administered 24-Hour Dietary Assessment Tool (ASA24) during routine ultrasound appointments.

Methods: We collaborated with physicians, nurses, and sonographers at our partnering clinic to develop a diet data collection workflow. Then, we recruited English and Spanish-speaking adult patients who were 18–32 weeks pregnant without fetal abnormalities. After obtaining consent, bilingual research assistants demonstrated ASA24 and guided participants to complete a recall on a study tablet. Participants were asked to complete a second ASA24 on their own device at home, receiving US\$20 at each time point. We collected field notes and ASA24 usage log data to describe consent rates, ASA24 completion, recall language, and time to complete the recall. Valid recalls contained complete data and no calorie outliers (i.e., <300 kcals or $\geq 1.5 \times \text{IQR}$ above the median).

Results: Of 206 patients approached, 152 (74%) consented to participate (mean age=29+/-6 years; 99% women; 64%

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Latinx), translating to a rate of 2.8 patients per research assistant per half day. 141 (93%) completed a valid recall (123 in clinic and 18 at home), in English (64%) or Spanish (36%). The mean time to complete ASA24 in clinic was 16+/-7 minutes. 113 (75%) completed a second ASA24 at home.

Conclusion: We demonstrated the feasibility of collecting diet data with ASA24 during routine prenatal ultrasound appointments, addressing a lack of diet data available to inform clinic-based nutrition interventions. Our implementation, which employed dedicated research staff and participant incentives, yielded high consent and completion rates across a diverse population and provides an initial framework for operationalizing diet data collection in clinical settings. This lays the groundwork for future models for integrating dietary assessment into prenatal care.

I-P-D.17

Examining the Long-term Impact of a Gamified mHealth App: An 18-month Prospective Cohort Study

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Purpose: This study aimed to evaluate long-term user engagement and behavioral outcomes associated with the WayBetter mobile health (mHealth) app, which integrates gamification, coaching, and financial incentives to promote physical activity (PA) and healthy eating. It explored differences in app perceptions and health behaviors among different categories of users; an innovative follow-up extending evidence on mHealth sustainability beyond 12 months.

Methods: We initially recruited a cohort of 1,178 new WayBetter users starting a free trial (Nov 2023-Jan 2024), who completed a baseline survey (i.e. sociodemographics, health behaviors). In June 2025, we sent a follow-up survey to the same cohort, which assessed app opinions (i.e., Mobile Application Rating Scale) as well as current and previous (i.e., “while actively using WayBetter”) self-reported health behaviors. Follow-up survey respondents were classified into three groups: (1) Never members (free trial only), (2) Former members, and (3) Current members. Group differences were examined using χ^2 tests and ordinal logistic regression with covariates included in the model to adjust for baseline differences.

Results: One hundred and fifty-seven participants (Mean age: 40.83 years; % female: 92.09; 13.33% of initial cohort) responded to the follow-up survey (Never, n=60; Former, n=55; Current, n=42). Current members rated app ease-of-use more positively compared to Former and Never members ($p=.007$, $V=.264$). Current members were significantly more likely to agree that the app encouraged help-seeking ($p=.025$, $V=.276$) and that they would recommend it to others ($p=.017$, $V=.290$). After adjusting for baseline differences in PA levels, former members at follow up were more likely to report higher levels of vigorous PA compared to Current members ($p=.044$) and Never members were more likely to report higher levels of moderate PA compared to Current members ($p=0.024$). No groups differences in nutrition were observed ($p>.05$).

Conclusion: Eighteen months after initiating a 7-day free trial, as expected, Current members held more positive app opinions than Former and Never members. On the other hand, and surprisingly, Current members self-reported less PA than the other two groups, after adjusting for baseline PA differences. This disparate finding may be because Current members had less room to improve (‘ceiling effect’) and warrants further investigation.

I-P-D.18

Development of a Visualizing Nutrition Labeling System for Food and Meals

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Purpose: Accurately assessing nutrient intake from food and meals is crucial for preventing obesity and non-communicable diseases and maintaining health. This study developed a novel nutrition labeling system that uses pictures to convey the nutritional characteristics of foods and dishes and to evaluate the understandability of the system for refinement.

Methods: A home page was programmed allowing the user to select from 19 food or dishes, which then generated a triangle representing energy balance picture and flower representing nutrition balance. The flower was programmed

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to visualize 12 nutrient values and the degree of sufficiency for the adult needed per meal, such as energy, energy-producing nutrients such as protein, three vitamins, and four minerals, based on nutrient-rich food (NRF9.3). A paper or web survey of adults was conducted between June and August 2025. The questionnaire included 9 questions, including 4-point scale questions on understandability and interest in the use for learning, a 10-point satisfaction scale (from 0 to 10 meant from “very unsatisfied” to “very satisfied”), and an open-ended feedback question.

Results: There were 77 participants. Of the participants, 98.7% found the tool very interesting (59.2%) or interesting to some extent (39.5%) and 98.7% answered that it was easy to understand (51.9%) or understandable to some extent (46.8%). The mean score for satisfaction with the system was 8.16. Open-ended feedback suggested that values of the ideal intake should be shown in the picture, data entry should be made easier (such as using a camera or the Internet), and personalized programs should be developed.

Conclusion: The novel visualized nutrition labeling made it easy to understand the nutritional characteristics of food and meals and showed potential for supporting diet management and nutrition education. The free answers suggested that further improvement and practical application were needed.

I-P-D.19

Evaluation of the NHS Active 10 Walking App Intervention through Time-series Analysis in 201,688 Individuals

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Purpose: Despite widespread interest in integrating mobile health apps into primary care to prevent and manage physical inactivity-related health conditions, the effectiveness of these apps remains unclear. We aimed to quantify the effects of the NHS Active 10 app on brisk and non-brisk walking in a UK population between July 2021 and January 2024.

Methods: Design: The NHS Active 10 smartphone app was designed, promoted, and delivered through Public Health England. We conducted a single-group interrupted time-series analysis on individual-level data from users of the Active 10 app, comparing brisk and non-brisk walking levels (min/day) before and after users downloaded the app.

Participants & Setting: All UK smartphone users were eligible, and self-selected by download of the Active 10 app. Included participants downloaded the app and had 5 days of pre-download walking data (extracted from the user's device by the app at the time of download) and 28 days of post-download walking data available.

Intervention: The intervention consisted of a smartphone app centred on goal setting and self-monitoring of walking, optional use of widget notifications, and used for at least 28 days.

Main outcomes: These were post-download change on day 1 and post-download trend change in brisk and non-brisk walking levels (mins/day).

Results: Among Active 10 users ($n=201,688$; 51.4 ± 14.4 years; 75.4% women) brisk and non-brisk walking increased by 9.0 (95% confidence interval (CI) 8.9, 9.1; 73% above baseline) and 2.6 min/day (95% CI 2.4, 2.8; 9% above baseline), respectively, on the day of app download. Post-download, brisk and non-brisk walking decreased by 0.15 (95% CI -0.17, -0.13) and 0.06 (95% CI -0.08, -0.03) min/day/month, respectively, but remained above baseline.

Conclusion: Our findings suggest that large-scale population-level intervention tools such as the Active 10 app may be effective for facilitating clinically important increases in brisk walking among adults living in the UK. App engagement may contribute to the app's effectiveness.

I-P-D.21

Impact of Health-related Social Media Use on Exercise: A Cross-sectional Study Using Data from HINTS7

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Purpose: The study aimed to assess the association between the frequency of health-related social media use among adults and exercise. We hypothesized that participants with higher health-related social media use would also have higher exercise levels. The association between social media use and exercise has been documented in the scientific literature. However, limited research has examined whether health-related social media use is associated with exercise.

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Methods: This cross-sectional study was a secondary data analysis of the seventh edition of the Health Information National Trends Survey (HINTS7, n=7,278). The categorical variable of health-related social media use was designated as the exposure variable, categorized as never, infrequent, and frequent use. The continuous variable of weekly minutes of exercise was utilized as the outcome. Age, birth sex, ethnicity, educational level, feelings related to income, and weekly work hours were included as confounders. Linear regression models were run to evaluate the unadjusted and adjusted associations. The results are presented as regression coefficients (β) with the highest frequency of social media use set as the reference category.

Results: Frequent use of health-related social media was observed in 14.9% of participants, while infrequent use was identified in 49.3% of the sample. No use was reported by 35.8% of participants. The mean weekly moderate-intensity exercise was 182.9 minutes (SD=328.9). In the adjusted model, participants who used health-related social media infrequently had, on average, 13.4 fewer minutes (95% CI: -37.9 to 11.1) of weekly exercise than those who used it frequently ($p = 0.284$). Individuals who reported no health-related social media use had an average of 2.5 fewer minutes (95% CI: -29.5 to 24.5) of weekly exercise than the reference group with frequent use ($p = 0.855$).

Conclusion: Despite the direction of association suggesting that health-related social media use may benefit exercise levels, our findings suggest no statistically significant association between those variables. The use of health-related social media to improve exercise engagement shows promise. However, further studies are needed to better understand how to use this tool effectively to promote measurable changes in health-related outcomes.

I-P-D.22

Associations between Digital Health Engagement and Physical Activity among Women in Resource-limited Urban Communities: Data from the Step It Up Community-engaged, Digital Health Intervention

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Purpose: Physical activity (PA) reduces cardiovascular disease risk; however, few studies have developed place-tailored digital health interventions to increase PA among resource-limited women in urban areas. Therefore, we sought to explore how engagement with a digital health application (app) is associated with PA in resource-limited communities and how psychosocial factors may modify these relationships.

Methods: African American women with overweight/obesity were recruited from under-resourced communities in the Washington, DC metropolitan area to participate in the six-month *Step It Up* intervention. Participants received a Fitbit Charge 2 device to track PA and downloaded the *Step It Up* digital health app to receive health promoting content, self-monitoring tools, and motivational messaging promoting PA. Engagement was measured by whether a participant used the educational modules, goal-setting tools, or completed ecologic-momentary assessments. We examined associations between overall app engagement and PA (in steps/day) and whether these associations were modified by social isolation and chronic stress measured by validated questionnaires. Mixed-effects models accounted for repeated measures within participants over the six-month intervention period, allowing examination of within- and between-person relationships. All models were adjusted for age, BMI, and socioeconomic status.

Results: Participants (n=151) had a mean age of 57±11 years, a BMI of 36.75 ± 7 kg/m², and a mean income of \$69,731 ± 31,454. App engagement was associated with 149 more steps/day ($p < 0.001$), with significant interactions between engagement and both social isolation ($\beta = -67.89$, $p = 0.01$) and chronic stress ($\beta = 5.46$, $p = 0.01$). With higher social isolation, greater engagement associated with less PA, whereas higher chronic stress, greater engagement associated with greater PA.

Conclusion: Engagement with a community-tailored, digital health application was positively associated with PA during the *Step It Up* intervention among African American women living in resource-limited Washington, D.C. communities. However, these associations varied by psychosocial factors. Future work should examine additional contextual factors that may modify these associations and assess whether tailored-to-place messaging may impact PA.

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I-P-D.23

Optimal Physical Recovery after Hospitalization for Patients after Oncological Surgery (OPRAH): A Multicenter, Single-blind, Randomized Controlled Trial

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Purpose: Following major oncological surgery, patients may prevent muscle mass loss and postoperative decline in physical functioning by increasing their physical activity levels and meeting protein intake requirements. However, effective post-discharge interventions to reach this aim are limited. Blended interventions, combining digital tools, such as smartphone apps and activity trackers, with personalized coaching, offer promising solutions to enhance patient self-management. Therefore, we developed the blended Optimal Physical Recovery After Hospitalization (OPRAH) intervention. The purpose was to evaluate the efficacy of the OPRAH intervention to improve physical activity and protein intake after hospital discharge on recovery of physical functioning in patients after oncological gastrointestinal and pulmonary surgery.

Methods: A multicenter single-blinded randomized controlled trial was performed in adults undergoing curative intent oncological gastrointestinal and pulmonary surgery. Patients were assigned to usual care (control) or usual care plus a three-month post-discharge intervention comprising a smartphone app, activity tracker, and remote coaching from a physiotherapist and dietitian. Assessments were conducted preoperatively and at one, four and eight weeks, and three- and six-months post-discharge. The primary outcome was recovery in physical functioning, measured using the CAT PROMIS Physical Functioning questionnaire. The most important secondary outcome was physical activity.

Results: Overall, 163 patients were included (73 intervention, 90 control). An overall intervention effect on physical functioning was found in favour of the intervention group (difference 1.7; $p=0.03$). Physical activity levels were also significantly higher in the intervention group (difference = 12.9; $p=0.01$). Additional benefits were observed in protein intake, fatigue, pain, participation, self-efficacy, global perceived effect, and handgrip strength. No significant effects were noted for energy intake, lean body mass, physical performance, and readmission rates.

Conclusion: The OPRAH intervention – combining self-monitoring with remote coaching by a physiotherapist and dietitian to promote post-discharge physical activity and protein intake – effectively enhances recovery in physical functioning after curative intent oncological gastrointestinal and pulmonary surgery. Patients were more physically active, met their protein intake requirements more often and experienced less fatigue. Taken together, these findings suggest that the OPRAH intervention supports recovery while enabling patients to take a more active role in their own postoperative rehabilitation.

I-P-D.24

Adherence to Just-in-time Prompts for Interrupting Sitting and Increasing Walking Pace in Adults with Prediabetes and Type 2 Diabetes: An Ecological Momentary Assessment Study

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Purpose: Interrupting prolonged sitting and increasing physical activity (PA) are essential for managing prediabetes and type 2 diabetes, yet these behavioral changes remain difficult to achieve. The ENERGISED trial used mHealth technologies to deliver occasional just-in-time prompts suggesting either a sitting interruption or an increased walking pace. This study examined the associations between self-reported adherence to these prompts and fatigue, stress, and pain, using ecological momentary assessment (EMA).

Methods: Patients in the intervention arm of the ENERGISED trial received just-in-time prompts when they had been sedentary for ≥ 30 minutes or walking for ≥ 5 minutes. Fifteen minutes later, an EMA survey was delivered via the HealthReact application (maximum once every other day) assessing adherence, reasons for non-adherence, and fatigue, stress, and pain levels (0 – 10 Likert scales). A Fitbit tracker monitored PA. Multilevel logistic mixed-effects models were used to analyze subjective adherence and its associations with fatigue, stress, and pain. Hurdle models will be applied to examine the associations between Fitbit-derived PA and fatigue, stress, and pain, with these findings to be presented at the conference.

Results: Forty-one patients participated for a median of 252 days. They received 2125 sitting-interruption and 1712 walking-pace prompts; 949 and 729, respectively, were followed by an EMA survey, of which 394 (42%) and 338 (46%) were completed. Sitting was interrupted after 26% of prompts; the most frequent barrier was concurrent activities such as driving or focused work (44%). Walking pace increased after 28% of prompts; the most common reason for non-adherence was that walking had already stopped (39%). Higher fatigue (OR 0.983, 95% CI 0.969–0.997, $p = 0.019$) and stress (OR 0.979, 95% CI 0.961–0.997, $p = 0.026$) reduced the odds of increasing walking pace, while pain showed no effect. No associations were found for sitting-interruption adherence.

Conclusion: Adherence to just-in-time suggestions to interrupt sitting or increase walking pace was modest. Inappropriate timing, prompts delivered during incompatible activities or after walking had stopped, emerged as a key limitation. Improving trigger algorithms to identify receptive and feasible moments may enhance the effectiveness of mHealth-supported behaviour change interventions.

I-P-D.25

A Theory-informed Mobile Health Application to Promote Physical Activity: The Planning and Design, Iterative Prototyping, and Development of a Minimum Viable Product

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Purpose: Mobile health (mHealth) applications (apps) are attractive tools for physical activity (PA) behaviour change interventions because a large proportion of the global population owns a smartphone and checks it daily. Although many PA promotion apps are available, few are effective beyond three months and the majority are neither evidence-based nor grounded in behaviour change theory. The purpose of this study was to develop a PA promotion mHealth app, guided by an intervention development framework that integrates behavioural theory (the Multi-Process Action Control Framework), up-to-date mHealth app research, a pedagogical framework, and expert consensus.

Methods: The mHealth app development process consisted of three phases. Phase 1 Planning and Design involved an iterative expert panel and literature review to determine app needs. The expert panel included a theory team ($n = 10$ adult members of a university lab) and an app development team ($n = 2$ adult members of a second university lab). Phase 2 Iterative Prototyping involved developing a first prototype through a series of structured, iterative consensus building sessions among the theory team and modified product presentations from the app development team. Phase 3 Minimum Viable Product (MVP) involved two members of the expert panel developing an MVP with two rounds of feedback from the lab director.

Results: Phase 1 findings revealed key desired features of multiple choice quizzes, a PA affect slide bar, graphs and figures for education delivery, self-guided emotion-regulation visualization videos, grab-and-go activities, goal-setting, and PA self-monitoring. Phase 2 iterative prototype feedback informed content text reduction and an updated pedagogical framework (Bridge-In, Outcomes, Pre-Assessment, Presentation of New Material, Practice and Participation, Post-Assessment, and Summary). Additionally, finalization of app features included video embedment, quiz cards, survey cards, and step-count tracking from pre-existing smartphone apps (e.g., Apple Health). Phase 3 feedback resulted in image load optimization, a table of lesson mechanisms of action, and the addition of pre- and post-activities, learning outcomes, and summary cards to each lesson.

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Conclusion: A theory-informed PA mHealth app MVP was developed that includes a pedagogically-derived lesson plan, embedded videos, interactive quizzes and surveys, and step-count tracking. Future studies will evaluate the feasibility and efficacy of the MVP.

I-P-D.26

Validation of an Augmented Reality Tool for Real-time Smartphone-based Exercise Repetition Counting

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Purpose: Resistance training (RT) self-monitoring can support behaviour change, yet most consumer RT tracking tools have limited real-world validation, especially for live repetition counting. This study evaluated the practical validity of a smartphone-based augmented reality (AR) repetition-counting tool against human counting, and examined whether accuracy is maintained across realistic conditions relevant to self-monitoring (multiple exercises, clothing that may occlude landmarks, and different adult groups). We hypothesized the AR tool would be equivalent to manual counting within a pragmatic margin of ± 1 repetition per set.

Methods: Cross-sectional practical validation study (planned $n=26$: 13 students, 13 office workers). Participants complete 4 bodyweight exercises (squat, sit-up, push-up/knee push-up, high knees), performing 10 consecutive repetitions in two clothing conditions: (1) typical athletic attire and (2) loose long-sleeve top and long pants. AR rep counts are recorded live on a smartphone while sessions are video-recorded for two-rater manual counting (criterion = mean). Primary analyses include equivalence testing (paired TOST, bounds ± 1 rep, 90% CI), plus agreement indices (mean bias, MAE, and limits of agreement). Mixed-effects models examine clothing and group effects.

Results: In the completed student cohort (13 students; 104 sets), manual counting reliability was high (96.2% exact agreement; ICC(2,1)=0.95, 95% CI 0.93–0.97). Relative to the manual mean, the AR tool showed minimal bias (mean difference=0.03 reps; SD=1.60) and low typical error (MAE=0.59 reps/set). Overall, 88.5% of sets were within ± 1 rep and 96.2% within ± 2 reps. Equivalence within ± 1 rep was supported (90% CI –0.23 to 0.29; both one-sided tests $p<.001$).

Conclusion: These results provide practical evidence that live smartphone AR repetition counting can approximate human counting closely enough to function as a scalable RT self-monitoring method in behaviour-change interventions. Ongoing data collection will determine whether performance is robust across exercises, clothing occlusion, and an older working-adult cohort, informing when AR self-monitoring is appropriate and when refinement or user guidance is needed.

I-P-D.27

Criterion Validity and Transparency in Wrist Accelerometry for 24-hour Movement Behaviour Analysis: A LABDA Scoping Review, Meta-analytical Summary, Reporting Checklist, and Web Application

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Purpose: Global surveillance of physical activity, sedentary behaviour, and sleep (24-hour movement behaviours), still relies on self-report. Wrist accelerometry provide continuous monitoring of these behaviours but adoption is limited by inconsistent transparency and comparability. This scoping review aimed to evaluate criterion validity and improve the reproducibility and comparability of methods using high-resolution wrist-worn accelerometer data for assessing 24-hour movement behaviours.

Methods: Five databases were searched (8 August 2024). Inclusion required peer-reviewed studies with participants aged ≥ 3 years using high-resolution wrist accelerometry to classify physical activity intensity against indirect calorimetry, activity type against direct or video observation, sleep-wake against polysomnography, or energy

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expenditure against doubly labelled water or indirect calorimetry. End-to-end processing pipelines were mapped to identify reporting gaps and inform transparent reporting guidance. Criterion validity was evaluated using participant-weighted random-effects meta-regression overall and by behaviour domain and contrasted by model complexity (traditional vs non-traditional). Risk of bias was appraised using QUADAS-2.

Results: A total of 137 studies contributed 272 criterion validations. Major reporting gaps included accelerometer sensor specifications, on-board processing, signal quality control, participant ethnicity, and confusion matrices with event counts. Overall pooled classification performance was F1 84.2% (N = 4,892), sensitivity 90.4% (N = 6,968), and specificity 79.3% (N = 6,845). Domain-specific pooled F1 was 75.5% for activity intensity (N = 933), 85.4% for activity type (N = 1,071), and 86.4% for sleep-wake (N = 2,888). Energy expenditure estimation had pooled mean absolute percentage error 22.6% (N = 573). Non-traditional methods outperformed traditional methods overall on F1 by 10.1% ($p < 0.001$), with larger gains for activity intensity (25.5%, $p < 0.001$) and activity type (32.9%, $p < 0.01$), but were comparable for sleep-wake and energy expenditure.

Conclusion: Wrist accelerometry demonstrates strong pooled classification performance for 24-hour movement behaviour assessment when compared to criterion methods, but persistent reporting gaps impede reproducibility and comparability. This study provides a comprehensive comparison of wrist accelerometry-based methods and presents two applied outputs to support transparent reporting and evidence-based selection: TRAC-MOVE, a 15-item methods checklist, and SCOPE-MOVE, an interactive evidence explorer with built-in analytics used in this study.

II-P-D.01

Assessing the Feasibility and Usability of DESI-heart: A Conversational Agent-based Self-care Intervention for People with Cardiovascular Disease - A Pilot Study

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Purpose: Cardiovascular diseases (CVDs) are a leading cause of illness and death globally and in Australia. Although self-care is essential for managing CVDs, individuals often face barriers such as complex regimens, limited health literacy, and a lack of culturally appropriate support. To overcome these barriers, conversational agents (CAs) provide AI-driven, voice-based support, but most are designed for mainstream populations and overlook the needs of culturally diverse communities. To address this gap, we co-designed and developed DESI-Heart, a culturally tailored CA promoting self-care among Indian Australians with CVDs. This study evaluates the feasibility and usability of the 8-week DESI-Heart intervention.

Methods: Informed by the initial co-design phase, the 8-week DESI-Heart program comprised four culturally and linguistically tailored modules: (1) medication reminders, (2) daily exercise guidance, (3) diet buddy, and (4) guided meditation. The study followed a single-arm pre-post pilot trial design (n=28) to assess the feasibility and usability of the DESI-Heart program. After completing the pretest assessments, participants accessed DESI-Heart through a web-based CA, available on smartphones or laptops. According to their preferred schedules, participants received links to the relevant modules, delivered at four time points each week over an 8-week period. Upon completion of the program, participants were invited to complete a follow-up session, which included post-test assessments and qualitative feedback on their experience using DESI-Heart.

Results: These are the preliminary findings from our data analysis reported based on existing participants who completed our study (n=18). Primary outcomes of study assessed the feasibility and usability of the DESI-Heart program. Feasibility was measured using recruitment rates, participant retention, completion of the prescribed self-care program and attrition. Recruitment rate was 100% (18/18), participant retention was 88.88% (16/18) and completion of the set goals was 80.27% (2312/2880 sessions). Usability, assessed using the Chatbot Usability Scale, yielded a mean score of 80.5 (15/18).

Conclusion: Based on the preliminary analysis, the co-designed DESI-Heart program demonstrated strong feasibility, as indicated by satisfactory recruitment rates, high participant retention, completion of the prescribed self-care activities, and low attrition and usability. Insights from this phase will guide refinement of the intervention and inform the design of a larger-scale evaluation trial.

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II-P-D.02

Predicting Physical Activity Recovery after Stressors Using Step Count Data Derived from Activity Monitors

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Purpose: Physical activity is essential for health and well-being but is vulnerable to disruptions from various stressors (e.g., individual and environmental factors). Responses to such disruptions vary both across individuals and within individuals over time. Advances in mobile sensing enable the precise analysis of stressor-response trajectories using high-resolution time series data. Tracking daily changes in step counts allows researchers to model and predict the dynamics of individual responses, including the direction and pace of the stressor-response trajectory. Complex systems theory, particularly early warning signals, provides a framework for predicting individual progression through behavioral stressor responses. In this study, we investigated whether local dynamic complexity (DC) in step count—a statistical marker of early warning signals—could predict the future rate of change in the stressor-response trajectory.

Methods: We analyzed step count time series from 226 participants in the California, Czech Republic, Spain, and Norway following the first COVID-19 lockdown (the stressor). Daily step counts were measured using activity monitors (Fitbit, Garmin). The daily rate of change in the stressor-response trajectory (DV) was calculated as the first-order derivative of a growth function fitted to the time series. Local DC (IV) was assessed by analyzing fluctuations in step counts using a 14-day rolling window. Multilevel modeling was used for analysis.

Results: Local DC significantly predicted decreases in the rate of change 11 days later ($B = -35.62$, 95% CI $[-45.32, -25.92]$). This effect suggests that 15 days with local DC levels exceeding 1 standard deviation could result in a „delay“ of more than 500 steps per day in the average stressor-response trajectory.

Conclusion: This study demonstrates how step count data from activity monitors can be used to characterize and predict stressor-response trajectories in physical activity. These findings highlight opportunities for just-in-time interventions to support the recovery of physical activity after disruptive stressors.

II-P-D.03

Opportunities and Challenges to Supporting Motivation and Health Behaviour Change in UK Uniformed Services through Digital Interventions

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Purpose: Musculoskeletal injuries (MSKI) are a leading cause of medical discharge, training delays, and healthcare burden within the Royal Navy (RN). Modifiable health behaviours (physical fitness, diet quality, sleep, alcohol consumption and nicotine use) increase MSKI risk. Developing supportive workplace environments and targeted digital health (e-health) interventions show promise for supporting positive health-related behaviour change. However, the efficacy of e-health technologies rely on design features to: sustain engagement; facilitate reach to a high volume of users; and align with end-users' lived experiences. This qualitative study investigated barriers and facilitators to health behaviour change in early-stage RN personnel to inform the design of an e-health intervention to promote musculoskeletal health.

Methods: Following the Person-Based Approach framework, co-design workshops (n=56) were conducted with early-career stage participants. Data were synthesised using thematic framework analysis to code statements related to barriers and facilitators for health behaviour change and intervention design features, which were mapped onto the COM-B model.

Results: Facilitators for engaging in positive health-related behaviours included understanding the benefits of physical

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activity, how to be physically active and being aware of MSKI risk factors. Barriers encompassed environmental and structural factors such as limited access to health and fitness education, time constraints, equipment, low baseline fitness, and a lack of accountability for health at both individual and organisational levels. Participants emphasised the value of a hybrid approach to health behaviour change intervention delivery, combining environmental improvements (e.g., improving food provision, creating opportunities to self-cater and engage in physical activity, and improved access to health practitioners) with the use of digital technology. Key features identified for an e-health solution included access to evidence-based, population-specific health and fitness information, personalised health recommendations, opportunities for peer encouragement, and integration with wearable fitness trackers to enable goal setting, self-monitoring, and foster intrinsic motivation.

Conclusion: This study supports that effective workplace digital interventions must address both environmental and motivational determinants of behaviour, and not just take the form of an individual application. Sustained behaviour change in constrained workplaces requires whole system engagement, combined with interventions that support psychological needs and drive intrinsic motivation.

II-P-D.04

Participants' Experiences of Using the SPARK App to Support Gestational Diabetes Management: Qualitative Findings from the SPARK Trial

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Purpose: Gestational diabetes (GDM) affects approximately 17% of pregnancies globally. Effective GDM management is key in preventing adverse maternal and child outcomes, highlighting the need for effective interventions to support glucose control. The randomized controlled trial, SPARK, evaluates a novel smartphone app that supports women in managing their glucose levels through a lifestyle behavior change program (n=334 enrolled November 2025). This qualitative study explores women's experiences of navigating a GDM diagnosis and using the SPARK app as a digital support tool for GDM management.

Methods: Semi structured interviews were conducted in late pregnancy with participants that had used the SPARK app (n=20). The included women were representative of the whole intervention group in terms of age (32.8±4.0 vs. 32.1±6.7 years), proportion of women with overweight and obesity (74% vs. 77%), and proportion of foreign-born women (30% vs. 27%). Interviews were conducted through video calls and were transcribed verbatim. Data was analyzed using reflexive thematic analysis with an inductive approach.

Results: Preliminary findings suggest that navigating the diagnosis initially evoked feelings of guilt and uncertainty about how to manage GDM, followed by rapid lifestyle adjustments. The SPARK app was perceived as a trustworthy, comprehensive and reliable companion that provided support and guidance for managing GDM and making behavior changes. The app supported women in understanding their glucose levels, and made them reflect on how lifestyle modifications influence glucose levels, and establish new routines. Over time, the app contributed with a sense of control, confidence and self-efficacy in managing GDM.

Conclusion: Findings from this study indicate that the SPARK app may play a valuable role in the self-management of GDM by supporting dietary and physical activity changes. The app has the potential to complement standard care for GDM patients. Future research should investigate healthcare professionals' perspectives on integrating the app into routine clinical practice.

II-P-D.05

Healthcare Professionals' Experiences of Supporting Health Behaviors in Migrant Women after Childbirth: Opportunities for mHealth Integration

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Purpose: The period after childbirth offers a critical opportunity to promote women's long-term health. Migrant women face unique barriers to healthy lifestyles, yet little is known about how healthcare professionals support them after childbirth. To the best of our knowledge, no previous study in Sweden—or in other high-income countries with similar migration patterns—has explored these professionals' perspectives. This study examined healthcare professionals' experiences of promoting health behaviors in migrant women after childbirth and their views on the potential of mobile health (mHealth) tools in this context.

Methods: This qualitative interview study, part of the PRIMI (Promoting Reproductive health In Migrant women) project, included 20 female healthcare professionals (e.g. midwives, dietitians, physicians, health communicators) from four Swedish regions. Semi-structured interviews were analyzed using reflexive thematic analysis following Braun and Clarke, guided by the Reflexive Thematic Analysis Reporting Guidelines (RTARG). Dependability, credibility, and transparency were ensured through independent coding by two researchers, collaborative analysis meetings, and adherence to RTARG.

Results: Three main themes were identified:

1. Priorities and routines of health behavior promotion after childbirth – health promotion for mothers, especially migrants, was often deprioritized with unclear responsibilities and limited time.
2. Social influences on health behaviors – language barriers, limited knowledge, economic constraints, and a lack of social networks hindered healthy habits, while peer support could motivate change.
3. mHealth in supporting health behaviors after childbirth – culturally adapted, multilingual apps with reliable information, visuals and audio features were viewed as promising tools to increase accessibility and engagement.

Conclusion: Healthcare professionals described a lack of structured routines and resources for promoting healthy behaviors in migrant women after childbirth. Culturally competent healthcare professionals combined with tailored mHealth tools could help bridge these gaps. These findings extend behavior-change theory to a multicultural maternal-health context and inform the co-design of equitable, culturally sensitive digital interventions to promote long-term wellbeing.

II-P-D.07

Lessons Learned from Working with Community Members: Gaining Community Buy-in for Developing Artificial Intelligence-enhanced Physical Activity Interventions

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Purpose: Involving community members is essential for developing effective patient-centered behavioral and physical activity (PA) interventions, particularly when integrating new technologies. However, building the relationships needed for meaningful engagement takes time and can be challenging. The objective of this study was to assess lessons learned from working with community partners to develop an artificial intelligence (AI)-enhanced PA intervention.

Methods: We engaged with the 20-member community advisory panel (CAP) of a university-based tertiary healthcare system in Texas at two separate hospital campus CAP meetings (October 2024, March 2025). The racially/ethnically diverse CAP members included 40% Black, 30% White, 20% Hispanic, and 10% Middle Eastern individuals. Members were predominantly women (80%) and mostly middle-aged (33%) or older adults (50%). The first meeting included 9 in-person and 5 virtual attendees; the second included 13 in-person and 3 virtual attendees. The first meeting focused on general AI perceptions, current experiences with AI tools, and opinions/concerns regarding AI's application in interventions. The second meeting involved a presentation of design mockups and potential features of an AI-enhanced PA intervention. One research team member facilitated the meeting; another served as notetaker and recorded observations.

Results: Relying on community locations provided logistical challenges with parking and building access as meetings were scheduled after working hours. The feedback and discussion from CAP members were positive towards the use of AI and machine learning in PA interventions. While opinions on AI's usefulness and trustworthiness were mixed, all CAP members acknowledged AI's growing integration into daily life and expressed a strong interest in learning

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how to best utilize AI to improve health outcomes. CAP members appreciated the personalization and relevance of AI-generated messages using tailored health and location information and embraced the idea of integrating an AI chatbot as a support system. The positive input supports the research team to proceed with incorporating AI and machine learning in intervention design while being mindful about transparency and credibility of resources provided through AI.

Conclusion: AI-enhanced PA interventions show promise and support, especially for personalization and relevance in messaging. Future interventions should ensure transparency in AI usage and consider the usefulness, trustworthiness, and credibility of AI-provided resources.

II-P-D.08

Adolescent Athletes' Dietary Habits after Use of *PLAYTE*: A Proof-of-Concept Study

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Purpose: Emerging evidence suggests that adolescent athletes (13-18 years) have a high prevalence of unfavourable dietary habits including consumption of high caffeine energy drinks, reliance on sport supplements and food restriction. As there is no school policy and regulated nutrition resources in Canadian secondary schools this represents a missed opportunity to support these athletes. To address this gap, we co-created a novel sport fueling app called *PLAYTE* that relies on plate-based eating. Plate-based eating has potential to promote more intuitive eating behaviours and positive food-relationships by removing eating based on rigid numbers. The aim of this study is to evaluate trends in athletes' dietary behaviours after using *PLAYTE* (i.e., *PLAYTE*'s proof-of-concept).

Methods: Eighty athletes (40 males; 40 females) from schools (grades 8-12) around Vancouver are being recruited (Canada) who participate in at least one school sport. Prior to using *PLAYTE*, athletes report their demographics, sport and dietary history, and complete 3 electronic 24-hour dietary records. After using *PLAYTE* for 4 weeks dietary records are repeated. Once the full sample is collected (Dec 2025), within-person changes in energy balance from the pre- to post-intervention period will be assessed using paired t-tests. Trends in macronutrient intake (protein, carbohydrate, fat) will be analyzed using validated dietary assessment software, with proportions compared to 'ideal proportions' based on the validated Athlete's Plate™.

Results: Sixty-four athletes (25 males; 39 females) have been recruited and represent diverse grades (Grade 8: n=7; Grade 9: n=11; Grade 10: n=20; Grade 11: n=15; Grade 12: n=11). Most athletes are multi-sport and participate in basketball (n=22), volleyball (n=17), ultimate frisbee (n=15), cross country running (n=10), swimming (n=9), badminton (n=9), soccer (n=8), rugby (n=6), and track and field (n=6). Twenty-nine athletes identified as White, 16 as Chinese, 9 as Middle Eastern, and 9 as South Asian.

Conclusion: If trends in teen athletes' dietary behaviours are favourably following *PLAYTE* use (e.g., better alignment with recommendations), *PLAYTE* is ready for next-step efficacy testing. As there are no regulated nutrition resources for athletes in Canadian schools this research is a critical step in establishing if *PLAYTE* may have promise as a novel resource schools could implement.

II-P-D.09

Effect of Experience and Time on Usability in the Fitmobapp Application to Collect Fitness Data

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Purpose: This study aimed to evaluate changes in usability scores between two time points in the use of the application Fitmobapp, while accounting for key participant characteristics, including age, sex, educational level, professional sector experience, and experience in evaluating physical fitness.

Methods: System Usability Scale (SUS) scores were calculated from participants' responses to 10-item questionnaires administered at two occasions. Missing data were addressed using multiple imputation to reduce bias. The data were

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reshaped into a long format to reflect repeated measures per participant. A linear mixed-effects model was fitted with time (R1 vs. R2) as the main predictor and covariates including age, sex, education, sector experience, and evaluation experience. Random intercepts were included to account for individual variability.

Results: The model revealed a non-significant trend toward increased SUS scores at the second evaluation compared to the first (+2.5 points, $p = 0.0635$). Among covariates, only experience evaluating physical fitness was significantly associated with higher usability scores (+1.04 points per unit increase, $p = 0.018$). Other factors such as age, sex, education, and sector experience showed no significant effects.

Conclusion: While SUS scores tended to improve over time, this change was not statistically conclusive. Experience evaluating physical fitness emerged as an important factor influencing perceived usability, suggesting expertise impacts usability ratings. Considering participant characteristics via covariates resulted in a more accurate and nuanced understanding of usability changes within the same individuals over time.

II-P-D.10

Development of a Quality Assessment Tool for Validation Studies of 24-hour Physical Behavior via Wearables: A Delphi Study

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Purpose: Wearables are increasingly considered a valid and scalable approach for measuring 24-hour physical behavior, including physical activity, sedentary time, and sleep. Despite their widespread use in research and clinical practice, there is currently no standardized framework for evaluating the methodological quality of validation studies on these devices. This project aims to develop a consensus-based Quality Assessment (QA) Tool for validation studies of wearables through a multi-round Delphi process. The study is part of the broader Wearable Landscape initiative, which also develops a complementary reporting checklist for validation studies.

Methods: A multi-round Delphi process is being conducted between September 2025 and February 2026 using SoSci Survey. International experts in wearable validation ($n = 644$), identified through systematic literature reviews and AI-assisted search, were invited to rate and refine potential QA criteria. In Round 1, participants assess the relevance and clarity of candidate items on a 9-point Likert scale. In subsequent rounds, participants receive both personal and anonymized group feedback (median, interquartile range, qualitative comments) and can adjust their ratings to foster consensus. The consensus threshold for item inclusion is defined as $\geq 70\%$ of ratings within the 7-9 range. Quantitative data will be analyzed using descriptive statistics and consensus metrics; qualitative feedback will be

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thematically summarized to inform item revision.

Results: Round 1 is currently ongoing with $n = 40$ respondents, and data collection is scheduled to conclude in November 2025. Preliminary analyses will identify items achieving strong consensus as well as domains requiring refinement. The expected outcome is a structured, transparent QA Tool encompassing key domains such as patient selection, study design, reference measure, data synchronization, and statistical analyses.

Conclusion: This consensus-based QA Tool will enhance transparency, comparability, and methodological rigor in wearable validation research. The results will support researchers, reviewers, and policymakers in evaluating the study quality and will contribute to the harmonization of reporting standards in 24-hour physical behavior measurement.

II-P-D.11

Impact of Accelerometer Epoch Summary Measure on Associations between Physical Activity and All-cause Mortality in Whitehall II and UK Biobank

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Purpose: Raw accelerometer data are commonly reduced into epoch summary measures for analysis, e.g. ENMO (Euclidean Norm Minus One), MAD (Mean Amplitude Deviation), MIMS (Monitor Independent Movement Summary) or Counts. No consensus exists around choice epoch summary measure, as ENMO, MAD, MIMS, and Counts have all been employed in recent large-scale studies. This study aimed to compare associations with all-cause mortality of the volume and intensity of physical activity when derived from four different measures (ENMO, MAD, MIMS and Counts) in two large cohorts – Whitehall II and UK Biobank – where combined associations with mortality of PA volume and intensity generated from the ENMO measure have previously been demonstrated.

Methods: Accelerometer-assessed volume (Average Acceleration, AvAcc) and intensity distribution (Intensity Gradient, IG) were derived from ENMO, MAD, MIMS and Counts. Higher values of IG indicate a larger proportion of PA accumulated at higher intensities. Associations with mortality were estimated using Cox Proportional Hazards models.

Results: 3,733 (25.1% female, median (IQR) age 68.3 (64.7, 73.8) years) and 89,848 (56.4% female, 63.5 (56.3, 68.6) years) participants were included from Whitehall II and UK Biobank, respectively. Median (IQR) follow-up was 11.0 (10.7, 11.3) and 8.0 (7.5, 8.5) years, with 563 (15.1%) and 3,656 (4.1%) deaths, respectively. Patterns of associations with mortality were largely consistent between measures. Irrespective of measure, the lowest mortality risk was for those high (above the median) in both AvAcc and IG (Range of hazard ratios in Whitehall: 0.59-0.68; in Biobank: 0.55-0.61, reference: low AvAcc / low IG). IG was associated with lower mortality risk, irrespective of AvAcc, measure or cohort. AvAcc was associated with lower mortality irrespective of IG or measure in Biobank only.

Conclusion: Associations of Average Acceleration and Intensity Gradient with mortality are broadly consistent across common epoch summary measures, with some inconsistencies in numerical estimates and relative impacts of volume versus intensity of physical activity. These findings support a fair, but not strict, comparability of activity-health findings across studies using different epoch summary measures.

II-P-D.12

Beyond Cut-points: Using Advanced Statistical Approaches to Refine the Understanding of the Associations between Accelerometer-measured Physical Activity and Body Mass Index

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Purpose: Traditionally, cut-point methods have been used to classify accelerometer data into broad intensity categories, but the lack of standardization across calibration studies has limited the comparability and interpretation of the findings. The activity intensity distribution has emerged as an alternative approach to fully exploit the rich and high-resolution accelerometer data while going beyond the lack of consensus on cut-points. Commonly-used analytical approaches, such as linear regression, are not suited to handle the complex nature of the entire intensity distribution; therefore, advanced statistical analysis across the lifespan are needed. This study aims to evaluate whether analysing the activity intensity distribution, rather than cut-point-derived intensities, provides insightful information on the associations between movement behaviours and body mass index (BMI) across the lifespan.

Methods: Accelerometer data from four cross-sectional studies in Norway and Belgium were analysed (n=7112, 3–90 years, 53% female). Associations between movement behaviours and BMI were investigated using linear regressions for the cut-point approach, and functional data analysis (FDA) as well as multivariate pattern analysis for the activity intensity distribution, in six different age groups (preschoolers, children, adolescents, younger adults, middle adults and older adults).

Results: Time in physical activity (PA) and sedentary behaviour (SB) varied substantially by the cut-point applied (e.g., in children: $SB_{Evenson} 438.8 \pm 57.5$ vs $SB_{Romanzini} 477.4 \pm 57.3$ vs $SB_{Puyau} 597.2 \pm 55.8$ min/day, $P < 0.001$). SB was associated to a higher BMI in children and adults, while moderate to vigorous intensity was associated with a lower BMI. However, the magnitude of associations varied considerably depending on the cut-points used. FDA and multivariate pattern analyses showed that these associations within the SB range, were mainly driven by the time in zero counts, and that the minimum PA intensity associated with a lower BMI decreased with age (e.g., 989 vs 450 counts/15s in young and older adults, respectively).

Conclusion: FDA and multivariate pattern analysis provide a detailed picture of PA and BMI associations across the lifespan, overcoming the limitations of cut-points. These approaches enhance comparability between studies and reveal specific associations that may be masked by traditional cut-points, supporting their use in future accelerometer-based research.

II-P-D.13

Integrating Wearables and Ecological Momentary Assessment for Multimodal Monitoring of Children's Movement and Digital Behaviours: The ReDiKid Study

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Purpose: Children's movement behaviours and digital media use interact throughout the day and shape their stress regulation, recovery, and resilience. However, these behaviours are usually assessed separately or with limited temporal resolution. Wearable devices offer opportunities to monitor experiences continuously, but proprietary processing restricts transparency and comparability. The *ReDiKid* study leverages raw accelerometer and beat-to-beat interval data from a Garmin watch and integrates these signals with smartphone analytics and ecological momentary assessment (EMA). This multimodal approach enables high-resolution examination of how movement behaviours, digital engagement, and stress relate in everyday life.

Methods: Two hundred children aged 9–11 years will participate in a two-week ambulatory monitoring. Movement behaviours and heart rate variability will be continuously recorded using a *Garmin vivoactive* watch. A custom-built app, *Garçon* (developed using Garmin's SDK), captures raw accelerometer (25 Hz) and beat-to-beat interval data while simultaneously streaming processed metrics such as stress level and step count. In parallel, the *eBehave* app monitors smartphone patterns (e.g., screen time, app use). Both data streams are processed via the *HealthReact* platform, which delivers gamified EMA surveys capturing experiences, stress, sleep, and context. Surveys are initiated through a hybrid sampling strategy combining time-based prompts with event-based triggers activated by changes in stress level or behavioural and digital-activity patterns.

Results: The study will demonstrate the feasibility of integrating multimodal, real-time data streams from wearables, smartphones, and EMA into a unified framework for child behavioural research. The dataset will provide

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high-resolution insight into short-term, bidirectional relationships between movement behaviours, digital media use, sleep, and stress. By linking continuous physiological and behavioural signals with in-the-moment self-reports, the study will offer a resource for identifying context-sensitive markers of resilience and opportunities for just-in-time adaptive interventions.

Conclusion: The *ReDiKid* study establishes a novel methodological infrastructure that combines continuous wearable sensing, smartphone analytics, and EMA. This multimodal approach enables observation of how children's movement behaviours, digital media use, and momentary experiences interact in daily life, providing a foundation for future resilience-promoting interventions.

II-P-D.14

Conversational Nutrition: The Enhancement of Dietary Assessment with an AI-driven Chatbot

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Purpose: Accurate dietary assessment is essential for personalized nutrition. However, traditional methods such as questionnaires are often burdensome and fail to sustain user engagement, resulting in unreliable data. Digital tools, including large language model-based systems, offer new opportunities to improve both assessment quality and user experience. The Nutri+ questionnaire is a validated, web-based tool for estimating habitual intake, but faces usability and engagement challenges. To address these, we developed an AI-driven chatbot that assesses habitual dietary intake through natural conversation. This study evaluated the chatbot-based dietary assessment and compared its usability, user-experience, and engagement with the questionnaire.

Methods: A mixed-methods, co-creation design consisting of three phases was employed among healthy adults. In phase one, user evaluation (n=6) of the Nutri+ questionnaire was conducted using the User Experience Questionnaire (UEQ; range -3 to +3) and User Engagement Scale-Short Form (UES-SF; range 1-5) to identify areas for improvement and guide chatbot design. In phase two (n=24), engagement techniques - nudging and gamification - were tested against a generic version of the chatbot using the UES-SF. In the final user-testing phase (n=35), a user-driven and system-driven chatbot are being evaluated using the UES and Chatbot Usability Questionnaire (range 1-5). Participants also provided qualitative feedback through open-ended questions, and quantitative metrics, like total session duration, were recorded.

Results: In phase one, the Nutri+ questionnaire scored highest on dependability (1.50/3.00), indicating a sense of control over the interaction, but lowest on novelty (-0.25/-3.00), suggesting limited innovation. Users reported confusion about portion sizes, frustration with the reporting interface, and fatigue. Overall engagement received an average score of 3.83/5.00. In phase two, both nudging and gamification yielded similarly high engagement (4.04/5.00 and 3.99/5.00, respectively), outperforming the mixed version (3.41/5.00). Consequently, both techniques were incorporated into two chatbot versions. Data collection from the final phase will be finalised in November 2025.

Conclusion: This chatbot represents a first step toward an innovative approach to dietary assessment. Incorporating nudging and gamification techniques can enhance engagement and retention, and potentially improve long-term adherence and data quality. These results indicate that Chatbot-based dietary assessment is a promising alternative to traditional self-report methods.

II-P-D.15

Effectiveness of the Click2Move Multi-component Intervention at Reducing Sedentary Behaviours in the Home-office

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Purpose: Office workers spend up to 66% of their day sitting. There has been a drastic increase in home-office working, which has been shown to further increase sitting time compared to the office environment. Existing research has focused on examining the effectiveness of interventions to reduce sitting time in a traditional office setting. This study investigates the effectiveness of the 12-month multi-component Click2Move intervention at reducing sitting time in home-office employees.

Methods: The evidence and theoretically informed Click2Move intervention included a wrist-worn device, phone application, educational material and organizational support and was delivered for 12 months. The primary outcome was occupational sedentary time, with physical activity behaviors as secondary outcomes and were measured using the activPAL^{3TM} at baseline, three, six and 12 months. Differences between groups in the change from baseline, at 3-, 6-, and 12-months for all outcome variables were estimated by fitting a linear mixed-effects model. Time, group, and their interaction were included as fixed effects, age, gender, and country included as covariates, and participant and company as random effects. Changes were examined across home office and traditional office settings, and during work hours and non-work hours.

Results: A total of 156 (46 male, 114 female) participants were recruited at baseline, with 134, 110 and 78 participants included at 3, 6 and 12-month time points respectively. The participants had a mean age of 39.8 years (SD=11.5) and an average of 2.8 days (SD=1.2) days working from home. Preliminary analysis showed significant differences between intervention and control groups in time in sedentary bouts of 30-60 minutes in duration between baseline and three months (Intervention = +11 minutes vs. Control = -7 minutes). No additional significant differences for any of the physical activity behaviors across all measured days were identified. Further analysis investigating physical activity and sedentary behaviors on home-office days, traditional office days, workdays and non-workdays will be finalized and reported at the conference.

Conclusion: A long-term multi-component digital intervention impacted sedentary bout accumulation in the intervention group with further analysis on home-office and office days pending.

II-P-D.16

Developing a Multidimensional Taxonomy for Physical Behavior Metrics: A Scoping Review

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Purpose: Progress in monitoring techniques have led to more advanced metrics that provide richer information about how, when, and under what circumstances physical behaviors occur. The major challenges in physical behavior research are the lack of structure to organize and interpret these metrics, and the inconsistencies in terminology and computations. Such issues hinder comparability across studies and conclusions about physical behavior patterns and health. Hence, this review aims to develop a standardized taxonomy for transparently reporting metrics.

Methods: Studies applying accelerometer-derived physical behavior metrics were identified across PubMed and Embase databases. To include advanced metrics beyond summary volume-based measures, a two-stage screening was conducted. Besides the basic study characteristics, metrics and their characteristics such as data pre-processing, raw inputs, metric definitions and calculations were also extracted. Duplicate metrics were removed, and identical or similarly defined metrics were merged. A systematic method adapted from previous study was followed to develop the taxonomy consisting of definition-based dimensions for describing and assessing physical behaviors metrics, and those characteristics under each dimension. Conceptual-to-empirical and Empirical-to-conceptual iterations were proceeded until the characteristics under each dimension were mutually exclusive and exhaustive.

Results: A total of 734 metrics were extracted from the 308 included publications consolidated into 181 independent metrics for constructing taxonomy. The taxonomy comprises as follows: Temporal scope captures the time scale over which metrics are analyzed, ranging from short bouts to long-term cycles such as yearly patterns. Intensity representation refers to how physical intensity is expressed or derived, like cadence-based, energy-expenditure-based and postural classification. Computational complexity describes the number of processing steps required to compute a metric from raw signals. Applicability indicates whether metrics are designed for general use or tailored to specific populations or contexts, such as age- or condition-specific measures.

Conclusion: This taxonomy serves as a standardized tool that supports the structured and transparent description of physical behavior metrics with different dimensions. It provides a common framework for defining, computing, and comparing metrics across studies, and lays a conceptual foundation for future standardization and development of advanced behavior metrics.

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II-P-D.17

Physical Behavior during School Days and Physical Education: Results from the MoMo 2.0-Study

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Purpose: As children and adolescents spend a large proportion of their time at school, schools represent an important setting to provide opportunities for an active school day. Previous studies have primarily focused on the intensity of physical activity during school days and in physical education by combining accelerometry with diary data. The present study aims at providing a holistic perspective on the physical behavior—such as sitting, stair walking, moving, walking, and running—for both total school days and physical education among children and adolescents from a nationwide sample in Germany.

Methods: Children and adolescents aged 4–17 years from the MoMo 2.0 Study wore ActivPal4 accelerometers on their right thigh for eight consecutive days and completed a daily diary noting times spent at school and during physical education. Raw accelerometer data were combined with the diary entries using the open-source ActiPASS software with age-adjusted cadence thresholds for walking to derive context-specific behavioral and intensity classifications. Only days where participants entered a school-specific time period were included in the analysis.

Results: A total of 1089 children and adolescents (male = 529 (48.6%) female = 560 (51.4%) age = 11.4 (3.1)) provided information about their school days on 4239 days with valid accelerometer data. Data processing has been completed, and the plausibility check will be finished by December 2025. The results of the analysis will present sex- and age-specific findings on time spent in different physical activity intensities, such as light and moderate-to-vigorous physical activity, as well as time spent in physical behaviors including sitting, standing, walking, running, and stair walking during a school day and during physical education.

Conclusion: The sensor-based recording and detailed analysis of the holistic perspective on physical behavior during a school day offer a wide range of new insights into the behaviors of children and adolescents. Additionally, challenges of data processing e.g. combining self-reported diary data with device-based measured data will be discussed. These results can help guide the school environment towards promoting a physically active and healthy lifestyle.

II-P-D.18

Device-measured Physical Activity and Sedentary Behaviour Patterns and their Associations with Cardiometabolic Health: A Systematic Review and Meta-analysis

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Purpose: Cardiometabolic diseases are a leading driver of mortality. We've long known that physical activity and sedentary behaviour are key modifiable lifestyle factors for prevention. But this knowledge may have a blind spot. While most of the literature assesses total volumes, the daily pattern, how we sequence, interrupt, and accumulate activity and sitting, may be an important factor for cardiometabolic health. However, previous research has primarily focused only on total volumes. This systematic review is the first to comprehensively synthesize evidence on patterns of device-measured physical activity behaviour, and their associations with cardiometabolic health outcomes in adults.

Methods: We conduct a systematic review following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement. With an information specialist, we developed database-specific search strategies in four databases (MEDLINE, Embase, CINAHL, and Web of Science). Search strategies combined controlled vocabulary and free text across four domains – physical activity behaviors, patterns, devices, and cardiometabolic outcomes. Eligible studies are observational studies among adults (≥18 years) that use an objective device to measure at least one physical activity behaviour pattern metric, capturing its sequencing, timing, variability, and accumulation. Eligible outcomes include cardiometabolic biomarkers (e.g., glucose, lipids, blood pressure, adiposity), composite risk scores, and incident disease/mortality.

Data screening, extraction, and risk-of-bias assessment (using Joanna Briggs Institute tools) will be performed by pairs of reviewers. We will conduct a structured narrative synthesis and, where sufficient homogeneity exists, random-

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effects meta-analyses and meta-regressions. The certainty of evidence will be assessed using the GRADE approach.

Results: A total of 23,854 records were identified (MEDLINE= 5,077; Embase= 8,734; Web of Science= 7,379; CINAHL= 2,664). De-duplication, screening, and data extraction are ongoing. The findings will be organized by pattern metrics and outcome domains. Our primary synthesis will focus on identifying which movement patterns demonstrate the strongest associations with different cardiometabolic health outcomes.

Conclusion: This review will provide the first synthesis of how daily movement patterns are consistently associated with cardiometabolic health. Our findings will inform metric selection, the development of pattern-specific public health guidelines, and the identification of pattern-related intervention targets.

II-P-D.19

Assessing the Temporal Relationship between Free-living Physical Activity and Affect in Adolescents: A Feasibility Study during the School Day

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Purpose: Poor mental health among adolescents is a global concern due to its rising prevalence. Physical Activity (PA) has the potential to mitigate negative affect and enhance positive affect. However, the environment and the social context may influence this relationship and require further investigation. EMA and accelerometry can provide data on affect and PA, respectively. Although school time is often excluded from adolescent studies due to concerns that data collection could cause disturbance and may not be feasible, evidence is needed to determine if such methods can be implemented during school time. The purpose of this study is to explore the feasibility of using ecological momentary assessment (EMA) and wrist-worn accelerometry, including during school hours, to investigate the relationship between physical activity and affect in adolescents.

Methods: A total of 55 adolescents (55% female) from a state secondary school were enrolled in this study. EMA prompts were delivered to participants' mobile phones for 7 days, 5 times per day (Emmodie lab app) to assess affect and social context. During the same 7 day period, participants wore an accelerometer (GENEActiv set at 100 Hz) to record PA. The criteria adopted for valid assessments were: ≥ 15 EMA prompts answered, and ≥ 4 accelerometer wear days, including one weekend day with ≥ 16 hours/day.

Results: EMA adherence averaged 74%, with school-time prompts reaching 86% of total response. The criterion of at least 15 answered prompts was met by 89% of the sample. For PA, 92% of the participants had at least 4 valid days, and 75% completed all 7 days. Taken together, 76% of participants provided valid data for both PA and EMA.

Conclusion: EMA and accelerometry, including during school hours, is feasible to investigate affect and PA in adolescents. These methods should be used in a larger study to provide better guidance for tailoring PA interventions aimed at enhancing wellbeing during adolescence.

II-P-D.20

Online Dietary Reporting for Adults with Type 2 Diabetes: Developing a Protocol to Detect and Manage Potentially Fraudulent Responses

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Purpose: Online research is an effective method to reduce research costs, access diverse or hard to reach populations, and support rapid data collection. However, online research increases exposure to bot generated and fraudulent/imposter responses, threatening data integrity and wasting research funds. Researchers conducting an online observational study assessing feasibility and acceptability of digital dietary reporting in adults with diabetes observed suspicious response patterns following social media recruitment. The objective of this research is to develop a protocol to differentiate genuine from fraudulent responses.

Methods: Participants were asked to complete six online Research Electronic Data Capture (REDCap) surveys, an

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online food frequency questionnaire (FFQ) and two fourday (digital and traditional paper-based) food diaries. eGift cards reimbursed participants. Participants accessed the surveys via a public link. Initial recruitment was from a database of previous research participants, followed by social media posts. Estimated basal metabolic rate (BMR) was calculated using the Mifflin-St Jeor equation and compared to Goldberg cutoffs (physical activity level=1.55) to flag FFQ missreporting. Suspicious indicators included nonAustralian or invalid phone numbers, placeholder or mismatched postcodes, rapid survey completion time, inconsistent reporting, and implausible FFQ reported energy intakes. Three or more indicators flagged suspicious, potentially fraudulent responses.

Results: Of 161 respondents who consented, 80 completed the FFQ, 47 completed two food diaries. Of participants completing two food diaries, 39 completed records were flagged as suspicious (64% ≥ 3 suspicious indicators and 26% ≥ 5 indicators). No responses prior to social media recruitment were flagged suspicious. In responses following social media recruitment (n=43), median FFQ energy intake was 25280 kJ/day (71% under/overreporters), compared to 8270 kJ/day (25% under/over-reporters) pre-social media promotion (n=4). Twenty-six percent completed the FFQ in less than half the median time.

Conclusion: Careful planning of online recruitment, survey design, fraud detection and management in online research is essential for protecting data integrity, upholding ethical research practices, and reducing the burden of fraudulent responses on researchers. Strategies must also be balanced to minimise participant burden. The protocol to detect suspicious response can inform recruitment and fraud detection in future online/digital nutrition research.

II-P-D.21

A Novel Approach Aiming to Reduce Overestimation of Self-reported Physical Activity Levels: SKIP-Questionnaires

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Purpose: Accurate measurement of physical activity (PA) is essential for evaluating intervention effects, but remains challenging. Although self-report questionnaires are feasible in large scale studies, they are known to substantially overestimate PA compared to accelerometry. In this study, a novel approach using routing formulas in an online version of the Short Questionnaire to Assess Health-enhancing Physical Activity (SQUASH) is presented and tested. We hypothesize that incorporating automated routing algorithms will reduce misreporting and improve convergent validity with accelerometer data.

Methods: Baseline data were used from three trials: CARE-FIT (n=356) and OncoActive (n=430), including cancer patients, and Active4Life (n=722), including adults aged ≥ 50 years. In OncoActive, participants completed either a paper-based (n=141) or online (n=289) SQUASH. Active4Life participants completed the online SQUASH. CARE-FIT participants completed an adapted online version incorporating multiple routing formulas (SKIP-SQUASH). In all trials, PA was objectively assessed using ActiGraph accelerometers. Convergent validity, extreme-group validity, and mean differences between self-reported and accelerometer-based moderate-to-vigorous PA (MVPA) were calculated per dataset and compared across SQUASH versions. Independent t-tests were conducted to compare misreporting between questionnaire formats ($p < .05$).

Results: In OncoActive and Active4Life, self-reported PA substantially exceeded accelerometer-based PA. Mean overestimation of MVPA was 569 min/week (paper-based) and 574 min/week (online) in OncoActive, and 597 min/week in Active4Life. Based on these findings, the SKIP-SQUASH was developed and implemented in CARE-FIT. Baseline measurements of the CARE-FIT study are currently completed. Comparative analyses will determine whether the SKIP-SQUASH reduces absolute overestimation and improves correlations with accelerometer-based PA compared to traditional SQUASH formats.

Conclusion: This study addresses an important issue in PA research: systematic overreporting in self-report questionnaires. Incorporating routing formulas and accordingly restructuring questionnaire flow enables more efficient navigation through online self-report PA questionnaires. By skipping irrelevant questions, it is expected that this approach leads to improved validity and reduced overreporting of PA levels. If this approach is effective for the SQUASH questionnaire, the routing-approach could also be applied to other online PA questionnaires to enhance measurement accuracy.

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II-P-D.22

Machine Learning Models for Predicting Free-living Activity Type from Raw Accelerometry and Heart Rate in Children

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Purpose: Predicting activity type (e.g., lying down, sitting, walking, running) is important for understanding what types of activities children engage in and for evaluating the effectiveness of built environment interventions to improve physical activity. While previous work has demonstrated high classification performance (>80%) for predicting children's activity types in semi-structured settings using accelerometry, more work is needed to evaluate classification performance across more granular activity types in free-living children. Including heart rate (HR) data may aid this pursuit. This study evaluates the performance of raw accelerometry and beat-by-beat HR data to predict granular activity types in free-living children compared to direct observation.

Methods: Children (n=85, mean age 8.5 ± 1.8 yrs, 38.8% female, 69.4% White) wore a research-grade accelerometer (ActiGraph GT9X) on their non-dominant wrist, and a chest-placed, research-grade HR monitor (Actiheart 5) while attending a day of summer camp. Children's activities were directly observed by trained research assistants using the SOSpan observation system. Activities were categorized into 13 activity types (e.g., Enrichment [arts and crafts, board games, watching a movie while sitting or standing], Kickball [any variation of a game of kickball], Circle Games [games played in a circle formation e.g., parachute games]). Random Forest (RF) and Support Vector Machine (SVM) classifiers were trained on 70 time-domain, frequency-domain, correlation, and angular features derived from raw accelerometry and HR by analyzing 60-second sliding windows to predict activity type at the second level. Leave-one-subject-out cross validation was used to evaluate model performance.

Results: A total of 486,139 observations were evaluated. RF and SVM exhibited low overall classification performance (weighted average F1 score: 51.7% and 50.4%, respectively). For RF, F1 scores ranged from 0% (Football, Kickball) to 83.1% (Enrichment, the majority class). For SVM, F1 scores ranged from 0.5% (Circle Games) to 81.7% (Enrichment).

Conclusion: Findings suggest RF and SVM models trained on features derived from raw accelerometry and beat-by-beat HR data were limited across more granular activity types in free-living children. More work is needed evaluating machine learning approaches and features that capture the distinct movement patterns associated with these activity types.

II-P-D.23

Psycho-social and Behavioral Associations of Perimenopause Symptom Burden: Study Protocol and First Results of a Needs Assessment for a Just-in-Time Adaptive Intervention

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Purpose: Perimenopause involves hormonal, physiological, and psychosocial changes that may negatively affect well-being and may increase the likelihood of unhealthy lifestyle behaviors, thereby elevating chronic disease risk. Despite its considerable public health relevance, this life phase remains underrepresented in behavior change research and interventions. This project aims to develop and evaluate a theory- and evidence-based Just-in-Time Adaptive Intervention (JITAI) for women in perimenopause, focusing on healthy dietary behavior and physical activity. The current research presents the study protocol and preliminary findings from the needs assessment phase.

Methods: The project follows a participatory, multi-phase development process guided by the Intervention Mapping framework, comprising three work packages.

WP1: Needs Assessment. A mixed-methods approach is used to identify psychological, behavioral, and social determinants of well-being and health behaviors during perimenopause. This includes (a) a quantitative cross-sectional survey (completed; reported here), (b) establishment of a participatory expert group of women from

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the target population and stakeholders, and (c) an upcoming qualitative study exploring facilitators and barriers to healthy behaviors. Project (a) was co-developed with women to ensure relevance and acceptability. Purposive sampling aimed to approximate the educational distribution of women in Switzerland.

WP2: Intervention Development. Findings from WP1 will inform a logic model of change and the selection of theory- and evidence-based behavior change methods to design the tailored JITAs.

WP3: Implementation and Evaluation. The mobile-delivered JITAs will be evaluated in a micro-randomized trial assessing feasibility, engagement, and proximal behavioral outcomes.

Results: A total of 531 women aged 40–60 years participated in project (a) ($M_{age} = 48.9 \pm 6.3$; 62% low-to-medium education, 38% high education). Findings indicate substantial heterogeneity in symptom burden and behavioral adaptations. Overall, 41.8% reported weight gain during perimenopause. Approximately one quarter reported intentional changes in dietary behavior and/or physical activity in response to menopause.

Conclusion: This needs assessment provides an empirical and participatory foundation for the stepwise development of tailored JITAs to support healthy lifestyles and well-being during perimenopause. These findings represent the first phase of the project, informing subsequent qualitative research and the co-creation of diverse intervention components across the remaining work packages.

II-P-D.24

Timing Is Everything: Collecting Data to Develop Data-driven Digital Self-management Support for Hip and Knee Osteoarthritis

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Purpose: Clinical guidelines recommend a stepped-care strategy for patients with hip and knee osteoarthritis (OA), starting with self-help approaches. However, the implementation of stepped-care remains limited. Digital self-management interventions have the potential to empower people while taking an active role in their OA management. Within the rapidly evolving field of digital health technologies, there is a growing need for solutions that adapt to individual patient needs over time. Artificial Intelligence (AI) offers new opportunities to deliver a personalized, just-in-time self-management intervention for people with OA. The development of such AI algorithms is limited due to a lack of rich, longitudinal datasets. Therefore, the objective of this study protocol is to collect data to develop data-driven models that support personalized recommendations on the optimal timing of self-care programs for individuals with hip and/or knee OA.

Methods: This prospective cross-over study aims to include 600 people with hip and/or knee OA, meeting the NICE criteria (ClinicalTrials.gov registration: NCT07423858). We aim to specifically include a subset of people with limited digital health literacy. Participants will be recruited across the Netherlands and will get access to the OsteoArthritisCoach. The OsteoArthritisCoach is a digital platform designed to collect data and to support behavioral change in OA with three self-care programs (i.e., physical activity promotion, weight management, and sleep optimization). Each participant will complete all three 12-week programs and one 12-week control period in a randomized sequence. The primary outcome for model development will be physical functioning over time. Secondary outcomes will be pain and participation. Additional measures include patient characteristics, physical activity, sleep, psychosocial factors, behavioral determinants, and engagement. The data will be used to develop models using supervised (causal) machine learning.

Results: This study protocol will provide data to develop data-driven models that forecast changes in physical functioning over time and support personalized recommendations on the optimal timing of specific self-care programs (physical activity promotion, weight management, and sleep optimization) for people with hip and/or knee OA.

Conclusion: These models will be integrated into a newly developed self-management app, the OsteoArthritisCoach version 2, to deliver just-in-time, personalized behavioral recommendations.

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II-P-D.25

Assessing Satisfaction with the App-based Global Adolescents and Child Physical Activity Questionnaire (GAC-PAQ) among Spanish Children, Adolescents, and Caregivers

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Purpose: The Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ) is a recently developed app-based questionnaire aimed at assessing physical activity in young populations. User satisfaction is a key determinant of acceptability in digital health tools, particularly among children and adolescents. The purpose of this pilot study was to assess satisfaction with the digital version of the GAC-PAQ among children/adolescents and their parents in Spain.

Methods: A descriptive and analytical cross-sectional pilot study was conducted with 64 participants, including children and adolescents (8–17 years) and their parents/guardians, recruited from two regions in Spain (i.e., Seville in the south and the Basque Country in the north), representing both rural and urban settings. After completing the digital GAC-PAQ, participants rated their overall satisfaction using a five-point emoji-based Likert scale, coded from 1 (lowest) to 5 (highest satisfaction).

Group comparisons of satisfaction scores were conducted according to participant type (children/adolescents vs. parents), age group (children vs. adolescents), sex, and geographical context (rural vs. urban). To compare groups, the Wilcoxon test or Kruskal-Wallis tests were applied, with statistical significance set at $p < 0.05$.

Results: Overall satisfaction with the digital GAC-PAQ was high across the total sample (4.62 ± 0.58). Non-parametric analyses revealed no statistically significant differences in satisfaction based on sex or generational group (children, adolescents, and parents). However, participants from rural areas reported significantly higher satisfaction than those from urban areas (4.78 ± 0.49 vs. 4.47 ± 0.62 ; $p = 0.020$). Similarly, satisfaction was significantly higher among participants from Seville versus the Basque Country (4.81 ± 0.40 vs. 4.44 ± 0.67 ; $p = 0.013$).

Conclusion: The findings support the high user satisfaction of the digital GAC-PAQ across diverse age groups, sex and locations, indicating broad usability. Although satisfaction remained consistently high across all participant subgroups, the statistically significant variations observed in urbanicity, and territorial origin suggest that geographic and sociocultural contexts may be associated with digital engagement. Consequently, while the tool demonstrates excellent overall acceptability across diverse settings, future large-scale implementations could explore these minor contextual nuances to further optimize adaptation and refine the user experience.

II-P-D.26

Development and Validation of an mHealth Nutrition and Lifestyle Education Package for Obesity Risk Reduction in Nigeria; A Digi-BB Trial Protocol

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Purpose: The rising prevalence of Obesity among young people underscores the need for sustainable lifestyle interventions for weight reduction and overall health improvement. There is a lack of comprehensive, culturally-relevant, simplified and digitally compatible educational materials tailored for low-income settings. This study describes the systematic development and validation of a comprehensive mHealth educational curriculum designed to support a planned RCT intervention for young adults living with Obesity in Nigeria

Methods: A structured and visually-stimulating educational curriculum comprising 48 lessons was designed to be delivered twice every week, with accompanying quiz, reflections and monthly tasks. The nutrition module, accounting for one-third of the contents covered aspects of food literacy, portion control, ultra-processed foods, and emotional eating, while physical activity and other lifestyle behaviours were substantially integrated. During the formative development stage, a Delphi approach was employed within the Nutrition Drive for Healthy Diet (NDDI) network

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to preliminarily strengthen the curriculum's quality. The refined version was then forwarded to experts and pilot participants for content and face validation, respectively. The selected experts, comprising health care professionals and researchers in related disciplines, and the pilot groups were pooled across all geopolitical zones. A web-enabled validation tool was developed using the Flutter programming framework selected for the mHealth application, allowing validators experience content delivery in a format aligned with the native app environment.

Results: The Delphi panel identified the curriculum's broad scope, strong evidence base, simplicity, and inclusion of ultra-processed food messaging as key strengths. However, reviewers highlighted the need for more nationally relatable examples and stronger alignment between visual elements and educational content. Outcomes of the in-progress content and face validation will be disseminated at the congress.

Conclusion: The mHealth Nutrition and Lifestyle education curriculum offers the potential to provide a feasible and evidence-based approach to supporting young adults' weight-loss journey through the adoption of health-promoting behaviours. The mHealth Nutrition and Lifestyle education curriculum offers the potential to provide a clear, feasible and evidence-based approach to support young adults' weight loss journey through the adoption of health-promoting behaviours. There is a need for rigorous validation and pilot of future intervention packages to strengthen the chances of success.

II-P-D.27

Feasibility, Acceptability, and Self-management Behavior Change Associated with CGM Use in Individuals with Early-onset Type-2 Diabetes

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Purpose: Early-onset type 2 diabetes (EOT2D) is increasing in prevalence and is associated with increased risk of diabetes complications and reduced life expectancy. Poor adherence to self-management behaviors is common among individuals with EOT2D, and few complete standard diabetes education programs. Continuous glucose monitors (CGMs) can support behavioral change and glycemic awareness but are underutilized among adults with EOT2D. This study aims to explore the feasibility and acceptability of CGM use, changes in glycemic awareness, and self-management behavior change among individuals with EOT2D using a CGM for the first time.

Methods: This study is enrolling adults aged 18-40 with a T2D diagnosis in the past 5 years, as documented in the electronic medical record of a California health system, and with no prior CGM use. Participants wear both a CGM and a FitBit watch for 30 days. A follow-up survey and qualitative interview are conducted to assess the acceptability and feasibility of CGM use, changes in glycemic awareness, and self-management behavior change. Qualitative data are transcribed, coded, and analyzed using structured thematic analysis.

Results: N = 14 of 40 participants have completed the study. Participant mean age is 35.4 (SD: 4.2) years, 57.1% are male, 50.0% are Hispanic, and 91.8% reported income that was below the median regional household income of \$100,000/year. Most participants felt confident using the CGM (85.7%), liked it (71.5%), found it easy to use (92.9%) and acceptable (92.9%), and wore it for the expected duration (100% wore ≥75% time). In qualitative interviews, participants reported increased glycemic awareness, improved confidence with self-management behaviors, improved understanding of the connections between diet, physical activity, and glucose, and changes in self-management behaviors (e.g., increased physical activity and healthy eating).

Conclusion: Preliminary findings indicate that CGMs are a feasible, acceptable, and well-liked tool for supporting glycemic awareness and behavior change among adults with EOT2D. Understanding behavior changes associated with CGM use combined with behavioral sensors (e.g., FitBit) will inform the design of optimal CGM-based self-management interventions for this high-risk population.

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E. IMPLEMENTATION AND SCALABILITY

I-P-E.01

Understanding Implementation of Lifestyle Front Offices in the Netherlands: A Qualitative Causal Loop Diagram

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Purpose: A healthy lifestyle is important in the treatment of non-communicable diseases. However, not all healthcare professionals offer lifestyle counseling due to several reasons. In the Netherlands, 23 hospitals have set up a Lifestyle Front Office (LFO) where patients will be guided in changing their lifestyle and when needed are referred to community-based lifestyle initiatives. However, all hospitals face challenges during the implementation process. Some evidence is known about facilitators and barriers for implementation of lifestyle interventions in a hospital setting. The aim of this paper is to identify leverage points for applying implementation strategies by mapping the current system in a Causal Loop Diagram (CLD) in order to better implement LFOs in the Netherlands.

Methods: Both qualitative interviews with healthcare professionals, as group model building sessions with project leaders of different lifestyle front offices were held to map barriers during implementation. The identified barriers were grouped into factors and incorporated into a CLD. These factors were then placed in a connection circle, where researchers examined potential causal relationships between them. Additional factors were added to the CLD when necessary to ensure the presence of feedback loops. The proposed causal links were subsequently reviewed and validated by other researchers.

Results: The following themes were found in the CLD: financial aspects, quality of care within the care pathway of the LFO, organization within the hospital and barriers concerning the target group. Within each theme leverage points were identified.

Conclusion: The current study highlights the importance of a systems perspective on implementation of interventions within a hospital setting. Implementers of LFOs can use the results to better understand where they could intervene in the system for a more sustainable implementation.

I-P-E.02

Do Effective Implementation Trials Receive Long-term Follow up and Does Effect Sustain? A Secondary Review of Prevention Programs in the School Setting

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Purpose: Implementing health promoting programs in the school setting is a common approach to encourage physical activity and balanced nutrition early in life. However, if we are to improve population health, we need to ensure effective implementation is a precursor to long term delivery. This review uses innovative methods to explore program sustainment of effectively implemented programs and quantitatively assesses sustained implementation effect, in the school setting.

Methods: The sampling base of effectively implemented programs were sourced from a Cochrane systematic review of controlled implementation trials in schools (Wolfenden et al 2022). To identify follow-up studies, we conducted systematic forward citation searches of eligible trials in PubMed, SCOPUS, and Google Scholar. Eligible follow-up studies needed to collect comparable measures, at least 6 months after implementation supported ended and report findings quantitatively. Screening and data extraction were performed in duplicate. Long-term effect was calculated using a standard mean difference score for controlled studies, or a percentage of effect in intervention only follow-up.

Results: Citations relating to 23 effective implementation trials, produced 5483 unique papers for screening. Six studies were identified that had collected comparable effect data at a follow-up time (six months post implementation). Three studies addressed physical activity, two focused on nutritional behaviours and one targeted tobacco use. Four studies reported results compared to a control group. Four re-assessed implementation measures and two individual behavioural outcomes only. Sustained implementation effect was 51% to 122%, with a median of 76% (IQ1=56%, IQ3=107%).

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Conclusion: This review shows few effectively implemented programs reported on sustained effect using the same rigorous methods as the implementation trial studies. It also suggests that effective implementation of school health programs can sustain some effect over time. However, the small and heterogeneous sample restricts our capacity to interpret or generalise these findings. To address this persistent gap, researchers should plan, conduct and disseminate trial findings at timepoints at least 12 months after implementation support has ended using comparable methods and rigor used during the trial. When synthesised, such findings can inform future program design to support the sustainment of effectively implemented programs.

I-P-E.03

Community Health Nurses' Acceptability of a New Sleep Intervention Supporting First-time Parents on Infant Sleep: A Mixed-methods Process Evaluation from the Bloom Study

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Purpose: This ongoing process evaluation explores community health nurses' (CHNs) perceptions of acceptability of a new sleep intervention and its implementation strategies during the first year of implementation. The sleep intervention is part of the multicomponent Bloom Study and is integrated into the Danish community health nursing system to promote healthy weight development among infants and toddlers in first-time families in Denmark.

Methods: A convergent mixed-methods design combines focus groups and questionnaire data to obtain a comprehensive understanding of CHNs' perceptions of acceptability. This study is innovative in applying the Theoretical Framework of Acceptability (TFA) alongside a mixed-methods design to explore community health nurses' acceptability of the intervention components and implementation strategies in a real-world context. Both the interview guide and questionnaire are developed using the TFA, covering seven constructs of acceptability.

Two focus groups were conducted with CHNs from two Danish municipalities participating in the Bloom Study, with at least one additional group planned for 2026. Qualitative data will be analyzed using reflexive thematic analysis within an abductive approach, iterating between empirical data and TFA constructs to identify both theory-driven and emergent insights. The questionnaire, designed to quantitatively assess the seven TFA constructs, will be distributed to all participating CHNs (n = 134) in January 2026, and descriptive statistics will summarize acceptability scores. Integration of qualitative and quantitative findings will be guided by the TFA through a side-by-side joint display with meta-inferences.

Results: Preliminary qualitative findings identified three main themes influencing CHNs' perceptions of the sleep intervention's acceptability: (1) Need for knowledge and tools, (2) Believing in effectiveness, and (3) Confidence gained through training and guidance. The intervention was perceived to address a clear practice gap by providing evidence-based knowledge and concrete tools, fostered positive experiences with families, and strengthened CHNs' confidence through training and implementation support.

Conclusion: Preliminary results suggest that the sleep intervention was well-received and perceived as relevant, feasible, and supportive of CHNs' professional practice. Structured implementation support and opportunities for competence development appear central for sustaining engagement and ensuring successful integration into the community health nursing system.

I-P-E.05

Process Evaluation of a Randomised Controlled Trial Aimed at Improving Health Behaviours and Vitamin D Status during Pregnancy: Implementation of the SPRING Trial

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Purpose: Globally, approximately 44% of pregnant women are affected by overweight or obesity. Maternal adiposity can adversely affect the health of the mother and her offspring, including increased risks for pregnancy complications and non-communicable diseases later in life. The Southampton PRenancy Intervention for the Next Generation (SPRING) evaluated two interventions to improve women's nutritional status during pregnancy: the behaviour change intervention 'Healthy Conversation Skills' (HCS) and vitamin D supplementation. This process evaluation aimed to assess the implementation of these interventions.

Methods: A total of 717 pregnant women were recruited from a maternity hospital in Southampton, UK, and randomised in a two-by-two factorial design. We collected quantitative data through questionnaires, case report forms, and audio recordings. We assessed the intervention's fidelity, dose, and reach descriptively. Using multiple linear regression models, we assessed HCS' effectiveness on diet quality, measured by a Food Frequency Questionnaire, and self-reported overall physical activity in participant subgroups.

Results: Our findings show that both interventions were delivered with high fidelity and participant compliance. The SPRING trial achieved a high retention rate (92%), however, women of lower socioeconomic status and those with less healthy behaviours were more likely to discontinue their participation. Women from ethnic minorities and those living in deprived areas were underrepresented among trial participants. During the Healthy Conversations, most women identified physical activity as their primary behaviour for change, while fewer focused on improving dietary quality. The dietary quality of these women did not show improvements but there appeared to be a marginally beneficial effect on physical activity, with the largest difference observed between the control group and participants with the highest exposure to Healthy Conversations (adjusted difference 0.16 SD (95%-CI -0.03; 0.34)).

Conclusion: This process evaluation offers insights to inform the interpretation of trial outcomes and the design of behaviour change and supplementation interventions during pregnancy. Engaging pregnant women in changing dietary behaviour proved more difficult than encouraging changes in physical activity. This might reflect both the challenges of diet-related change during pregnancy and the influence of unsupportive food environments. We also highlight the persistent difficulties in involving women from deprived backgrounds and ethnic minority communities in research.

I-P-E.06

Fostering Movement: A Feasibility Study of a School-based Intervention for Primary Children in Bangladesh

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Purpose: Physical inactivity among children is a growing concern, particularly in Bangladesh. Globally only 10.3% of primary school children meet the 24-Hour Movement Guidelines. This study aimed to assess the feasibility, acceptability, and preliminary effectiveness of a school-based active play (AP) intervention designed to enhance all three components of movement behaviours among primary school children.

Methods: The pilot study was conducted at a selected primary school, involving 24 children recruited with the consent of their parents and teachers. Over four weeks, participants engaged in one-hour AP sessions twice a week after school. An orientation session for parents and teachers promoted AP during and after school, emphasising the use of safe outdoor spaces. Movement behaviours were assessed using structured questionnaires, the Global Physical Activity Questionnaire for Children (GPAQ-C), and waist-worn ActiGraphs over a seven-day period. Feasibility was evaluated through participation rates, achieving a retention rate of 75% (18 out of 24 children) by the endline assessment. Acceptability was measured through feedback collected via Likert scales and structured questionnaires. Intervention fidelity was maintained through the use of logbooks, fidelity checklists, and direct observations.

Results: Initial assessments revealed that 52.0% of participants engaged in active play for 30 to 60 minutes, while 41.7% reported less than 30 minutes of playtime. Endline results indicated a significant improvement in AP duration, with 36.8% now participating for 30 to 60 minutes and 55.6% engaging in AP for 60 to 120 minutes ($p < 0.05$). This shift reflects a statistically significant increase in both the frequency and duration of AP among participants. Feedback indicated high enjoyment levels, particularly for competitive activities, although some children expressed a preference for same-gender group formations. Parents recognised the positive impact on their children's PA levels but noted time management challenges, advocating for the integration of active play opportunities during school hours.

Conclusion: Despite discomfort with ActiGraphs in humid weather, the overall findings support the feasibility and acceptability of the intervention.

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I-P-E.07

Adapting Primary Care-based Physical Activity Interventions: Protocol for a Sequential Exploratory Mixed Studies Review Using Topic Modelling

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Purpose: Physical activity interventions hold the potential to improve physical health and contribute to non-communicable disease prevention. However, these often need to be contextually tailored and adapted to clinic contexts and patient populations. Implementation researchers and clinicians lack clear guidance on how to adapt these interventions and what the most effective adaptation strategies are for their contexts. This review aims to assess the scope and effectiveness of strategies used to adapt physical activity interventions in primary care. The review will be guided by the question, “What strategies have been used to adapt primary care-based physical activity interventions and with what effect?”

Methods: We will apply a topic modelling approach to conduct a sequential exploratory mixed studies review. We will identify English and French primary studies and trial protocols from PubMed, Embase, CINAHL, and CENTRAL. Eligible articles describe and evaluate implementation strategies focused on adapting primary care-based interventions that promote physical activity or decrease sedentary behaviours among adults (aged 18-65) at risk of non-communicable disease. Topic modelling, an unsupervised learning method for analyzing text data, will be applied on eligible articles. This method employs Latent Dirichlet Allocation (LDA) to determine the probabilities of articles associated with given themes and how they relate in network graphs. We will use the Expert Recommendations for Implementing Change (ERIC) taxonomy for categorizing the strategies identified into themes. We will then use the Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) framework to assess the effectiveness of strategies in terms of these dimensions.

Results: We expect to identify a range of strategies used to adapt primary care-based physical activity interventions. We found 47/73 ERIC strategies related to adaptation, of which we generated 102 terms to enable relevant mapping of topic distributions using LDA. We identified 816 unique records on PubMed. Using this test dataset, the preliminary LDA model produced visualizations of implementation outcome measures and intervention groups, including in rural communities.

Conclusion: To our knowledge, this is the first review of adaptation strategies used in primary care. Implementation scientists and primary care providers may consider these for effectively adapting physical activity and other health behaviour interventions to different settings, including underserved communities.

I-P-E.08

Burnley Outdoor Town: Operationalising a Cross-sector Vision for Physical Activity and Wellbeing through Place-based Implementation

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Purpose: The primary purpose of the study was to understand how system partners co-created the conditions for lasting physical-activity behaviour change at population level. It addressed three key research questions:

How do multi-sector partnerships develop a shared vision that aligns across agendas?

What mechanisms enable implementation and scale within a complex local system?

How can practice-based evidence inform wider policy on sustainable systems change?

Innovation lies in the use of developmental evaluation and realist methods within an applied setting to produce insights meaningful to both practitioners and policymakers, bridging the divide between real-world learning and academic evidence.

Methods: A developmental, practice-led evaluation was conducted between 2021 and 2025. Data were gathered from partnership workshops, reflective learning sessions, interviews with local leaders, and analysis of strategic documents. A realist-informed approach was used to identify context-mechanism-outcome (CMO) patterns explaining how system alignment and shared vision emerged. Iterative sense-making sessions ensured findings were tested and refined with stakeholders in real time.

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Results: Implementation produced both mechanistic insights and system-level outcomes:

1. System coherence and shared purpose: partners co-created a collective vision and cross-sector strategy, positioning the outdoors as a policy and wellbeing asset.
2. Distributed leadership and embedded capacity: new funded roles and governance structures were established within local organisations.
3. Policy and investment alignment : the Outdoor Town vision became integrated into Burnley's Strategic Plan, Cultural Framework, Green Infrastructure Strategy.
4. Relational learning infrastructure: the Forum evolved into a self-sustaining learning network, fostering iterative practice, evidence generation, and shared accountability.

Conclusion: This learning highlighted both the potential and the challenges of developmental, practice-led research in complex systems. While this approach generated timely insights that directly shaped local strategy and investment, it also operated within policy environments that often prioritise quantitative evidence and standardised metrics. Demonstrating impact through traditional measures proves difficult, as learning and adaptation occurred in real time rather than through fixed endpoints. Additional challenges included managing shifting system boundaries, sustaining engagement across sectors. Yet these tensions became part of the learning process itself, illustrating that when evidence and action evolve together, evaluation can strengthen the culture of collaboration that underpins long-term systems change.

I-P-E.09

Outcomes of a Community-engaged Implementation Mapping Process to Design Equity-focused Implementation Strategies for Universal School Meals

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Purpose: Improving child food security and dietary intake among low-income, racial and ethnic minority populations can mitigate inequities in chronic disease risk such as obesity, diabetes, and cancer. Universal School Meals (USM) policies in the U.S. allow schools serving low-income populations to provide free breakfast and lunch to all students, showing promise for improving health and education outcomes. However, implementation challenges—such as stigma and funding constraints—persist. To address this issue, this study aimed to 1) engage in an Implementation Mapping process in collaboration with a low-income urban school district in the United States, and 2) collaboratively design implementation strategies grounded in health equity principles.

Methods: In the 2024-2025 academic year we began a pilot hybrid type III implementation-effectiveness trial with 4 schools in the School District of Philadelphia (2 intervention, 2 waitlist) and our community advisory board. Intervention schools formed implementation teams of teachers, staff, students, and parents and completed several Implementation Mapping tasks: (i) conducted needs and assets assessment and identify adopters and implementers, (ii) identified implementation outcomes, equity-related performance objectives (iii) created equity-driven implementation strategies, and (iv) produced implementation protocols; strategies were operationalized according to the Implementation Strategies Applied in Communities compilation.

Results: Across both intervention schools, we engaged 19 participants (3 teachers, 2 food service, 2 parents, 2 administrators, 10 students) and 10 district/external staff in the mapping procedure. Strategies developed by intervention schools included Identify Champions (teachers and/or students as ambassadors), Engage Community Members (menu promotion), Use Formal Agreements with Partners (food educators), Change Adaptable Program Components (new flavors), Create Program Guide (implementation protocols), and Facilitate Implementation (technical support). School teams and researchers collaborated to develop equity-focused evaluation protocols to examine potential impact on equitable implementation and health impacts of USM.

Conclusion: By integrating structured, theory-based methods with genuine community partnership, this approach provides a replicable roadmap for other public health and education settings seeking to close the gap between policy and equitable practice. Future phases of this hybrid trial will assess not only the effectiveness of the strategies but also their scalability, sustainability, and impact on reducing disparities in food security and health outcomes among vulnerable youth.

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I-P-E.10

Implementation Strategies Applied in Communities Matching Process (ISAC Match): Expanded Guidance and Case Study

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Purpose: Limited guidance exists on feasible processes for selecting and tailoring implementation strategies in community settings. The recently developed Implementation Strategies Applied in Communities (ISAC) compilation includes a pragmatic matching process (ISAC Match). The purpose of this study is to expand on ISAC Match by providing additional detail and a case study example.

Methods: ISAC Match includes four steps: 1) reviewing available information on intervention integration and conducting contextual inquiry, if needed, to understand barriers and facilitators; 2) identifying existing implementation strategies used in the implementing organization, 3) using ISAC guidance tools to select relevant implementation strategies to overcome barriers and capitalize on facilitators; and 4) tailoring strategies to fit within the setting. These steps are completed with health equity considerations in mind to ensure that implementation strategies are designed to improve adoption, implementation, and maintenance in ways that seek to narrow health disparities. This study applied the ISAC Match process to select and tailor implementation strategies to increase Montana State University Cooperative Extension Agents' adoption of built environment approaches that facilitate physical activity. This was conducted through an Integrated Research-Practice Partnership composed of Agents and researchers.

Results: Step 1: A previous contextual inquiry study and a "walking vote" were used to prioritize barriers facilitators. Step 2: A facilitated discussion was used to identify existing implementation strategies to overcome barriers. Step 3: Potential implementation strategies following the ISAC guidance tool were reviewed. Twelve were selected and rated for importance and feasibility on 5-point Likert scales. Five strategies had mean ratings of 4.0 or higher for both feasibility and importance; they were consolidated into three implementation strategies to test (technical assistance, guidebook, and funding support). Step 4: A brainwriting premortem activity was used to tailor strategies; most suggestions aimed to improve feasibility, were related to modifying content, and were fidelity consistent.

Conclusion: The case study presented here describes the use of ISAC Match in one community setting with one type of intervention. Future work is needed across settings and interventions to determine whether the strategies selected through ISAC Match are effective in improving adoption, implementation, and maintenance.

I-P-E.11

Using Implementation Science to Assess Stakeholders' Perspectives on the Innovation, Implementation, and Sustainability of an Enhanced Home Delivered Meal Program (Meals+)

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Purpose: Nutrition insecurity and social isolation are public health priorities among older adults. Meals+, an enhanced home-delivered meal program (HDMP), augments traditional Meals on Wheels of RI (MOWRI) services with monthly supplemental grocery bags and community health worker calls to address these problems. Understanding baseline contextual factors is critical for intervention implementation planning and sustainability. This study explored stakeholders' perspectives on Meals+, including barriers and facilitators, using implementation science frameworks.

Methods: We conducted baseline qualitative interviews with five internal stakeholders (MOWRI) and 12 external stakeholders. Transcripts were coded using a deductive-inductive thematic analysis approach. Data analysis and interpretation were guided using the Practical, Robust Implementation and Sustainability Model and the Consolidated Framework for Implementation Research, focusing on inner/outer settings, innovation characteristics, and implementation and sustainability infrastructure domains. Stakeholders also completed an adapted Program Sustainability Assessment Tool (PSAT) survey assessing organizational capacity across sustainability domains.

Results: Regarding innovation characteristics, internal stakeholders broadly viewed Meals+ as a natural extension of

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traditional HDMPs. Most stakeholders emphasized the intervention's perceived fit and relative advantage, particularly its potential to enhance socialization and supplement existing community services. Concerns were raised about potential duplication with other grocery delivery programs.

Internal stakeholders expressed strong enthusiasm and readiness, citing a dedicated internal team, integration with existing organizational services, and mission alignment as key facilitators. Outer setting factors included the political and financial climate and revealed mixed perceptions among stakeholders. Stakeholder recommendations for implementation and sustainability included establishing robust case management systems, coordinating cross-sector partnerships and communication among community partners, and forming advisory committees. Stakeholders also advocated tailoring grocery delivery based on in-person or telehealth assessments of participants' needs.

PSAT findings supported qualitative themes. Across combined stakeholder responses, adaptability (mean = 6.06), communication (mean = 6.09), and strategic planning (mean = 6.08) were rated highly on a 7-point Likert scale, while funding sustainability scored moderately (mean = 5.61).

Conclusion: Findings reveal facilitators, including strong organizational readiness and enthusiasm for Meals+, alongside the perceived positive impact of the innovations. Embedding sustainability strategies early — leveraging internal strengths and addressing external financing barriers — will be essential for long-term success.

I-P-E.12

Implementing Produce Prescriptions for Adults with Type 2 Diabetes: A Multi-site Qualitative Study Guided by the Exploration, Preparation, Implementation, Sustainment (EPIS) Framework

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Purpose: Socioeconomic inequities shape access to healthy foods and diabetes outcomes. To address this, Produce Prescription (PPR) programs, which allow clinicians to “prescribe” fruits and vegetables to patients experiencing food insecurity, show promise but remain under-studied from an implementation science perspective. This multi-site qualitative study applied the Exploration, Preparation, Implementation, Sustainment (EPIS) framework to identify contextual factors influencing feasibility, fidelity, and sustainability of PPR delivery within the Pathway for Produce Prescriptions in Type 2 Diabetes (PPPT2D) initiative.

Methods: Pre- and post-PPPT2D implementation interviews were conducted with clinic and community-based partner leadership and staff at five sites throughout the U.S. (n=13 pre; n=18 post). Semi-structured moderator guides explored EPIS phases. Transcripts were analyzed thematically using both inductive and deductive approaches.

Results: Key themes aligned with EPIS phases.

Exploration: Partners recognized the urgent need to address diet-related diabetes disparities and viewed PPR as a tangible “food-as-medicine” strategy. Motivation stemmed from community demand and prior success with PPRs, yet outer-context barriers such as complex IRB processes, contracting delays, and fragmented funding created early uncertainty.

Preparation: Building inner-context capacity was essential. Sites developed electronic referral workflows, staff training, and coordination systems but cited turnover and limited protected time as persistent challenges. Bridging relationships with food access partners (e.g., farmer networks, grocers) enhanced readiness through shared logistics planning.

Implementation: Program delivery required ongoing adaptation. Clinics navigated workforce instability, complex data-sharing, and variable participant engagement. Success hinged on having a “PPR champion,” building and sustaining strong partnerships between multisector collaborations with aligned priorities, and compensating dedicated PPR staff.

Sustainment: Partners emphasized integrating PPR processes into standard workflows (e.g., embedding referrals into electronic medical records) and advocated for mechanisms to ensure long-term funding. Many planned to leverage outcome data to maintain and adjust relevant partnerships and scale implementation.

Conclusion: Applying the EPIS framework showed that sustaining PPR programs depends on strengthening inner-context infrastructure (staffing, leadership engagement), streamlining outer-context systems (funding and regulatory alignment), and supporting bridging relationships that anchor multisector collaboration. EPIS provided a useful lens for understanding how PPR programs can be implemented and scaled as equitable, systems-level approaches to diabetes management.

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I-P-E.13

Physical Activity Intervention Development and Evaluation: A Five-step Plan Applying Multi-process Action Control

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Purpose: There is a pressing need for effective theory-based interventions that promote the initiation, sustained engagement, and long-term maintenance of physical activity (PA). Although intervention development frameworks suggest grounding interventions in behaviour change theory, practical guidance on how to do so remains limited. This paper presents a five-step plan to harmonise the use of behaviour change theory in intervention development and evaluation, conceptually aligned with established intervention development frameworks, and illustrated using Multi-Process Action Control (M-PAC) as an example. M-PAC explains and predicts how PA is initiated, enacted, and maintained over time through three interrelated processes (reflective, regulatory, and reflexive).

Methods: A critical review of the literature was conducted to examine intervention development frameworks, guidance on theory use in intervention design, and reviews of theoretical approaches to behaviour change. Through iterative synthesis, the review team reached consensus on what is commonly addressed (e.g., calls for greater conceptual and methodological innovation in health behaviour change research) and what remains absent (e.g., explicit steps for operationalising theory in intervention design) across frameworks and theories. Drawing on these findings, a five-step plan was developed to guide researchers in grounding interventions in behaviour change theory and applied to M-PAC.

Results: The five step plan consisted of: (1) Formative Research: understanding behavioural context and behaviour science theory in relation to population and context, (2) Design: selecting behaviour change techniques mapped to reflective, regulatory, and reflexive processes, identifying mode-of-delivery, and developing an M-PAC logic model, (3) Assessment: selecting and testing validated M-PAC measures and ecological momentary assessment items. (4) Process Evaluation: examining fidelity, mechanisms, and context, including qualitative M-PAC exit interview guides, and (5) Knowledge Mobilisation: translating evidence into practice and policy. Each step embeds integrated knowledge transfer with knowledge users (e.g., participants, practitioners, educators, clinicians, and policymakers).

Conclusion: The five-step plan provides a standardised and practical approach for the development and evaluation of M-PAC-based interventions and may inform the development of approaches for other theoretical frameworks. The plan advances intervention science by bridging theory and practice through a systematic, theory-driven, and adaptable process that strengthens theoretical fidelity, reproducibility, and real-world impact.

I-P-E.14

Implementation of a Lifestyle Front Office for Obstetrics and Fertility Patients and Gastroenterology Patients in a Dutch Hospital: A Process Evaluation

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Purpose: A lifestyle front office (LFO) was set up in a Dutch hospital, a new care model that refers hospital patients towards community based lifestyle initiatives (CBLI). The implementation of this new care model was investigated in the current study, in the care pathway of obstetrics and fertility (Gyn) patients on one hand and Gastroenterology (GE) patients on the other hand.

Methods: We conducted a mixed methods process evaluation using the UK MRC guidelines. Quantitative data was obtained from patients electronic health records, patients and healthcare professional (HCP) questionnaires. Qualitative data was obtained via patients and HCP questionnaires and interviews. A semi-structured interview guide was used and analyzed deductively using a pre-defined codebook that followed the structure of the interview topic guide.

Results: The study showed the following results according to the UK MRC guidelines. *Context:* 32% of patients visiting the GE and Gyn department reported at least one unhealthy behavior. *Recruitment:* Patients heard about the LFO mainly via their health care professional (79.8%) and Health care professionals were familiarized with the LFO via

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their colleagues (73.7%) or via presentations at their department (52.6%). *Delivery*: 56.6% of patients were referred to a CBLI and 78% worked on their lifestyle behavior, as discussed with the lifestyle broker. 78% of HCPs discussed the LFO with their patients. *Reach*: 868 patients were referred to the LFO from March 2022 till December 2024, with 780 first consults. 122 unique HCPs referred patients to the LFO. *Mechanisms of impact*: Patients rated the conversation at the LFO with an 8.0. HCPs scored the LFO as important and therefore should continue well into the future.

Conclusion: This study highlights the potential of an LFO in a hospital setting. Future research should further investigate implementation strategies on referral of patients to the LFO and objectively investigate effectiveness for behavioral change.

I-P-E.15

Expert Insights on High-quality Multi-site Data Collection on Physical Activity Behaviours: A Preliminary Analysis

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Purpose: Physical inactivity remains a significant public health concern globally. To inform evidence-based practice and policy, high-quality data on physical activity behaviours (i.e., prevalence, trends and determinant identification) is required. Harmonised multi-site data collection (MSDC) allows for larger, comparable datasets to be analysed, thereby increasing study power and the reliability of findings, helping to inform national and international policy and practice. However, difficulties in co-ordinating MSDC arise from differences in planning and implementation of approaches across sites. This study aimed to gather expert insights into factors influencing high-quality MSDC of physical activity behaviours.

Methods: Semi-structured online interviews were conducted with experts who have led large-scale MSDC for physical activity behaviours. Experts were identified through a systematic search of relevant projects, and invited via email to participate in a 60-minute interview. Interviews were audio-visually recorded, transcribed verbatim, and coded using MAXQDA. A reflexive thematic analysis was used to identify common themes and patterns.

Results: Twelve experts were interviewed between May and October 2025. Most were part of multi-site studies across Europe (n=6), four had experiences with global MSDC, and two had experience with MSDC within one European country. Key facilitators of high-quality data collection included team confidence, in-person collaboration, thorough training, and pilot testing. Research fatigue emerged as a recruitment barrier, with experts highlighting the importance of creating a supportive environment for data-collection to encourage participation. Data collection methods varied (online vs paper-based), however, were often processed centrally. Multi-level quality checks and various researcher-based resources (i.e., videos, stepped guides) were found to support data quality. Experts emphasised the importance of flexibility, back-up plans to mitigate challenges, and the presence of trained senior staff during data collection. Finally, establishing clear guidelines for handling ethics applications, dissemination of findings, and decision-making hierarchies can facilitate effective multi-site collaboration.

Conclusion: This study provides practical insights into challenges of conducting MSDC. Findings support the development of procedures to ensure consistency and quality in MSDC. Further providing practical guidance for future large-scale public health studies, promoting harmonised high-quality data to better inform interventions and policy.

I-P-E.16

Using Implementation Mapping to Optimize Health Impacts of the Universal School Meal (USM) Provision in a Low-income, Urban School District: An In-depth Qualitative Analysis

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Purpose: Childhood obesity and food insecurity disproportionately impact Black and Latino students in Philadelphia, United States. Universal school meals (USM) serve as a first line of defense for students facing hunger. Despite this, uptake remains low across the district. Community-led interventions and strategies are an underutilized approach but may yield a more sustainable impact on addressing food insecurity. The aims of this study were to: 1) engage in a structured implementation mapping process with a diverse array of school and district representatives grounded in implementation science and health equity frameworks and 2) understand the key constraints and supports of implementation mapping through policy implementer and recipient perspectives.

Methods: Within a hybrid type III implementation-effectiveness trial, we recruited 4 schools (2 intervention, 2 waitlist) to engage in the mapping process. Meetings covered tasks 1-4: task 1) needs assessment, 2) identify objectives, 3) select strategies, and 4) prepare implementation plan over 4-5 planning meetings in partnership with school food service, students, parents, teachers, and administrators of each school. Transcripts were coded deductively using the Exploration, Preparation, Implementation and Sustainment (EPIS) and Getting to Equity (GTE) frameworks and inductively by the research team.

Results: We engaged 19 participants (3 teachers, 2 food service, 2 parents, 2 administrators, 10 students) and 10 district/external staff in the mapping procedure. Qualitative extracts (N=3042 codes) were primarily coded to Culture (n=132) from the EPIS framework and Increase Healthy Options (n=178) from the GTE framework. Code relations analysis between both frameworks highlighted factors such as school and district operations and social drivers of health among school communities that impact equitable USM implementation. Inductive coding yielded four primary themes of communication, social structure, autonomy and decision making, and infrastructure/material barriers, with subthemes to highlight the facilitators and barriers to implementation mapping and changing USM on a systems level.

Conclusion: Engaging school and district partners is an essential step for building lasting change in health of underrepresented communities. We engaged a diverse array of representatives in implementation mapping and facilitated development of implementation strategies. This is one example of how community-partnered research can be leveraged to produce long-lasting change in school systems.

I-P-E.17

Development of a Nutrition Care Pathway for Individuals with a History of Gestational Diabetes Mellitus: Preliminary Results

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Purpose: Gestational diabetes mellitus (GDM) affects around one in ten pregnancies in Canada and has lasting health impacts. While nutrition counseling is provided for GDM-complicated pregnancies, no systematic postpartum follow-up is available in the province of Quebec, despite evidence that a healthy diet is essential to prevent type 2 diabetes and cardiovascular disease. The project aims to: 1) develop and implement a nutrition care pathway for individuals with a history of GDM; 2) evaluate the implementation of the nutrition care pathway using indicators to report on feasibility, adoption, and acceptability.

Methods: A nutritional consultation within a hospital setting is being offered to 500 individuals ≥ 18 years who have been diagnosed with GDM and given birth at the CHU de Québec. At 2 months after the estimated due date, participants complete a web-based 24-hour dietary recall (R24W) and other web-based questionnaires (eating practices, perceived risk, self-efficacy), followed by a nutrition consultation (in-person or via teleconsultation). At 6-months postpartum, participants complete the R24W and the questionnaires again. Implementation is being evaluated by quantitative and qualitative indicators collected through participant questionnaires, feedback and program monitoring.

Results: Since recruitment began (March 2025), postpartum nutrition consultation was offered to 192 individuals at their last nutrition consultation during pregnancy, with 78% (n=149) expressing interest. A total of 116 individuals were reached and 76% (n=90) consented to participate in the project. So far, 30 participants have completed the questionnaires and nutritional consultations began at the end of June 2025. Preliminary results (n=30) indicate that 84% believe they have a low to moderate risk of developing type 2 diabetes in the next 10 years, suggesting lack of awareness. Despite 97% recognizing the importance of adopting healthy eating habits and 83% feeling motivated to do so, postpartum nutrition consultations revealed suboptimal diets. In terms of adoption, 90% chose a teleconsultation

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follow-up, as opposed to in-person, and 63% completed R24W.

Conclusion: Gaps in diet quality and diabetes risk awareness, combined with the absence of systematic postpartum follow-up, highlights a need for structured nutrition guidance. This project is a first step towards implementing a postpartum nutrition care pathway for people with GDM-complicated pregnancies.

I-P-E.18

Sustaining Food Is Medicine Programs: Evidence from Multi-site Food Bank – Healthcare Partnerships across the United States

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Purpose: Food is Medicine (FIM) programs are complex interventions delivered in partnership with healthcare that identify patients with limited income and diet-related chronic disease risk and provide access to nutritious food. Despite substantial investment and promising outcomes emerging globally, evidence on FIM implementation and long-term viability is limited. This study aimed to address this gap.

Methods: A national cohort of twenty-one FIM food bank grantees and their healthcare partners could participate. The abbreviated Program Sustainability Assessment Tool (PSAT) was administered to food bank grantees, which uses a 7-point scale across eight constructs (higher numbers indicate increased capacity for sustainment): Environmental Support, Partnerships, Organizational Capacity, Funding, Evaluation, Adaptation, Communications, and Strategic Planning. The survey also captured implementation strategies used by food banks following standard compilations and included open-ended items. A separate survey was administered to healthcare partners using the comparable Clinical Sustainability Assessment Tool (CSAT) and open-ended questions. All survey terminology was adapted with partners for content validity. Structured notes about implementation successes and challenges from two years of grantee meetings were used to triangulate and supplement survey data.

Results: Twenty food bank grantees and twenty-eight healthcare partners associated with fourteen food banks responded to surveys. The total mean PSAT score was 5.2 (± 0.53) out of a possible 7, ranging from 3.4 (± 1.5) to 6.4 (± 1.1) across food banks. The Environmental Support construct scored highest; Partnerships scored the lowest. Most food banks (81%) reported needing additional resources for FIM implementation/sustainment, including financial ($n=15$), technical assistance ($n=11$), and staffing ($n=7$). All grantees reported providing technical assistance ($n=20$) to support FIM implementation, with many also using fidelity checks and trainings; fewer incentivized staff. The total mean CSAT score across healthcare partners was 5.49 (± 0.60) out of 7. Organizational Readiness for FIM was rated lowest; Engaged Partners was rated highest. Fifteen reported needing additional resources. Implementation notes offered deeper insight into PSAT/CSAT scores from the food bank perspective, including partnership challenges/successes.

Conclusion: Grantee sustainability reports highlighting organizational strengths and challenges to inform planning were shared with food banks. Results offer critical insight into FIM implementation and sustainability opportunities for researchers, practitioners, and policymakers globally.

I-P-E.19

Dose-response Association between Wearables-quantified Incidental Physical Activity and Type 2 Diabetes

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Purpose: To determine the dose-response associations between intensity-specific incidental physical activity (IPA) and the incidence of type 2 diabetes (T2D) among adults in the UK.

Methods: Study participants included adults from the UK Biobank accelerometry sub-study who self-reported as non-exercisers. Participants were excluded if, at baseline, they had T2D, were undergoing insulin therapy, or were diagnosed with T2D within 12 months of follow-up. T2D diagnosis was primarily obtained from self-reports and primary care records. Device-captured IPA duration was categorised into light, moderate, and vigorous (LIPA, MIPA

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and VIPA). Additional analyses determined the T2D-specific equivalence of one minute of VIPA against MIPA and LIPA. The reference group included participants who did not engage in MIPA or VIPA.

Results: The primary analysis included 22,857 non-exercisers (mean age 62.1±7.7 years, 42.8% male). Over a 7.9-year follow-up period, 721 (3%) participants developed T2D. MIPA and VIPA, but not LIPA, exhibited near-linear inverse associations with T2D risk. Median VIPA (4.75 min/day) was associated with a HR 0.62 (95%CI:0.53–0.73), and median MIPA (23.70 min/day) showed a HR of 0.67 (95%CI:0.52–0.86). One minute of VIPA/day was equivalent to the T2D risk reduction of 5.9 min MIPA/day and 54 min LIPA/day.

Conclusion: Both MIPA and VIPA were associated with a lower risk of T2D in a dose-dependent manner, with one minute of VIPA equivalent to 5.9 min of MIPA or 54 min of LIPA. Whilst the median LIPA was associated with a reduced risk of T2D, there was no clear dose–response association.

I-P-E.20

Adapting a Food Retail Evidence-based Program for Latinos Living in Rural Communities: The Nuestro Valor Study

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Purpose: For Latinos living in rural areas of the United States, structural inequities lead to limited access to fresh produce and unhealthy dietary behaviors. To address these gaps, we must accelerate the implementation of effective community-level interventions. Nuestro Valor is a culturally grounded food-retail intervention that promotes produce purchasing and consumption through a stipend to upgrade store (tienda) produce displays, specialized staff training, and a customer-directed point-of-purchase (POP) campaign. Partnering with a community-based organization (Radio KDNA), we adapted the Nuestro Valor intervention to be delivered by community health workers (CHWs) to Latinos shopping in rural tiendas.

Methods: Grounded in the Framework for Reporting Adaptations and Modifications-Enhanced (FRAME), we used convergent mixed methods to inform intervention adaptations. FRAME guides what to adapt, decision-making processes for adaptations, and informs adaptation monitoring and documentation. Radio KDNA CHWs conducted tienda customer and manager surveys while researchers hosted CHW focus groups to interpret survey results and inform intervention adaptations.

Results: Together we completed 100 customer intercept surveys, 13 manager surveys, and 3 focus groups. Nearly 1 in 4 customers used food assistance programs, so we adapted the tienda stipend to support Point of Sale systems that can track produce sales. Ninety-two percent of managers believed staff recommendations influenced customers' shopping decisions, yet 85% indicated staff business was a barrier to offering Nuestro Valor, so we shortened staff trainings, maintaining a focus on customer service and marketing. Managers (72%) and customers (77%) indicated that food demonstrations influenced customers' purchasing; as a part of the POP campaign, we will encourage staff to bundle "ready to cook" meals with healthy food demonstrations. Only one manager had worked with CHWs and the CHWs discussed limited experience working with businesses, so intervention implementation training for CHWs now includes strategies for building relationships with managers and staff.

Conclusion: Our community-engaged approach integrates implementation methods and participatory science to ground the intervention's adaptation and implementation. We are now testing the adapted intervention in a cluster randomized trial with tiendas in Washington State. Other researchers and practitioners could apply the FRAME and our community partnership approaches to adapt evidence-based interventions for new settings or populations.

I-P-E.21

Fueling Station Smoothies as a Real-world, Scalable Strategy to Improve Diet Quality in Division I Athletes

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Purpose: Adequate fruit and vegetable (F&V) intake supports health, performance, and recovery in athletes, yet their diets are inadequate. This study is the first to integrate biomarker verification in a real-world environmental nutrition intervention to increase access to and consumption of F&Vs among NCAA Division I athletes.

Methods: A repeated-measures observational approach evaluated implementation and outcomes of a daily green smoothie intervention on collegiate student-athletes at an NCAA Division 1 university. A total of 70 athletes consented (54% female, 93% white) from 14 sports. Randomization was not feasible due to team schedules and operational constraints typical of athletic programs. Athletes were asked to consume four green smoothies per week offered by the Fueling Station. The primary outcome was dermal carotenoid status assessed using the Veggie Meter®, a validated non-invasive biomarker of F&V intake. Fueling Station records assessed uptake and dose of the implemented strategy; body composition, blood pressure, and heart rate were measured as covariates. Changes in carotenoid status over 12 weeks were analyzed with repeated-measures ANOVA and linear mixed-effects models adjusting for sex and body composition. Associations and between-group differences were examined; pair-wise deletion was used.

Results: Complete data were available for 28 of the 60 final participants (53.9%). Mean Veggie Meter® scores rose significantly over time (baseline, midpoint, and post-intervention), with an average overall increase of 28% ($p < .05$). Greater uptake (e.g., more frequent smoothie consumption per week) predicted larger increases in dermal carotenoid status.

Conclusion: Provision of green smoothies through an on-site Fueling Station increases access to high carotenoid foods and increases overall dermal carotenoid status in Division 1 NCAA athletes. Fueling Stations represent a feasible, scalable platform for nutrition strategies that improve diet quality and support health, performance, and recovery when foods are provided in a palatable and easily consumable form. Improving access to convenient, enjoyable F&V-based options may support dietary behavior change and can be readily scaled by other athletic or institutional settings that support on-site food-provision.

I-P-E.22

A Transmural Allied Healthcare Pathway (TULIP): A Multi-methods Process Evaluation

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Purpose: This study aimed to evaluate the implementation, sustainability, and scalability of the TransmUral Allied healthcare Pathway (TULIP), a six-step transmural care pathway designed to improve collaboration and coordination across hospital, geriatric rehabilitation, and primary care to support recovery, physical functioning, and health behaviors in patients with complex needs after hospital discharge. Given that patients frequently require additional support in relation to nutrition and physical activity following hospitalization, these aspects are embedded within the pathway to facilitate recovery. This study applies a theory-informed, multi-methods process evaluation to a transmural allied healthcare pathway delivered in routine practice, explicitly focusing on real-world implementation and scalability rather than effectiveness alone.

Methods: We conducted a multi-methods process evaluation guided by the RE-AIM framework (Reach, Effectiveness, Adoption, Implementation, Maintenance). Data were collected from allied healthcare professionals, patients, and managers through interviews, focus groups, surveys, and electronic health records. Quantitative outcomes were descriptively and inferentially analyzed, while qualitative data were thematically analyzed. Findings were integrated using triangulation and reflexive team discussions to identify implementation barriers, facilitators, and conditions for scale-up.

Results: Reach indicated that allied healthcare professionals from hospital, geriatric rehabilitation and primary care were willing to participate in the project. Effectiveness analyses showed no significant improvements in perceived collaboration or work performance after implementation. Adoption varied across professionals and settings and was strongly dependent on the implementation researcher in this study while organizational ownership remained limited. Implementation was challenged by the complexity of the intervention and the involvement of multiple allied healthcare professionals from different settings. Maintenance and scalability appeared unlikely under current conditions: without structural embedding in policies, dedicated resources, and integration into routine workflows, engagement declined once external support decreased.

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Conclusion: Implementation of transitional care interventions is feasible when supported by strong organizational commitment, alignment between care settings, and shared ownership among professionals. However, maintenance of TULIP was unlikely under the observed conditions, underscoring the need for structural organizational support, integration into routine workflows, and a clearly perceived need among professionals to achieve sustainable embedding within health systems.

I-P-E.23

Implementation of a Physical Activity Program for Community-dwelling Middle-aged and Older Women in Northeastern Brazil: Evaluation of Effectiveness

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Purpose: Middle-aged and older women are at increased risk of cardiovascular and metabolic diseases and represent the group with the highest prevalence of physical inactivity in Brazil. Community-based physical activity programs are promising strategies to promote health equity and improve physical, mental, and social well-being in this population. This study aimed to evaluate the effectiveness of implementing a physical activity program for community-dwelling middle-aged and older women in northeastern Brazil based on participants' perceptions.

Methods: This exploratory qualitative study was conducted with participants enrolled in a university-supported community-based project in northeastern Brazil. The program offered two supervised exercise modalities (multicomponent training and mat Pilates) delivered twice weekly over 12 weeks to women aged 50-69yrs, using university infrastructure and low-cost resources. Program effectiveness was assessed through focus groups guided by two effectiveness-related dimensions of the RE-AIM framework: (1) unintended negative consequences (i.e., unanticipated outcomes potentially resulting in harm) and (2) qualitative effectiveness indicators, capturing participants' perceptions regarding the extent to which the program achieved its intended benefits. Discussions were audio-recorded, transcribed verbatim, and analyzed using thematic content analysis supported by IRAMUTEQ software.

Results: Thirty-five women (59.6±4.4yrs; 27.7±3.9 kg/m²) participated and were organized into five focus groups. Participants reported reductions in pain and improvements in mobility, sleep quality, and overall vitality. Enhanced social connectedness, positive effects on mood and self-esteem, and a strengthened sense of belonging were emphasized. "Pain" also emerged as an unintended outcome. While often associated with improvement, some participants described discomfort during exercises, incorrect movement execution, or inadequate practice spaces, reinforcing the importance of careful supervision and monitoring. The supportive and welcoming environment fostered by staff and peer relationships emerged as a central facilitator of engagement and adherence. Participants additionally expressed willingness to continue if maintained within the community setting.

Conclusion: The positive evaluation of the program's effectiveness for community-dwelling middle-aged and older women in northeastern Brazil, based on participants' perceptions, underscores its scalability potential within community and university-supported settings. These findings contribute to implementation evidence from a middle-income country context, supporting community-based physical activity initiatives as viable and transferable models for promoting healthy aging.

I-P-E.25

Fidelity and Acceptability of Pregnancy Home Visits in Municipal Practice: A Mixedmethods Evaluation within the Bloom Study

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Purpose: This study explores how community health nurses (CHNs) implement and experience pregnancy home visits within the context of the Bloom Study, a cluster-randomized controlled trial aiming to promote healthy weight development in infants and toddlers in Denmark. By focusing on fidelity and acceptability, the study contributes new insights into the early-phase implementation of a home-based preventive initiative.

Methods: This study is innovative in its use of a convergent mixed-methods design to provide a comprehensive and

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practice-oriented understanding of how CHNs deliver and perceive pregnancy home visits. This design is particularly relevant given that fidelity and acceptability are complex implementation constructs that cannot be adequately captured through a single method. An online survey will be administered to all participating CHNs ($n = 134$) in January/February 2026 to systematically assess fidelity and acceptability across a large and diverse sample. To add depth and illuminate mechanisms behind the questionnaire findings, four focus group discussions with CHNs from four municipalities were conducted between May and August 2025. Survey responses will be analyzed using descriptive statistics in SAS 9.4. Audiorecorded focus groups have been transcribed verbatim and will be examined using Braun and Clarke's reflexive thematic analysis. The quantitative and qualitative results will subsequently be integrated using a sidebyside joint display, enabling comparison of convergence, divergence, and complementarity.

Results: Preliminary qualitative findings point to four central areas shaping CHNs' experiences with the pregnancy home visits: (1) the visits provide access to aspects of family life that CHNs would otherwise not observe, (2) these early insights strengthen the quality and focus of later postnatal consultations, (3) structured dialogue tools help facilitate and guide communication with families, and (4) conducting perinatal depression screening can be difficult when a relationship with the family has not yet been established.

Conclusion: Early findings suggest that CHNs consider pregnancy home visits both feasible and meaningful. The visits appear to strengthen the foundation for postnatal care, although early-stage depression screening may require further support or adaptation. Ongoing integration of mixedmethods findings will clarify how the intervention can be refined to optimize implementation in municipal practice.

I-P-E.26

Implementing a Systems Approach for Physical Activity Promotion in a Japanese Local Government: Co-creation Using a Nine-step Framework and Evaluation Design

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Purpose: Physical inactivity is a major global public health challenge. The Global Action Plan on Physical Activity 2018–2030 (GAPPA) emphasizes that promoting physical activity contributes to multiple Sustainable Development Goals, and requires coordinated action across sectors such as urban planning, transport, education, and the environment (WHO, 2018). The Global Status Report on Physical Activity 2022 highlights the need to strengthen implementation and evaluation at national and local levels (WHO, 2022). However, strong sectoral administrative structures in Japanese local governments often constrain cross-sectoral promotion and integrated evaluation. This study aimed to implement a systems approach in a Japanese municipality (Kanuma City; population: approximately 90,000; area: 490.6 km²) and to explore a locally adapted implementation process and evaluation design integrating the GAPPA framework.

Methods: A participatory action research approach was adopted through collaboration between researchers and municipal officers. The nine-step process for developing system maps and a theory of change (Corr, 2023) was referenced and reorganized to align with the municipal policy process in Japan. For the evaluation framework, perspectives from the Global Status Report 2022 were aligned with a Japanese logic model for physical activity promotion (Inoue, 2024), and a framework linking outputs, outcomes, and impacts was developed.

Results: The nine-step process required contextual adaptation. Policy analysis and problem definition were integrated, and an additional stage, “understanding the system,” was introduced to emphasize stakeholder dialogue. Plans and measures related to physical activity were reviewed across departments, and cross-sectoral workshops were conducted to visualize initiatives and relationships. Although relevant measures existed in multiple departments, they had not been recognized as a unified system. Workshops clarified overlaps and interconnections, highlighting mutual benefits across sectors. Perspectives shifted from viewing physical activity as a single-department responsibility to recognizing it as a cross-sectoral municipal priority. Evaluation discussions revealed a focus on outputs, with limited attention to outcomes. Integrating GAPPA perspectives with the Japanese logic model clarified pathways from outputs to outcomes and impacts.

Conclusion: Implementing a systems approach in Japanese local government requires contextual adaptation and sustained dialogue. Strengthening system understanding and embedding evaluation perspectives from the planning stage may support strategic and continuous physical activity promotion.

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Bridging Policy and Practice: Stakeholder Insights on Early Childhood Obesity Prevention in Primary Healthcare Services

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Purpose: Australian primary healthcare services, including maternal child and family health (MCaFH) and general practice (GP), have near-universal contact with families in early life, presenting significant opportunities for population-level early childhood obesity prevention. Despite this reach, evidence-based practices are not delivered consistently. Using a systems perspective, this study examined MCaFH and GP services to identify drivers of this implementation gap and opportunities to strengthen early childhood obesity prevention at scale.

Methods: A qualitative study was conducted using semi-structured interviews with GPs, Practice Nurses, MCaFH practitioners, service managers, and their policy leads. Participants were recruited through professional networks and purposively sampled to capture diverse perspectives, with additional informants identified via snowball sampling. Interviews (Dec 2024–Sept 2025) were conducted via Microsoft Teams and analysed using reflexive thematic analysis approach.

Results: Thirty-three participants were interviewed (MCaFH n=17; GP n=15; national non-profit prevention agency n=1) across clinical, managerial, and policy roles. Three interrelated themes were identified. First, prevention opportunities vary according to service and funding design. MCaFH is structured to deliver scheduled preventive care, while GP operates under time-limited, fee-for-service models that prioritise acute care, making prevention opportunistic and inconsistent. Second, system fragmentation undermines continuity of care and prevention delivery. Services operate in siloes, referral pathways for at risk children are limited, and messaging on healthy growth, nutrition and physical activity is inconsistent. Third, workforce shortages and high turnover limit prevention capacity by diminishing expertise and relationships needed to engage families on sensitive issues such as obesity. Despite these challenges, participants highlighted opportunities to scale prevention through a skilled primary healthcare workforce and existing evidence-based early childhood obesity prevention initiatives.

Conclusion: This study identified opportunities to strengthen early childhood obesity prevention within routine primary healthcare in Australia. Early childhood obesity prevention is often deprioritised in resource-constrained health systems. Addressing the implementation gap requires structural reform that embeds prevention within funding and service models, improved coordination across services, and consistent messaging on healthy growth, nutrition and physical activity. Scaling evidence-based interventions and strengthening workforce capability with practical, strength-based tools, are essential to improve consistency and impact.

II-P-E.01

Associations between Organizational Practices and Policies and Individual Behaviors in a Faith-based National Implementation Study in the United States

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Purpose: Interventions that change organizational practices and policies can reach large numbers of people and have the potential for substantial public health impact. Churches are an understudied but important community setting for reaching populations at elevated disease risk. In our national implementation study of a U.S. faith-based intervention, we documented favorable organizational- and individual/member-level changes. The purpose of the present study was to examine whether church practices and policies were associated with changes in member health behaviors.

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Methods: This initiative focused on organizational-level outcomes as the primary outcome in 107 churches; however, we also examined member outcomes in a planned subsample. Members (N=511, 57.4±14.4 years, 76% women, 98% African American) from 17 churches completed online surveys before (baseline) and 12-mo after (n=351, 69% retained) their churches were trained online to implement an intervention focused on increasing organizational practices and policies for healthy eating (HE) and physical activity (PA). Members reported their perceptions of the frequency with which they observed these organizational practices (i.e., opportunities, messages, and pastor support) and the presence of policies in their church. They also reported their consumption of fruits and vegetables (cups/day) and engagement in PA (minutes/week). Mixed linear models that accounted for church clustering tested whether organizational practices/policies (baseline and 12-mo) were associated with changes in each of the member-level health behaviors; separate models were conducted for each organizational practice/policy. We report associations with a p-value<.10.

Results: Increased fruit consumption was positively related to baseline messages (p<.0001), 12-mo opportunities (p<.01), baseline pastor support (p<.05), and both baseline (p<.01) and 12-mo policies (p<.05). Increased vegetable consumption was positively related to 12-mo messages (p=.05), 12-mo opportunities (p=.07), and baseline pastor support (p<.05). Increased PA was positively related to baseline messages (p<.001), baseline opportunities (p<.01), baseline pastor support (p<.0001), and 12M policies (p=.07).

Conclusion: We found that church organizational practices and policies were associated with favorable changes in members' HE and PA behaviors. Intervention targets designed to create a healthier church environment, including sharing messages; increasing opportunities before, during, or after church events; enlisting pastor support; and setting policies, appeared important in influencing HE and PA behaviors among church members.

II-P-E.02

Barriers and Facilitators to the Implementation of Sit-Less and Move-More (SLAMM) Interventions within Australian Primary Healthcare Settings

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Purpose: The primary healthcare setting presents a pragmatic setting for embedding interventions that target sitting less and moving more. To identify effective implementation strategies for such interventions, it is necessary to first understand the determinants that drive implementation. We examined the barriers and facilitators influencing the implementation of sit-less and move-more interventions within Australian primary healthcare settings, as perceived by General Practitioners and General Practice Nurses.

Methods: A qualitative descriptive study using individual semi-structured interviews was conducted. Ten General Practitioners and ten General Practice Nurses took part in online individual interviews. Interviews were digitally transcribed and analysed deductively; both the interview guide and analysis were guided by the Theoretical Domains Framework.

Results: All 14 domains within the Theoretical Domains Framework were represented. Predominant barrier domains were Environmental Context and Resources (Domain 11), related to reported time constraints, Skills (Domain 2), relating to a lack of formal training, and Social Influences (Domain 12), reflecting patients' own motivation and resistance to behaviour change. Predominant facilitator domains were Social/Professional Role and Identity (Domain 3), highlighting that both General Practitioners and General Practice Nurses can have a role in implementing sit-less and move-more interventions within primary healthcare, Beliefs about Consequences (Domain 6), relating to the health benefits that exist for patients with healthier movement behaviours, and Environmental Context and Resources (Domain 11), relating to the use of educational resources and the integration of sit-less and move-more assessments within clinic workflow.

Conclusion: Strategies supporting the successful implementation of sit-less and move-more interventions within primary healthcare need to take into consideration: the time constraints; competing priorities; and the lack of training that exists for clinicians. The development of practical resources, including posters and patient handouts, and the integration of an efficient screening tool within practice workflows, may help to facilitate implementation. These findings provide a foundation for future research focusing on the co-design of strategies that could support the implementation of such interventions within primary healthcare.

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II-P-E.03

Scaling up a Community-led Food Access Program: Exploring Barriers and Facilitators in a Rural Setting Using the Consolidated Framework for Implementation Research (CFIR)

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Purpose: Food insecurity remains a significant and persistent public health issue across Canada. This study examined barriers and facilitators to implementing food uniting neighbours (f.u.n.), a co-designed, community-based food access program originally developed for an urban setting, in a new rural context.

Methods: A qualitative study using the Consolidated Framework for Implementation Research (CFIR) was conducted in Centre Wellington, a rural township in Southwestern Ontario, Canada, to understand the barriers and facilitators of implementing the f.u.n. program in a rural context. Fourteen food access programming staff and community champions participated in semi-structured interviews and six community members with lived experience accessing food programs participated in a focus group. Data were analyzed using template analysis to identify barriers and facilitators to program implementation across CFIR's five domains: Innovation, Outer Setting, Inner Setting, Individuals, and Implementation Process.

Results: Barriers to implementing f.u.n. within this rural context included transportation challenges, funding instability, stigma, and fragmented service coordination, issues amplified by the rural context and lack of anonymity. Facilitators included strong community readiness for change, inclusive engagement of individuals with lived experience, and opportunities for advocacy and leadership. Participants emphasized the need for holistic, flexible, and community-driven interventions that address food insecurity alongside other unmet needs.

Conclusion: This study identified key factors and strategies for adapting and scaling up f.u.n. within a rural context, emphasizing inclusive engagement, leadership, and solutions to rural challenges such as transportation, funding, stigma, and equitable participation. Results provide practical guidance for scaling and sustaining co-designed food access interventions in rural settings, helping bridge the gap between research and real-world impact.

II-P-E.04

Promoting Physical Activity among Mothers and Pre-adolescent Daughters: Adapting an Online Program to an In-person Format

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Purpose: Few studies have reported on the adaptation of behavioral interventions from one delivery format to another. Conmigo - Physical Activity is a culturally tailored intervention that promotes physical activity among Latina mothers and their pre-adolescent daughters. This presentation describes the systematic adaptation of the online Conmigo-Physical Activity program—originally delivered by the research team—to an in-person format implemented in elementary schools by YMCA staff.

Methods: Conmigo sessions promote physical activity by targeting parenting strategies, family communication, and mutual support between mothers and daughters. The online Conmigo-Physical Activity program was a randomized controlled trial consisting of twelve 1.5-hour weekly sessions delivered by the research team. The in-person version, implemented through partnerships with schools and YMCAs, employs a Hybrid Type 1—implementation design. It includes ten 2-hour weekly sessions co-led by trained YMCA staff. The adaptation process was informed by iterative input from the scientific team and a Community Advisory Board to ensure cultural and contextual relevance.

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Adaptations were documented systematically using established implementation science methods and focused on modifying session length, delivery format, and examples to align with community partner resources, participant schedules, and local priorities.

Results: Adaptations included adding fitness assessments and structured YMCA staff training to strengthen program fidelity. Implementation in community settings was feasible, and alignment with school priorities supported coordination and recruitment. Participant engagement strategies differed by delivery format. In-person sessions leveraged social interaction, WhatsApp groups for peer support, and group accountability, along with hands-on activities, to promote participation. In contrast, the online format required more intentional strategies to foster connection and sustain motivation, such as incorporating interactive polls and brief movement breaks to maintain participant engagement.

Conclusion: Careful consideration is needed when translating a program from one delivery format to another, particularly regarding the types of activities implemented. Online and in-person formats each present distinct challenges and opportunities. These adaptations highlight the importance of tailoring facilitation techniques to the delivery modality to maintain participant interaction and program fidelity. Lessons learned from this adaptation process can guide future efforts to modify evidence-based interventions across diverse delivery formats to enhance reach, equity, and sustainability.

II-P-E.06

Implementer and Implementation Support Practitioner Needs for Sustaining Healthy Food Retail Practices in Australian Foodservice Settings: Findings from a National Survey

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Purpose: Food outlet practices that support consumers in making healthier food and drink purchases (e.g. healthy product availability and promotion) are key strategies for improving population diets. To have lasting population health impacts, these practices must be sustained; however, evidence on their long-term maintenance in real-world settings is limited. This study explored implementer (e.g. retailers, managers, outlet staff) and practitioner (e.g. health promotion officers, dietitians) perspectives on (i) which healthy food retail practices are typically sustained or discontinued in foodservice context, (ii) key determinants influencing sustainment, and (iii) support needs for sustaining change.

Methods: A national cross-sectional online survey was conducted with implementers and implementation support practitioners. The survey was co-designed with representatives from all Australian state and territory governments. Recruitment targeted government-priority settings (e.g. healthcare food retail, school canteens) and private outlets using Qualtrics panels, professional networks, and social media. Survey items covered outlet characteristics, sustained and discontinued practices, barriers and enablers to sustainment (categorical and ranking), and support needs, informed by previous evidence and the Expert Recommendations for Implementing Change glossary. Data were analysed descriptively, with ranking analyses used to identify priority determinants.

Results: A total of 294 eligible participants completed the survey (222 implementers, 72 practitioners) from all Australian jurisdictions, most commonly Victoria (31%) and New South Wales (22%). Overall, 53% reported at least some healthy food retail practices being sustained over time, and 45% reported discontinued practices. Increasing the range of healthier options was the most frequently sustained practice (n=85), while reducing less healthy products was most often discontinued (n=59). Commonly ranked top enablers were access to healthy food suppliers (33% participants ranking in their top three) and staff motivation (28%), while key barriers were additional costs (23%) and limited supplier access (22%). Subgroup analyses are underway and will be presented.

Conclusion: This is the first national survey to explore implementer and practitioner perspectives on sustaining healthy food retail practices across foodservice settings. Findings highlight the influence of financial and supplier-related factors. Addressing these determinants when designing sustainment supports may help enable long-term transformation of food retail environments and, in turn, support healthier consumer purchasing behaviours.

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II-P-E.07

Reimagining School Meals in Australia: Implementing Australia's First Government Funded Cooked School Lunch Program

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Purpose: Australia's first government funded cooked school meal program was implemented in 30 schools in the state of Tasmania in 2022-2023. Led by non-government organisation School Food Matters in partnership with food security organisation Loaves and Fishes Tasmania and the Tasmanian Departments of Premier and Cabinet and Health the project was a catalyst for reimagining the provision of school meals in Australia. In 2023, 191,968 cooked school lunches were provided to 4,104 students in 30 schools. This evaluation aimed to capture implementation strategies, successes and challenges for this innovative project.

Methods: A developmental evaluation approach was adopted as it supports social innovation and systems change. The evaluation team (N = 7): worked closely with the project implementation team to develop the project logic and evaluation protocol, attended weekly/fortnightly operational project meetings, participated in the project advisory committee, established an evaluation working group, and co-facilitated reflective workshops with implementation team members in 2022 and 2023. Using a qualitative approach, data collection included project and workshop documents, meeting minutes, and interviews with the implementation team and school staff. Data was collated and analysed thematically.

Results: In 2022-2023, 81 school staff and implementation team members were interviewed and two workshops held. Themes representing successful implementation were: A common purpose and shared goal („to feed all children well at school“); Partnerships and collaboration; Flexibility; and Redirection of resources. Themes representing initial challenges were: ‘Thrown in the deep end’ (“There was a lot of anxiety”); Insufficient resourcing; School staff capacity; and Goodwill. The project attracted interest from local and national politicians, media and school food organisations. School and project implementation staff expressed pride at successfully providing children cooked lunches and in late 2023 were focused on expansion and sustainability of the project.

Conclusion: This paradigm shift in food provision in Australian schools generated intense interest and created unanticipated demands on individuals and organisations delivering the program. Successful implementation in the first two years relied on a commitment to the project's shared vision and substantial personal and organisational in-kind support. Transforming school food systems requires multisectoral collaboration and a willingness to challenge the status quo.

II-P-E.08

Preliminary Findings for the Development of a Care Pathway for Individuals with Recent Gestational Diabetes Mellitus: A Qualitative Study

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Purpose: Individuals with a history of gestational diabetes mellitus (GDM) are at high risk of developing type 2 diabetes (T2D) and cardiovascular diseases (CVDs) later in life. Currently, no systematic postpartum follow-up is offered for individuals who have had GDM despite the evidence that T2D and CVDs can be prevented through adequate screening and lifestyle modifications. The overall objective of this study is to develop a care pathway to provide better postnatal care to individuals with a history of GDM (patients) within the healthcare system by mobilizing existing knowledge and

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resources on T2D and CVDs prevention. Specifically, this project aims to 1) identify the needs, facilitators and barriers to the development of the care pathway and 2) co-develop the care pathway and evaluation plan with patients and healthcare providers (HCPs).

Methods: Firstly, based on the Normalization Process Theory, 24 to 30 semi-structured individual interviews (n=12-15 patients and n=12-15 HCPs) will be conducted virtually. The most salient and relevant elements from all interviews will be considered along the best practices identified in the scientific literature to develop a relevant care pathway. Secondly, outcomes for implementation research defined by Proctor et al. (feasibility, acceptability and adoption) and RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) will be included in an evaluation plan. Eight to 16 additional interviews (n=4-8 patients and n=4-8 HCPs) will be conducted to refine the care pathway and evaluation plan.

Results: Interviews have already been conducted with patients who have had GDM during their latest pregnancy (n=7). Preliminary findings suggest a lack of guidance and information post-delivery, with many participants unaware of long-term health risks and preventive recommendations, relying instead on personal research. Participants expressed a need for structured, personalized follow-up soon after delivery and clear lifestyle guidance to overcome barriers such as limited time and motivation.

Conclusion: This study will provide an opportunity to develop inclusive and effective care based on users' needs and scientific evidence. Results would be scaled up to other administrative regions of the province of Quebec (Canada) to improve the care of people with prior GDM to prevent T2D and CVDs.

II-P-E.09

Examining the Role of Community-based Organizations in the Equitable Implementation of Seattle's Fresh Bucks Produce Voucher Program Using REAIM and Food Access Domains Frameworks

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Purpose: The City of Seattle's Fresh Bucks produce voucher program is effective in increasing consumption of fruits and vegetables and food security among its participants. We examine the role of community-based organizations (CBOs) in the equitable implementation of this program.

Methods: Using qualitative methods, we ascertained the experience of 12 CBOs implementing the Fresh Bucks program. We applied the REAIM and Nutrition Food Access Domains frameworks to analyze the data, using deductive coding and thematic analysis. Then, we co-interpreted and integrated the findings with the CBOs.

Results: Thirty-four individuals participated in focus groups. CBOs reached low-income communities of color (e.g., African/African American, Asian/Asian American, Pacific Islander, Latino, Middle Eastern), immigrants and refugees, and older adults. CBOs were located across the city and offered diverse programming, including social services, support groups, food and health programs, and civic engagement. CBOs agreed to adopt Fresh Bucks because they wanted their clients to benefit from it, and it aligned with their mission. Engaging in program implementation increased the CBOs' visibility and trust in community, building organizational capacity. CBOs reported their clients experience improved physical, social, and emotional health, as well as increased personal development in learning and applying their nutrition knowledge to their lives. CBOs increased enrollment by providing accessible locations and using customers' primary language. CBOs increased the usability of the program by providing technical assistance on store locations, card use, troubleshooting errors, and advocating for more culturally relevant and convenient stores. CBOs provided one-on-one support to increase Fresh Bucks usage where technological literacy and language barriers emerged. CBOs mentioned that their reputation and trust with the community were strengthened by participating in Fresh Bucks, thus, all CBOs wanted to continue working with Fresh Bucks. They continued to provide customer feedback to the City to increase the usability of Fresh Bucks for their customers.

Conclusion: CBOs serve a crucial role in equitably implementing Fresh Bucks by increasing accessibility and bridging the city's programming with the program's customers. Local government and organizations seeking to implement healthy food voucher programs should include trusted CBOs to support the equitable implementation and effectiveness of their programs.

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Mechanisms and Contextual Factors for Sustainably Implementing the Dutch Healthy School Canteen Program: A Realist Evaluation Perspective

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Purpose: To promote healthy dietary behaviors among adolescents, the Dutch Healthy School Canteen(HSC)-program aims to make healthier options more easily available, accessible and attractive in secondary schools without restricting students' food choices. Although the program has potential, structural and sustainable implementation remains challenging for schools. This study explores the contextual factors and underlying mechanisms that influence successful and sustainable implementation of the program.

Methods: A qualitative study using interviews and focus-groups was conducted, following 'realist evaluation'-principles to examine barriers and facilitators for sustainable implementation. Data were collected among implementing stakeholders of the HSC-program (interviews, n=28), students (interviews, n=3; focus-groups, n=21) and professionals that support implementation on a national level (focus-groups, n=6). An expert meeting was conducted with specialists in implementation and school food environments to reflect on initial observations (focus-group, n=25). Using a retroductive approach, configurations of contextual factors (C) and underlying mechanisms (M) were identified that led to certain outcomes (O) based on an initial program theory explaining how the HSC-program works.

Results: CMO-configurations around five outcomes were developed: 1) developing a tailored action-plan, 2) sustaining effective leadership roles, 3) continuously involving adolescents, 4) adhering to program guidelines, and 5) maintaining sustained commitment. Some examples were: to achieve outcome 1, action-plans need to be developed with all relevant stakeholders (M), through regular meetings in which transparency and a safe environment for different perspectives are fostered (C). To achieve outcome 2, leaders need to experience trust and autonomy (M), which can be achieved when official school-leaders balance providing freedom and showing involvement (C). To achieve outcome 4, implementing staff need to understand the guidelines and know where deviation is possible (M), which was fostered by guidance of professionals around schools (C).

Conclusion: This study highlights the importance of broadly supported school-policy that includes a clear vision and well-defined roles and responsibilities, while also maintaining flexibility to adjust to changing circumstances. Such an approach not only supports developing action plans; it also fosters other outcomes, such as leadership and adherence of program principles. Ongoing expert guidance to schools to find this balance is essential to achieve sustainable implementation.

II-P-E.11

Adaptive Implementation Strategies for Nutrition Education in Early Care and Education: Preliminary Results from the OptiWISE Trial

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Purpose: Early Care and Education (ECE) settings provide critical opportunities to establish healthy eating habits, yet many centers do not implement evidence-based practices (EBPs) for nutrition education. *Together, We Inspire Smart Eating* (WISE) promotes four EBPs to increase children's intake of carotenoid-rich fruits and vegetables through hands-on learning, educator modeling, and supportive classroom environments. To address variable implementation across settings, we tested an adaptive implementation strategy designed to intensify support only for sites that did not initially respond to low-intensity strategies.

Methods: We used an enhanced non-responder trial design across ECE centers (N=67) implementing WISE. Following an initial implementation period, non-responder sites were randomized to either (a) continue receiving low-intensity support or (b) receive high-intensity support. Sites were classified into six response categories reflecting fidelity patterns over time: (1) maintained early response (responded initially and sustained), (2) regressed (responded initially but did not sustain), (3) late response–low intensity (responded after continued low-intensity support), (4) non-response–low intensity (did not respond despite continued low-intensity), (5) late response–high intensity

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(responded after receiving high-intensity support), and (6) non-response–high intensity (did not respond despite high-intensity support). We examined distributions across categories to characterize response trajectories and assess the added value of intensified support.

Results: Among early responder sites to low-intensity strategies (n=10), 70.0% maintained their early response, while 30.0% regressed. Of sites randomized to continued low-intensity support (n=34), 88% remained non-responders and 12% became late responders. Among sites randomized to high-intensity support (n=23), 43.5% achieved late response and 56.5% remained non-responders. Early responders generally sustained engagement, most low-intensity sites remained nonresponsive, and nearly half of high-intensity sites demonstrated late improvements by year's end.

Conclusion: High-intensity implementation support produced a threefold higher rate of late response compared with continued low-intensity support, highlighting the potential value of adaptive implementation approaches for initially non-responsive sites. Ongoing mixed-methods analyses will identify mechanisms driving response to inform efficient, scalable models that enhance nutrition EBP uptake and sustainability in ECE settings.

II-P-E.12

The 50K4Life Study Community Advisory Board: Bridging Community with Research to Improve Walking Engagement in El Paso, Texas Public School Teachers

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Purpose: Community participation enhances prevention research. This paper provides an overview of the development of a community advisory board (CAB) to inform the 50K4Life study, a walking intervention aimed at public school teachers participating in a clustered Sequential Multiple Assignment Randomized Trial (SMART) in El Paso, Texas.

Methods: We describe the formation of the CAB, the roles of its members, the research team, and examine how this collaborative process contributed to continued engagement. Grounded in community-based participatory research (CBPR) framework, membership was based on word of mouth and identification of key stakeholders in the community.

Results: CAB membership consisted of 27 Hispanic adults aged 30-60, who represented 7 different sectors. Structured monthly meetings, with an average attendance of 13 participants, served as a forum for CAB members to evaluate study materials for cultural relevance, while researchers provided resources consistent with member's expressed interests. Feedback was gathered during these meetings and through asynchronous contributions in shared documents. Over a 15-month period, CAB members participated in the refinement of three sets of study materials. Two members reviewed 196 English, 196 Spanish, and 196 hybrid dual-language messages with suggested revisions for verb tense and language formality. Six members reviewed a group intervention manual, and 16 members reviewed four educational modules, with recommendations for both that emphasized the importance of cultural appropriateness and inclusion of locally sourced imagery. As part of a larger effort to integrate mutuality into the CAB process, researchers shared 13 resources and invited three guest speakers.

Conclusion: The 50K4Life CAB process enhanced community representation, trust, and reciprocal engagement through the integration of study materials that are culturally appropriate for underrepresented populations in El Paso, Texas.

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Canadian Registered Dietitians' Confidence, Facilitators, Barriers, and Resource Needs in Engaging Fathers: A Cross-sectional Exploratory Study

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Purpose: Despite fathers' crucial role in shaping children's diet and diet-related outcomes, they are underrepresented in pediatric nutrition interventions and services, partly due to the limited knowledge on how to engage fathers. Registered dietitians (RDs) are uniquely positioned to engage fathers in pediatric nutrition interventions and services. Our purpose was to explore Canadian RDs' perceived confidence, facilitators, barriers, and resource needs in father engagement.

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Methods: In this cross-sectional study, participants were eligible if they provided direct pediatric nutrition care or services and were able to complete an online Qualtrics survey in English between November 2024 and July 2025. Participants reported their confidence in various aspects of father engagement using a five-point Likert scale (1=not confident at all to 5=very confident) and indicated resource needs to support father engagement from a list of provided options. Participants also provided qualitative written responses on perceived facilitators and barriers to father engagement. Quantitative data were analyzed descriptively using R; qualitative data were analyzed using inductive content analysis and summarized by frequencies representing the number of unique participants who mentioned each theme.

Results: From the 129 (97% female, 91% white) participants, many reported being either confident or very confident in recruiting fathers (85%), encouraging their participation (84%), involving them in strategy development for behaviour change (81%), supporting fathers' success in implementing diet-related strategies (78%) and sustaining behaviour changes over time (75%), as well as retaining fathers in ongoing pediatric nutrition care or services (67%). Only 3% had received prior training in father-engagement practices. The top three selected resource needs were webinars (90%), practice guidelines (65%), and hands-on workshops (32%). From written qualitative responses, common facilitators were fathers' availability (40%), interest in making positive changes (35%), high caregiving involvement (24%), and RDs' recognition of fathers as equal caregivers (17%). Reported barriers included fathers' absence from nutrition services (33%), limited caregiving roles (33%), rigid work schedules (23%), and traditional gendered caregiving norms (17%).

Conclusion: While RDs reported confidence in various aspects of father engagement, few had received formal training in this area. Opportunities exist to promote facilitators and mitigate barriers to father engagement through webinars, practice guidelines, and workshops.

II-P-E.14

The Health Promoting School Research Group Europe: Supporting Knowledge Exchange and Collaboration between Researchers

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Purpose: The Health Promoting Schools Research Group Europe (HPS-RG) is a consortium of researchers and research institutions from the World Health Organization's (WHO) European Region. As the Schools for Health in Europe Research Group (SHE-RG) will cease its activities in late 2025, the HPS-RG will operate independently from 2026 onwards, continuing the work of the SHE-RG. The group's aim is to establish a knowledge exchange community that connects research silos and generates research that meets the needs of schools and their partners.

Methods: The HPS-RG is a group of scholars who are experts in, and interested in further developing, researching and evaluating, relevant issues and approaches to school health promotion. The group is committed to supporting the wider health-promoting schools ecosystem by collaborating with national Health Promoting School coordinators, the WHO, policymakers and other partners. Each year, the two co-chairs develop a working plan to guide the group's activities.

Results: Main activities working plan 2026

1. *Governance and membership.* The group is led by two co-chairs, who report to a steering group comprising HPS-RG delegates. The group is open for HPS researchers from a variety of backgrounds, such as career stage and gender. There is no participation fee.
2. *Online seminars.* Three to four online research seminars will be organised to showcase and disseminate current work from members.
3. *HPS Academy.* A HPS Academy is prepared to support young researchers in school health promotion in developing their careers and expanding their professional networks. Members will collaborate to determine the format and focus of the HPS Academy.
4. *Communication channels.* To improve communication, a website and/or online group will be launched on an existing platform, such as LinkedIn, to increase visibility and engagement.
5. *News.* Members will receive email updates at least three times a year, containing information about activities, events and alerts from research papers by members.

Conclusion: The HPS-RG provides a platform for knowledge exchange among researchers, ultimately supporting the implementation of whole-school approaches in the WHO European Region.

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Understanding Local Adaptation of Nutrition and Agricultural Literacy Programs in the United States

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Purpose: Nutrition and agricultural literacy programs provide research-based education to youth about local food systems. Delivered by Cooperative Extension agents (i.e., community health educators affiliated with United States [US] land-grant universities), these programs aim to translate scientific knowledge into practical applications for diverse populations, fostering community learning and engagement. Extension agents play a critical role in planning and delivering nutrition and agricultural literacy programs, yet little is known about if/how they systematically and/or reactively adapt these programs for delivery.

Methods: Fourteen semi-structured interviews were conducted with Extension agents across Texas, US, to explore their experiences planning, delivering, and adapting nutrition and agricultural literacy programs. One researcher read each transcript, created a written summary, and interview summaries were analyzed using an inductive, thematic approach. Additionally, ChatGPT was used to conduct an independent AI-assisted qualitative analysis that analyzed summaries, generated inductive codes, and identified preliminary themes. The researcher and AI-generated codes and themes were then compared and discussed with the research team to finalize four themes.

Results: Theme 1: A structured but flexible process is used to plan agricultural literacy events. One interviewee reported, “We do yearly planning, but there’s definitely probably a three-to-six-month time frame [planning process] on those, too.” Theme 2: Relational networks and partnerships affect program feasibility and adaptation, influencing content choices (e.g., local commodities) and sometimes constraining program decisions. One interviewee reported, “With the dairy cow program... you’re looking a year out for an opportunity with them.” Theme 3: Informal evaluation and community feedback drive incremental changes. One interviewee reported, “The teachers asked for a longer event, so we’ll try to add more stations.” Theme 4: Program content and delivery are adapted to audience needs and age and emerging extension priorities. One interviewee reported, “You’ve got to structure it around 4th grade and 2nd grade minds, which is difficult to do.”

Conclusion: These findings highlight the complex interplay between the planning process, community relationships, feedback, and audience considerations in shaping nutrition and agricultural literacy programs. Understanding how Extension agents navigate these factors can inform strategies to support program adaptation, optimize resource use, and enhance educational impact across diverse communities.

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Implementing a Food Prescription Program Into a Primary Care Clinic in an Urban Setting in Ontario, Canada

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Purpose: The purpose of this study is to identify barriers and facilitators to embedding a food prescription intervention in Hamilton, Ontario to support people living in food insecurity and with Type 2 Diabetes Mellitus. This study will respond to the following research question: What are the key barriers and facilitators to accessing healthy food for people living with food insecurity in Hamilton (Ontario, Canada)?

Methods: In this study we used an explanatory sequential design (Mixed Methods) with a community based participatory lens. This research design involves the preliminary collection of quantitative data which is followed by collection of qualitative data to deepen our understanding. To collect the quantitative data, we completed a dotmocracy ranking exercise. We then followed-up with focus group discussions to deepen the team’s understanding of the priorities identified during the dotmocracy exercise in alignment with Experience-Based Co-Design. Three groups involved are:

- 1) Clinicians,
- 2) Patients,
- 3) Community partners.

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Results: The first quantitative ranking phase helped identify which questions needed to be further probed and discussed during the qualitative phase. Since the goal of the study was to involve individuals and community partners in the research process to ensure the findings are useful to the community, the qualitative data and their analysis helped to refine and explain the quantitative results by providing an in-depth view of the participants' perspectives. Once all data collection is complete, we will integrate the two sets of results and the qualitative results will help us explain the quantitative results.

Conclusion: The end-point of the study will be a list of priorities with importance rankings that are most relevant to the study population of

- 1) Clinicians,
- 2) Patients and
- 3) Community partners in Hamilton.

Building a holistic understanding of the barriers and facilitators encountered by community partners in accessing healthy food and achieving wellbeing may help improve healthcare delivery and community health outcomes.

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Participant Satisfaction with Different Modes of Produce Prescription Program Delivery

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Purpose: Incentivizing the purchase of fruits and vegetables through produce prescription programs can enhance produce affordability, improving both consumption of fruits and vegetables as well as clinical health indicators. Program delivery models can vary and include in-store vouchers and produce box delivery. The purpose of this study was to determine if participant satisfaction differed by program delivery mode among adults receiving \$25 per week in program incentives for six months.

Methods: Participants (n=206) were randomized to receive a weekly incentive for six months of either \$25 in paper vouchers to spend on fresh produce at a local grocery store or a box of pre-determined produce valued at \$25 delivered to their home. Program satisfaction data were collected via survey at the end of the six-month program intervention. Summary statistics were used to describe overall survey data and t-tests and chi-square tests were used to examine incentive group differences in continuous and categorical survey responses, respectively.

Results: Demographic characteristics did not differ between incentive groups. Participants were majority female (82%) with a mean age of 47 years (± 13.5 years). Program satisfaction was high among all participants. Over 83% of participants indicated being satisfied or very satisfied with program and satisfaction did not differ between incentive groups ($p=0.657$). Along with high overall program satisfaction, among participants receiving the produce delivery box, 64% reported being satisfied with the type of produce delivered and 72% reported being satisfied with the amount of produce provided. Among participants receiving in-store vouchers, 58% reported being satisfied with the process of redeeming the vouchers and 88% reported being satisfied with the dollar amount provided.

Conclusion: Although overall satisfaction is high among participants in this produce prescription program that uses paper vouchers and a produce delivery box, particularly regarding the amount of produce supplied through incentives, there is room to improve the participant experience. Future program adjustments could consider participant customization of the produce delivery box and electronic payment options versus vouchers and should examine the impact of these enhancements on dietary and health outcomes of participants.

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The Generation Healthy Kids School Lunch Program: Facilitators and Barriers for Implementation

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Purpose: This study focuses on a key component of the Generation Healthy Kids school-based intervention: a free, healthy, and climate-friendly school lunch program. The initiative is supported by pedagogical and practical guidelines aimed at fostering a positive mealtime experience, and school staff receive a four-hour training to prepare for their role as “mealtime hosts.” The study explores how school staff deliver the school lunch program, and mechanisms facilitating or hindering the implementation.

Methods: This abstract draws on data from 11 participant observations in two primary school classes (1st and 2nd grade), along with five informal interviews with staff involved in the lunch program. Descriptive analysis is used to examine how staff deliver the program, while thematic analysis identifies key facilitators and barriers to implementation. Data analysis is ongoing, and additional schools, classes, and staff will be included in the final analysis.

Results: Preliminary findings reveal variation in how staff apply the pedagogical principles: some follow most guidelines, while others apply only a few. Four main themes emerged as influencing implementation: staff’s chosen role during lunch, their authority in the classroom, time allocated for the meal, and the diversity of menus. The analysis also shows that adhering to one principle – such as engaging in conversation with children in a smaller ‘table group’ – can sometimes conflict with others, like promoting a positive attitude toward the served food across the entire class.

Conclusion: Initial results indicate diverse approaches to delivering the lunch program, multiple factors affecting implementation, and challenges in applying all pedagogical principles simultaneously. These insights can inform future adaptations of the program to better support staff and enhance the mealtime experience for children.

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Community Health Worker Delivered Time-restricted Eating Behavior Change Intervention Piloted for Hispanic Adults to be Scaled with a Lifestyle Intervention

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Purpose: Time-restricted eating continues to show evidence as an effective weight loss strategy, but little is known about how to disseminate the strategy at the community level. Few TRE interventions are delivered by community health workers (CHWs). This study developed and pilot tested a time-restricted eating intervention delivered by CHWs as part of a larger lifestyle change (physical activity and nutrition) intervention. The pilot study focused on Hispanic adults aged 30-65 years with BMI >25 to determine factors associated with implementation.

Methods: Six Community health workers engaged in a participatory approach to design the health behavior coaching module focused on TRE. The resulting module was pilot tested with 10 Hispanic adults who had no previous experience with TRE in a 4-week pre-post study to examine reach, preliminary effectiveness, adoption, acceptability. Adults with type 2 diabetes, pregnant or breastfeeding, previous or current eating disorder, weight loss medication/surgery or other serious medical conditions were excluded. Measures of TRE adoption, weight, height, blood pressure, hip, waist, overall and visceral body fat, and qualitative measures of implementation were obtained. Ad libitum diet was used for the 4 weeks in combination with TRE recommendations. All participants completed behavioral change coaching modules with CHWs on Sugar, Alcohol, Physical Activity, Fruits/Vegetables, and Portion Control in 2024-2025.

Results: Of the 250 people in the parent study intervention arm, 15 people were offered the the study and 10 consented and enrolled (9 females, 1 male). One individual dropped out of the study. Nine participants adopted TRE behaviors. Qualitative interviews indicated the use of fasting was previously unknown for some, and others had heard of the approach but had not tried TRE prior to intervention. Behavioral coaching provided impetus to attempt the behavior during the study period. Average percent weight loss was 2.8% with weight change ranging from an increase of 1 pound to a decrease of 21 pounds. The average decrease in waist circumference was 3.7 centimeters.

Conclusion: A TRE intervention delivered by CHWs appears to be feasible and acceptable in this population. Preliminary data indicate high adoption, acceptability and weight loss among Hispanic adults recruited from a community lifestyle change behavior intervention.

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Is the Level of Implementation Linked with Intervention Outcomes? The Process Evaluation of the Veggie Van Intervention to Improve Diet in Underserved Communities

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Purpose: The Veggie Van (VV) is a mobile market model that is efficacious in increasing fruit and vegetable (F&V) consumption for lower-income individuals. The model was recently evaluated for its effectiveness in a multi-state trial. Preliminary findings indicated that there were formidable barriers to implementing the model with fidelity. Therefore, we aimed to understand the impact of fidelity to the VV model on our main participant outcomes.

Methods: This was a longitudinal randomized controlled trial conducted in partnership with nine implementing organizations and 699 participants. The primary participant outcome, F&V consumption, was assessed via 24-hour dietary recall and self-reported survey measures at baseline and 12 months. Food security status was assessed using the USDA 10-item screener. Organizations completed monthly surveys designed to capture if core VV model components were implemented; responses were coded and summed to create an implementation score. We conducted correlational analyses between implementation scores and changes in F&V consumption and food security over 12 months. We conducted generalized linear model regression to further explore the association between implementation and diet-related outcomes.

Results: Seventeen market sites implemented the VV model. The mean overall implementation score was 40.6 out of a possible 55 points. Site-level fidelity to the VV model was significantly ($p=0.02$) and positively correlated (Pearson's Correlation Coefficient=0.56) with change in mean F&V consumption over 12 months. The monthly sub-score of nutrition education was also positively (PCC=0.81) and significantly ($p<.0001$) correlated with change in mean F&V consumption. These significant associations remained in regression models. In addition, operating a market for 10 or more months out of the year resulted in 76% greater odds of participants frequenting the mobile market at least once ($p=0.04$). There were no significant associations between implementation and changes in food security.

Conclusion: Understanding fidelity to the VV model can help explain not observing significant differences in main outcome analyses. Implementation support, such as tailored technical assistance, can be tailored to support the components that are most impactful on F&V consumption.

II-P-E.21

Perceptions of Dietary Information among Korean Adults: Insights from Cognitive Interviews

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Purpose: Despite the proliferation of dietary information from various sources, limited research has examined how individuals perceive such information. This study aimed to explore the perceptions of dietary information among Korean adults, drawing on cognitive interviews conducted during the development of measurement tools related dietary information.

Methods: Cognitive interviews were conducted with 28 adults. The interviews focused on the cognitive processes involved in responding to each item using verbal probing. All sessions were audio-recorded, transcribed, and analyzed using qualitative thematic analysis.

Results: Three main themes emerged. (1) The cognitive distinction between scientific 'nutrition' and experiential 'food': participants interpreted the term 'nutrition' as scientific knowledge—encompassing nutrition labels, caloric and nutrient values, and research findings—often leading to perceived difficulty. In contrast, items concerning 'food' or 'diets' prompted participants to draw upon experiential knowledge from daily life, such as grocery shopping and routine dietary habits, resulting in ease of understanding. (2) The conceptual separation of 'recommendations' and 'information' based on source authority: Respondents identified 'recommendations' as formal, evidence-based dietary advice provided by authoritative institutions, such as government agencies, medical professionals or dietitians. Conversely, 'information' was viewed as informal, non-authoritative content disseminated through media and informal interpersonal sources. (3) Individualized dietary needs beyond standardized recommendations:

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respondents emphasized that ideal diets are highly individualized. While they recognized the credibility of official sources, they expressed a preference for selectively adopting dietary recommendations rather than following them unconditionally. Importantly, this selective approach was not a result of information overload or cognitive burden; rather, it stemmed from the perception that standardized dietary recommendations fail to account for the unique health statuses and socio-economic contexts of individuals.

Conclusion: This study underscores the importance of terminological precision in nutrition research and interventions. Since individuals apply more demanding cognitive standards to terms such as ‚nutrition‘ and ‚recommendations,‘ the imprecise use of terminology in survey tools or interventions may induce response bias or decrease engagement. Furthermore, future nutrition interventions should move beyond standardized guidelines toward more personalized and contextually tailored communication strategies.[This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea(NRF-2025S1A5A8009958).]

II-P-E.22

Development and Internal Validation of a Prediction Model for Successful Weight Loss in Adults Referred to Hospital-based Lifestyle Front Offices Using Routine Clinical Data

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Purpose: Lifestyle interventions are effective for weight loss, yet individual responses vary substantially. Prediction models that estimate an individual's probability of achieving successful weight loss ($\geq 5\%$ initial body weight) could inform personalized care and clinical decision-making. Existing models often depend on complex or non-routine biomarkers. This study aims to develop and internally validate a prediction model, based solely on routinely collected characteristics, to estimate the probability of successful weight loss after 12 months among adults referred to hospital-based lifestyle front offices (LFOs).

Methods: A secondary analysis will be conducted using data from the LOFIT multicentre randomized controlled trial ($n \approx 350$), including adults with overweight ($BMI \geq 25 \text{ kg/m}^2$) referred to an LFO. Candidate predictors comprise sociodemographic, anthropometric, vital sign, behavioural, psychosocial and clinical history variables available at baseline. Predictors with substantial missing data ($>40\%$) will be excluded and remaining missing values addressed using multiple imputation. Penalized logistic regression (LASSO) will be used for model development, with coefficients pooled across imputed datasets. Internal validation will be performed using bootstrap resampling. Model performance will be evaluated by discrimination (AUROC), calibration (intercept, slope, plots), and clinical utility (decision curve analysis). Sensitivity analyses will be conducted both by stratifying model development and performance by intervention versus control group, as well as by applying alternative outcome definitions (e.g., $\geq 10\%$ weight loss, Fuster-BEWAT improvement, remission of metabolic syndrome). This will allow to assess the robustness and clinical utility of the model across different treatment pathways and success criteria.

Results: The resulting model, developed from routinely available characteristics, is anticipated to demonstrate acceptable discrimination and calibration for predicting successful weight loss in patients referred to an LFO. Core predictors such as age, anthropometric measures and behavioural factors are expected to play an important role in model performance. Sensitivity and subgroup analyses will further explore the robustness of predictors and model performance across alternative outcome definitions and patient subgroups.

Conclusion: The resulting model will allow clinicians to estimate an individual's probability of achieving successful weight loss after lifestyle intervention, supporting tailored guidance and identifying patients who may require more intensive support.

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II-P-E.24

Evaluating a Physical Activity-based Intervention for Adults with Intellectual Disabilities: A Cross-sectional Study of Day Service Staff Using the NoMAD Questionnaire to Assess Sustainability Potential

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Purpose: This study examined the sustainability potential of a physical-activity based intervention within intellectual disability day services targetting the health disparities that exist in the physical health and activity levels of adults with intellectual disabilities. Whilst many interventions have been developed of late, few are evaluated from an implementation perspective, leaving a gap from theory to practise. This is the first application of Normalisation Process Theory together with its validated Normalisation Measure Development (NoMAD) questionnaire in an intellectual disabilities day service staff cohort.

Methods: Guided by NPT, a cross-sectional online survey was conducted with day service staff that supported service users to engage in a physical activity-based health intervention. Convenience sampling was used within an intellectual disabilities day service setting. Following an information session, staff accessed the anonymous survey via QR code and provided electronic consent (n=36). Implementation processes were measured using the NoMAD questionnaire. Personal physical activity was assessed using the Single-Item Measure (0–7 days/week). Descriptive statistics summarised responses, internal consistency was assessed using Cronbach's α , and Spearman's rank-order correlation examined associations between physical activity and overall normalisation score.

Results: The NoMAD demonstrated good internal consistency for the total score ($\alpha = .86$), cognitive participation ($\alpha = .85$), and reflexive monitoring ($\alpha = .89$), with lower reliability for coherence ($\alpha = .48$) and collective action ($\alpha = .57$). Mean scores (1–5 scale) were highest for cognitive participation (M = 4.65, SD = 0.47) and coherence (M = 4.29, SD = 0.46), moderate for reflexive monitoring (M = 3.64, SD = 0.65) and collective action (M = 3.45, SD = 0.53). The overall normalisation score was high (M = 4.40, SD = 0.43). Personal physical activity was not associated with normalisation ($\rho = .13$, $p = .451$).

Conclusion: Findings indicated high overall normalisation, suggesting the intervention was broadly integrated into routine staff practise. Staff understood the purpose and value of the intervention and may view it as an extension of existing practise, rather than a novel departure. The intervention worked within existing staff roles and systems, and staff were committed to engaging with and sustaining the intervention. The NoMAD was a useful instrument to measure the potential for intervention sustainability in the applied setting.

II-P-E.25

Reducing Physical Inactivity and Sedentary Time through a Digital Diabetes Prevention Intervention in Obese Adults with Prediabetes

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Purpose: Physical inactivity and sedentary behaviour are established risk factors for type 2 diabetes. This study evaluated the impact of a digitally delivered Diabetes Prevention Program (DPP) on physical activity, weight and glycaemic control among adults with obesity and prediabetes.

Methods: Adults aged 40–60 years with obesity and prediabetes were enrolled in a 1-year smartphone-based lifestyle intervention using a pre–post study design. The intervention targeted $\geq 5\%$ weight loss and comprised an intensive phase (0–6 months) followed by a maintenance phase (7–12 months). Participants accessed online videos (weekly during the intensive phase and monthly during the maintenance phase) and self-monitoring tools (goal setting and tracking of diet, physical activity, and anthropometric and biochemical indicators) via a mobile application. PA (Chinese version of the International Physical Activity Questionnaire–Short Form), weight, body fat percentage, and glycaemic control (HbA1c) were assessed at baseline, 6 months, and 12 months. Paired t-tests were performed.

Results: A total of 343 participants enrolled in the study (mean age= 53.1 years, 65.9% female, mean BMI=28.2kg/m²). At baseline, 52.2% participants reporting not engaging in any moderate-to-vigorous PA (MVPA), and only 17.3% participants reported performing ≥ 150 minutes of MVPA/week. After 1-year intervention, the proportion of participants reporting not engaging in any MVPA significantly decreased to 30.8% ($P < 0.001$), while participants reporting engaging

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in ≥ 150 minutes of MVPA increased to 22.6% ($P=0.127$). Mean daily sitting time decreased from 419 (SD=212) minutes at baseline to 374 (SD= 174) minutes at 12-month assessment ($P<0.001$). Participants who have completed the study experienced statistically significant reductions in body weight (mean difference=-1.08, SD 3.51kg, $P<0.001$) and body fat % ($-0.57 \pm 3.33\%$, $P= 0.007$). There was no significant change in HbA1c ($0.02 \pm 0.32\%$, $P=0.204$).

Conclusion: A digitally delivered DPP effectively increased MVPA, reduced sedentary behaviour, and improved weight in physically inactive adults with obesity and prediabetes. Scaling such programs within routine care and evaluation of their longterm effectiveness, especially on glycemic control and costeffectiveness in larger trials are recommended.

II-P-E.26

Implementation and Impact of a Teambased Physical Activity Program in a Predominantly Rural Setting in The United States

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Purpose: Rural regions of the United States often face financial, geographic, and logistical barriers to accessing structured physical activity opportunities. This study assessed the implementation and health impact of *Walk Across Arkansas* (WAA), a lowcost, scalable, statewide physical activity (PA) intervention delivered in a predominantly rural state in the southcentral United States.

Methods: This crosssectional study recruited participants through word of mouth and social media, and participation was open to anyone. Participants enrolled in self-selected teams and selfreported PA minutes using an online tracking platform or paper logs over eight consecutive weeks in Fall 2025. Program reach was assessed by participant enrollment, geographic coverage, and team participation. Average weekly PA (hours/week) was calculated by age group to examine engagement across the lifespan. A postprogram survey, administered online or via paper, assessed perceived changes in PA and quality of life and included openended questions. Descriptive analyses characterized implementation outcomes and participant responses, and thematic analysis was conducted on qualitative data.

Results: A total of 732 participants (80% female, 8% male, 12% nondisclosed) formed 148 teams representing 50 of Arkansas's 75 counties, demonstrating broad reach. Participants reported 1,657,919 total minutes of PA. Average weekly physical activity ranged from 0 to 4.72 hours/week across age groups, with the highest averages among adults aged 60–69 years ($n = 121$). Engagement was consistent across most age categories, supporting feasibility across the lifespan. Among postprogram survey respondents ($n = 73$), 99% reported program satisfaction, 95% reported increased PA, and 90% reported improved health. Thematic analysis of openended responses ($n = 25$) identified perceived benefits related to physical health, psychosocial wellbeing, and chronic condition selfmanagement.

Conclusion: Preliminary implementation findings indicate WAA achieved promising reach and health impact in a predominantly rural U.S. context. Consistent physical activity engagement across age groups suggests the intervention supports behavior change across the lifespan. This program looks encouraging as a scalable, lowcost PA intervention. Future research should prioritize increasing male and youth participation, utilize device-based PA measures, and evaluate prepost changes in PA and health outcomes.

II-P-E.27

Delivery Typology Shaped Adoption of a Culturally Grounded Early Childhood Health Promotion Program in American Indian Communities

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Purpose: *Turtle Island Tales* is a culturally grounded, evidence-based health promotion program for American Indian families with young children originally tested as a home-mailed intervention. During community-led scale-out, delivery expanded to include classroom-mediated home delivery and classroom-based implementation. With

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adoption defined as the decision by community and organizational partners to initiate *Turtle Island Tales*, this study examined how delivery system adaptations influenced adoption across communities.

Methods: From 2021–2026, implementation was planned with American Indian communities in four U.S. states. Delivery typology, funding source, and implementation support were tracked. Qualitative and quantitative data were recorded through monthly community implementation team meetings, feedback checklists, and focus groups with local partners. Qualitative data were analyzed through an expanded RE-AIM framework, and quantitative adoption counts were summarized across years and states. Descriptive case studies were completed to describe adoption, continuity of participation, and changes in implementation context across communities.

Results: Following a pilot implementation period, adoption was planned in one community in each of four states starting in the 2023/2024 school year. During 2024/2025, adoption increased from two to six communities across four states. Adoption included continued participation from previous communities with four new communities (two planned). In 2025/2026, five communities across two states implemented the program, reflecting a combination of continued adoption and new adopters. Implementation significantly shifted from home delivery to classroom-based models. Adoption decisions were driven by staffing stability, delivery burden, funding mechanisms, and alignment with educational, organizational, or curricular standards. Communities contributed funding support ahead of planned transitions to community-led funding, although this was significantly impacted by the elimination of a government sponsored nutrition education program providing funding assistance.

Conclusion: Delivery system adaptations, specifically the transition from home-mailed to classroom-based delivery, were central to expanded adoption of *Turtle Island Tales*. Adoption increased when delivery aligned with existing educational infrastructure, reducing staffing burden and improving feasibility. Funding stability and implementation support shaped adoption at the organizational level. Scale-out was achieved by adapting delivery structure rather than core program/intervention content, which strengthened sustainability of program delivery in early child education settings in American Indian communities.

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I-P-F.02

Relationship between Social Jetlag and Objectively-assessed Lifestyle Habits among 3-4 Year-olds in Japan: The SUNRISE Japan Study

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Purpose: Social jet lag (SJL), which represents the differences during weekday and weekend sleep, has been reported to increase after the school-age years. However, its status, causes, and influences among young children remain unclear. Therefore, the current study aimed to clarify the relationship between SJL and physical activity and sleep among 3- to 4-year-old children in Japan.

Methods: Data from the International Study of Movement Behaviours in the Early Years 2021–2024 (SUNRISE Study - Japan) were utilized. Through kindergartens, daycare centers, or centers for early childhood education and care, 984 children aged 3–4 years participated and wore a triaxial accelerometer (ActiGraph GT3X) for 3–5 days to measure physical activity and sleep durations. Accelerometer data of days with less than 6 hours of sleep periods during the night and less than 6 hours of wear time during waking hours were excluded. Furthermore, data on bed-in and bed-out times during the measurement periods were collected from the parents. SJL was calculated as the difference between the midpoints of time in bed on weekdays and weekends. The minimum number of days for accelerometer and sleep time was set to a minimum of 2 weekdays and 1 weekend day.

Results: After excluding missing values, data for 573 children (age 4.3 ± 0.5 years; 301 boys, 272 girls) were analyzed. Forty children (6.9%) had a SJL of 60 minutes or more, while only 2 (0.3%) had a negative SJL (i.e., midpoint of time in bed on weekends was earlier than that on weekdays) of 60 minutes or more. According to partial correlation analysis adjusted for sex and age, SJL showed a significant but very weak correlation with wake after sleep onset per day (min/day) ($r=0.12$, $p<0.01$) and no correlations with other physical activity or sleep variables. Participants were divided into quartiles according to SJL to compare physical activity and sleep variables, and no significant differences were observed between groups.

Conclusion: SJL in Japanese young children was not as prominent as in school-age children and adolescents. SJL in this sample of young Japanese children showed no important relationships with indicators of sleep or physical activity.

I-P-F.03

Center-level Implementation Predictors of Active Play and Fundamental Movement Skill Practices in Childcare Settings

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Purpose: Background: Implementation support and organizational structures within childcare centers play a crucial role in shaping educators' ability to integrate active play (AP) and fundamental movement skills (FMS) into daily routines. While individual educator characteristics influence practice, center-level support, such as leadership engagement, goal-setting, and ongoing implementation activities, may be key levers for sustaining AP environments. Objective: To examine whether implementation-related center-level factors, including the presence of an AP champion, frequency of goal review with staff, and levels of implementation support, are associated with educators' reported AP- and FMS-promoting practices.

Methods: A cross-sectional survey was completed by 207 early childhood educators (mean age=41 years; 96% female) representing 59 licensed childcare centers across British Columbia. Center-level predictors included having a champion who promoted AP activities at least every two months (vs. no champion or less frequent), reviewing AP

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goals with staff (vs. no goals or goals not reviewed), and moderate or high levels of implementation support (vs. low). Educators self-reported their practices from the previous day, including modeling of AP, outdoor time, number of outdoor sessions, minutes of child AP, and number of FMS facilitated. Covariate-adjusted linear and logistic mixed-effects models accounted for clustering by center.

Results: Centers with an AP champion engaging at least every two months, with goals reviewed with staff, and with high implementation support reported significantly higher numbers of FMS facilitated by educators (OR = 19.04, 10.19, and 8.62, respectively). Additionally, having a champion active at least every two months and moderate or high implementation support were associated with more educator-child AP time (β = 0.60, 0.54, and 0.61, respectively).

Conclusion: Findings highlight the importance of sustained implementation support, leadership engagement, and structured goal-setting in fostering environments conducive to children's AP and skill development. Strengthening these organizational practices may enhance the consistency and quality of physical activity promotion across childcare centers.

I-P-F.04

Early Findings of a Large-scale Reconstruction of Stockholm's Schoolyards to Promote Schoolchildren's Physical Activity

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Purpose: Most children do not meet recommended levels of daily physical activity, and the school environment plays an important role in supporting active lifestyles. Schoolyards designed to encourage activity may therefore represent an effective strategy to address this gap. This study examined the early impacts of large-scale schoolyard reconstructions on children's physical activity. Furthermore, the study aimed to explore potential differences between girls and boys. By examining activity before and after the renovations, this study seeks to determine whether these environmental changes promote more active school days and provide insights to guide future schoolyard design.

Methods: This stepped-wedge study design allows each participating school to serve as its own control and intervention site. Between 2024 and 2027, five schools will undergo schoolyard reconstruction each summer, with data collected during the spring both before and after intervention. The study aims to recruit approximately 3,600 children aged 6–12 years from public primary schools in Stockholm. The primary outcome is physical activity, objectively measured using accelerometers. Analyses assessing the effects of the reconstructions on physical activity are ongoing. This abstract presents descriptive statistics from the first five schools, while the results on the effect of the intervention will be presented at the conference.

Results: Pre-intervention, 308 children participated (52.3% girls; mean age = 10.1 years, SD = 1.5), and 473 post-intervention (59.2% girls; mean age = 9.8 years, SD = 1.4). Across both time points, boys were consistently more active than girls during school hours. Boys accumulated 34.5 minutes per day of moderate-to-vigorous physical activity before the intervention (95% CI: 32.2–36.8) and 34.3 minutes after (95% CI: 32.6–36.0), compared with 22.4 minutes (95% CI: 20.2–24.6) and 22.9 minutes (95% CI: 21.4–24.3) among girls. Results examining the effects of the reconstructions will be available before the conference.

Conclusion: Preliminary descriptive findings confirm that boys are more active than girls during school hours. Upcoming analyses will evaluate the effects of schoolyard reconstructions on children's physical activity. This large-scale study has the potential to inform policies and practices in schoolyard design to better promote physical activity among young students.

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I-P-F.05

Investigating the Compliance with the 24-hour Movement Behaviours Guidelines in Preschoolers: Insights from the SUNRISE Pilot Study in Portugal

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Purpose: The World Health Organization (WHO) established guidelines on physical activity, sedentary behavior, and sleep for children under 5 years of age. Since then, the SUNRISE Study has been producing evidence on the proportion of children meeting the guidelines and their association to healthy development. This pilot phase of the SUNRISE project in Portugal, aims to: a) report the prevalence of 3- to 4-year-old Portuguese children meeting the WHO guidelines; and b) assess the feasibility and acceptability of implementing the SUNRISE protocol in the Portuguese context.

Methods: A total of 104 preschool children were recruited from three urban and three rural public schools in Portugal. Parents answered questions on the children's screen time and sleep patterns. Movement behaviours were objectively measured using accelerometers wGT3x. Anthropometrics, gross and fine motor skills, physical fitness, and executive functions were assessed using the Sunrise protocol. Children were categorized as compliant or not with the guidelines and descriptive statistics were used to summarize the protocol's feasibility.

Results: The compliance was slightly higher when considering parent-reported sleep data instead of device-based measurements of sleep (33.8% and 31.2%, respectively). When considering the restrained time recommendation, no child was classified as non-compliant. Response rates to the protocol were consistently high - exceeding 70% across all measures.

Conclusion: Compliance with the WHO guidelines among Portuguese children varies depending on the protocol used to assess sleep duration, and the inclusion or not of the restrained time recommendation. The SUNRISE protocol proved to be feasible for implementation in the Portuguese context, and valuable lessons were learned regarding response rates for both accelerometer data and the parent questionnaire.

I-P-F.06

Food Policy, Practice, and Provision in Early Childhood Education and Care: A Scoping Review

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Purpose: The objective of this scoping review was to evaluate research exploring food policy, practice, and provision in UK Early Childhood Education and Care settings (ECEC). The review will address: (i) how is food policy and guidance used by early childhood education and care settings?; (ii) what food practices are used in early childhood education and care settings in the UK?; and (iii) does food provided and consumed within early childhood education and care settings meet nutritional recommendations for children 0-5 years old? The secondary aim of this review was to map findings from the included studies to the Socio-Ecological Model (SEM) to identify how food policies, practices, and provision in UK ECEC have been explored in research.

Methods: A scoping review was conducted in accordance with the Joanna Briggs Institute (JBI) Methodology for scoping reviews and the Preferred Reporting Items for Systematic Reviews and Meta-analysis for Scoping Reviews (PRISMA-ScR). Five databases were systematically searched. Eligible studies were retrieved after full-text screening. Data were extracted and synthesised based on food policy, practice, and provision concepts and grouped according to SEM level. Results were presented using a narrative summary.

Results: Twenty-four studies were included, the majority had qualitative (n=13, 54%) or cross-sectional study designs (n=11, 46%) and presented findings at the organisational SEM level. Nursery settings were most represented (n=16, 67%), followed by childminders (n=5, 21%), then preschools (n=3, 13%). Studies were conducted in England (n=20,

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83%) and Scotland (n=2, 8%), however no studies were undertaken in Wales or Northern Ireland. Studies reported poor adherence to food policies in ECEC and ineffective implementation of Government schemes. Recommended practices were frequently adhered to, however, food provided did not consistently meet nutritional recommendations. Common barriers to implementing healthy food practices and provision were cost, staff shortages, lack of training, and awareness of available guidance.

Conclusion: This review identified a need for research that targets a range of SEM levels, and is conducted in Scotland, Wales, and Northern Ireland. Our findings support the need for increased governmental support for ECEC, through food standards, free meal provision for ECEC, and more accessible nutrition training.

I-P-F.07

Exploring Childcare Movement Behaviour Policy Prevalence, Content, and Associations with Facility Characteristics and Sub-national Legislation

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Purpose: Childcare settings play a pivotal role in shaping movement behaviours in early childhood; yet, without national-level guidance on their consideration in childcare programming, regulations vary greatly across Canadian childcare facilities and jurisdictions. This study provides a national overview of written movement behaviour policies in Canadian childcare settings and examines their associations with childcare facility characteristics and provincial/territorial legislation.

Methods: Directors and owners of childcare facilities across Canada ($n = 1,340$) completed a cross-sectional online survey and were asked to report on the presence and characteristics of written policies related to 28 movement behaviour-related items, as well as childcare facility characteristics (e.g., urbanicity, childcare type, enrolment size, daily fees). Descriptive statistics summarized policy prevalence and logistic regression models examined associations between the presence of written movement behaviour policies and facility characteristics, as well as explicit references to movement behaviours in provincial/territorial childcare legislation.

Results: Approximately half of childcare directors/owners reported a written policy addressing overall physical activity (50.0%) and age-appropriate nap duration (46.6%), while 68.7% reported a policy for daily outdoor physical activity and 61.1% reported a policy for providing no screen time. In contrast, policies limiting prolonged seated time (17.0%) were less common. Few directors/owners reported policies addressing educator professional development (<21%) or family education (<12%) related to movement behaviours. Facilities located in jurisdictions with explicit legislative references to movement behaviours were significantly more likely to report written policies across domains ($p < .01$). Urban location ($p = .042$) and smaller enrolment size ($p = .014$) were associated with greater likelihood of overall physical activity and age-appropriate nap duration policies, respectively. Family-/home-based facilities had significantly lower odds of reporting a policy for providing no screen time compared to centre-based programs (OR = 0.19, $p < .001$).

Conclusion: Movement behaviour policies in Canadian childcare settings remain inconsistent and are strongly influenced by governance context and facility characteristics. Strengthening legislative alignment across jurisdictions, implementation supports, and professional learning may help address existing disparities in movement behaviour opportunities for young children in childcare.

I-P-F.08

Associations between 24-hour Movement Behaviors Composition and the Rest-activity Rhythms among Physically Active Preschool-aged Children

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Purpose: Rest-activity rhythm reflects the behavioral manifestation of circadian rhythmicity, while movement behaviors function as zeitgebers that entrain the internal biological clock; however, their relationship remains unclear. This study aimed to investigate the associations between 24-hour movement behaviors and rest-activity

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rhythm characteristics among physically active preschoolers.

Methods: Baseline data from 84 physically active children aged 3.0 to 5.9 years enrolled in a randomized controlled trial were analyzed. Accelerometer data were processed using the GGIR package in R, from which the 24-hour time-use composition and two cut-point-free metrics (average acceleration and intensity gradient) were derived. Rest-activity rhythm parameters included relative amplitude, inter-daily stability, intra-daily variability, and the circadian function index. Generalized linear models were performed to examine the relationships between movement behaviors and rest-activity rhythm.

Results: More sedentary behavior relative to other behaviors was associated with lower relative amplitude ($\beta = -0.192$; 95% CI: $-0.373, -0.011$), lower interdaily stability ($\beta = -0.184$; 95% CI: $-0.280, -0.089$), higher intradaily variability ($\beta = 0.249$; 95% CI: $0.117, 0.380$), and a lower circadian function index ($\beta = -0.252$; 95% CI: $-0.338, -0.166$). In contrast, more light-intensity physical activity relative to other behaviors was associated with higher interdaily stability, lower intradaily variability, and a higher circadian function index. For cut-point-free metrics, higher average acceleration was associated with higher relative amplitude ($\beta = 0.004$; 95% CI: $0.001, 0.008$), lower intradaily variability ($\beta = -0.005$; 95% CI: $-0.008, -0.001$), and a higher circadian function index ($\beta = 0.005$; 95% CI: $0.002, 0.007$), whereas intensity gradient was positively associated with intra-daily variability ($\beta = 0.270$; 95% CI: $0.005, 0.536$) and inversely associated with a circadian function index ($\beta = -0.214$; 95% CI: $-0.394, -0.034$).

Conclusion: Among physically active preschoolers, greater light-intensity physical activity relative to the remaining behaviors was associated with a more stable and consolidated rest-activity rhythm, whereas a higher relative allocation of sedentary time was linked to a blunted, irregular, and fragmented rhythm. These findings suggest that encouraging light-intensity physical activity and limiting sedentary behaviors may support healthier rest-activity rhythms among physically active children.

I-P-F.09

Development and Initial Validation of the Policy, Systems, and Environment Tool for Early Childhood Nutrition

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Purpose: Policy, systems, and environmental (PSE) strategies are widely implemented through community nutrition education programs in early childhood education (ECE) settings to promote healthy eating behaviors. Existing evaluation approaches primarily assess program reach rather than behavioral or sustainability outcomes, limiting understanding of how environmental change influences nutrition behaviors. This study developed an initial content and face validity assessment of the Policy, Systems, and Environmental Strategies Nutrition-Focused Evaluation Survey Tool for Early Childhood Settings (PSE NEST).

Methods: Phase 1 involved item generation. Phase 2 assessed content and face validity using a mixed-methods approach combining individual item rankings and a modified nominal group technique (mNGT). SNAP Ed implementers, PSE specialists, and evaluation professionals working in nutrition education programs nationwide participated in five virtual sessions ($n = 28$; 5 to 7 per group). Participants independently ranked items across four domains, followed by facilitated group discussions to refine wording, response options, and identify missing items. Rankings were summarized descriptively, and qualitative data were analyzed using inductive thematic analysis to support iterative refinement and consensus development.

Results: Findings supported four core measurement domains: PSE strategy characteristics, behavior change, implementation processes, and sustainability. Rankings and group discussion demonstrated consensus on inclusion of items assessing children's exposure to fruits, vegetables, whole grains, and sugar-sweetened beverages; caregiver modeling behaviors including eating the same foods as children and participation in family-style dining; implementation challenges such as staffing, resources, and organizational buy-in; and likelihood of continuing nutrition-supportive practices. Participants emphasized assessing foods offered and consumed to capture behavioral pathways linking environmental change to child dietary behaviors. Sustainability-related items addressing resources, funding, and community partnerships were also prioritized. Participant feedback informed the removal of redundant items and refinement of wording and response options, resulting in a streamlined instrument ready for pilot testing with ECE providers.

Conclusion: The PSE NEST demonstrates initial evidence of content and face validity as a measurement tool for nutrition-focused PSE strategies in early childhood education settings. By integrating behavioral outcomes, implementation processes, and sustainability, it strengthens evaluation capacity within community nutrition

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education programs. Future research will assess reliability, psychometric performance, and responsiveness to change through testing in diverse practice settings.

I-P-F.10

Assessing the Association between Combinations of Movement Behaviors and Executive Functioning Outcomes in Preschool-aged Children: A Systematic Review and Meta-analysis

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Purpose: To examine how studies assessing ≥ 2 movement behaviors analyze associations with EF in preschoolers and compare pooled estimates from individual behavior and combination models when available. We hypothesize combined-behavior models would produce different EF associations than single-behavior models. Innovation lies in evaluating analytic approaches, not just effects, across studies measuring multiple behaviors and highlighting gaps between measurement and analysis.

Methods: Three databases were searched for articles published January 2015 – November 2025. Studies included children aged 3-6 years that assessed ≥ 2 movement behaviors and reported EF outcomes in observational designs. Two reviewers completed extraction and quality appraisal. Random-effects meta-analyses were conducted when ≥ 2 studies reported comparable effects. Correlations and standardized regressions were pooled separately for individual behavior and combination models.

Results: Thirty-four studies ($n=18$ - 1,540 participants, mean=293; 82% cross-sectional) met inclusion criteria; 24 provided data for inclusion in the meta-analyses. Although all assessed ≥ 2 movement behaviors, most analyzed behaviors independently. Sixteen studies analyzed behaviors only as independent predictors; eighteen included at least one combination or 24-hour compositions, alongside individual models. Measures were heterogeneous, including objective ($n=21$) and subjective ($n=13$) assessments. Across individual behavior models, pooled associations with EF were small ($r=-0.04$ to 0.12 ; $\beta=0.01$ to 0.11). For combinations of ≥ 2 behaviors, pooled correlations were also small and often non-significant ($r=-0.02$ to 0.10). When combinations were analyzed, pooled correlations remained small: PA + SB (5 studies; $r=0.06$, $p=.003$), PA + sleep (3 studies; $r=0.07$, $p=.051$), PA + screen (2 studies; $r=0.10$, $p<.001$), and 24-hour composition (3 studies; $r=0.06$, $p=.02$). Standardized regression models showed similarly small effects ($\beta=0.03$ - 0.10). **Pooled estimates were comparable across individual and combination models.**

Conclusion: Associations between movement behaviors and EF in preschoolers were small and similar whether examined individually or in combination, likely reflecting heterogeneous measurement and analytic methods. Despite growing interest in multiple movement behaviors, many studies analyzed behaviors individually rather than as integrated 24-hour compositions. Greater consistency in analytic approaches and reporting is needed to determine whether 24-hour day models provide additional insight into EF development.

I-P-F.11

Hong Kong Report Card on 24-Hour Movement Behaviours for Children under 5 Years

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Purpose: This study presents preliminary findings from the first Hong Kong Report Card on 24-Hour Movement Behaviours for children under 5 years of age. Modelled on the well-established knowledge translation initiative by the Active Healthy Kids Global Alliance, the Report Card aims to provide an evidence-based synthesis of evidence on movement behaviours and related influences among young children.

Methods: The report card evaluates twelve indicators: eight behavioural indicators (Overall Physical Activity, Structured Physical Activity, Active Play, Active Transportation, Sedentary Screen Time, Restrained Time, Sleep, and 24-hour Movement Behaviours) and four sources of influence indicators (Family and Peers, School/Early Childhood Education, Community and Environment, and Government). Each indicator was assigned a letter grade (from A+ to F) based on the best available evidence, following predefined benchmarks established through expert consensus. Data sources from the past ten years included published journal articles, reports from government or non-governmental organisations, and manual searches.

Results: Only one quarter of young children in Hong Kong met the recommended levels of physical activity, resulting in a D- grade assigned for Overall Physical Activity. Approximately half met the age-specific benchmarks for Active Play, Sedentary Screen Time, and Sleep, which corresponded to grades of C, C- and C+, respectively. Fewer than 10% met all recommendations for 24-hour movement behaviours simultaneously, resulting in an F grade for this indicator. The Family and Peers indicator received a C grade, while Early Childhood Education was graded B. The Government indicator was assigned a D+ grade, based on the Health-Enhancing Physical Activity (HEPA) Policy Audit Tool Version 2. Four indicators (Structured Physical Activity, Active Transportation, Restrained Time, Community and Environment) were not graded due to insufficient evidence. Notably, most of the available evidence primarily pertains to preschool-aged children (3-<5 years).

Conclusion: The first Hong Kong Report Card on 24-hour Movement Behaviours for children under 5 years provides a comprehensive, evidence-based synthesis of movement behaviours and their influencing factors among young children. These collated findings can guide policy, practice, research, and surveillance, support international comparisons, and advocate for healthier lifestyles in early childhood.

II-P-F.01

Early Years Lunches in England and Scotland: Associations between Provision, Ultraprocessed Foods (UPF), High in Salt Fat and Sugar (HFSS), Non-core Foods, and Food Consumption

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Purpose: Most young children attend early childhood education and care (ECEC), but little is known about lunch provision, intake and food processing. There are currently no government mandated nutritional standards for ECEC providers in England and a high proportion of children consume packed lunches, demonstrated to be of poor nutritional quality in schools, within these settings. In contrast, Scotland provides universal free meals in ECEC providers with national food standards that must be adhered to. We investigated lunch quality, serving size and consumption within ECECs by provision (packed vs. ECEC provided) using the UK nutrient profile model (high fat, salt or sugar, HFSS), ultraprocessing (UPF) and non-core as food quality measures.

Methods: Lunch intakes of 2-4 year olds attending ECEC (n=52) in England or Scotland were collected using the Remote Food Photography Method in the NAPSACC UK study. Total kcal served, consumed and % total kcal from foods classified as HFSS, UPF or non-core were calculated. Associations between lunch size (served and consumed) and quality with provision type were modelled using multivariable mixed effects linear regression, adjusting for age, zBMI and deprivation level.

Results: Data were available for 532 children; 359 in England (48% packed lunches) and 173 in Scotland (3% packed lunches). Packed lunches had significantly more kcal served than ECEC provided lunches (adjusted mean difference 120.0kcal (95%CI 76.7 to 163.3), p<0.001). A significantly higher proportion of kcal served and consumed were from HFSS foods, UPFs and non-core foods in packed lunches (p<0.01). Higher kcal served, and a higher proportion of kcal served from HFSS foods and non-core foods led to significantly more kcal consumed (p<0.001, p<0.001 and p=0.005, respectively).

Conclusion: Packed lunches had more kcal and contained poorer quality food than ECEC provided lunches, both

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features associated with higher food consumption. We reinforce guidance to avoid serving HFSS food and provide appropriate portion sizes initially, to allow children to eat optimal energy intakes. Further research should explore the barriers and opportunities to introduce universal free lunches in ECEC in the UK, the optimum age or age-range for free lunches and pilot the impact and cost-effectiveness of this provision.

II-P-F.02

Strengthening the Application of Evidence to Optimise State-wide Early Childhood Nutrition and Physical Activity Programs

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Purpose: Population health prevention programs delivered in early childhood settings are a key public health strategy to equitably improve child physical activity and nutrition. The *Munch & Move* program in New South Wales, Australia, is one of the longest standing programs nationally supporting early childhood education and care (ECEC) services in the state since 2012 to implement sixteen evidence-based healthy eating and physical activity practices. This abstract describes a proactive and deliberate approach by the research team (in collaboration with state funders of the program) to support embedding contemporary evidence to enable ongoing program improvement decisions.

Methods: A multi-method program of research (2018–2025) was designed to generate relevant data to inform decision-making. This included: (1) multiple high quality systematic reviews and a systematic evidence mapping process to identify beneficial ECEC-based nutrition and physical activity components; (2) a state-wide survey with 565 NSW ECEC services to assess implementation of the targeted practices; (3) assessment of scalability and alignment with sector capacity; and, (4) an iterative consultancy process with the state program team to support prioritisation of program components. A targeted engagement strategy, supported by the National Centre of Implementation Science, ensured timely translation of evidence through policy briefs, tailored presentations, and ongoing feedback meetings.

Results: Our four systematic reviews (and subsequent updates) supported identification of 12 evidence-based beneficial components for continued or enhanced implementation. Findings from prevalence and scalability assessments with ECECs were considered together with the state program team to inform the key components of the *NSW Munch & Move* program. Ongoing discussions are continuing to support the optimisation process and development of key indicators, shaping resource development, training, and monitoring processes. In the presentation, we will reflect also on the key elements that enhanced the application of this research in supporting decision making.

Conclusion: This case demonstrates that proactive efforts to collect policy relevant data, targeted engagement, and sustained collaboration can increase application of research evidence into practice. Our experience highlights the importance of long-term research-policy partnerships in ensuring large-scale child health promotion programs remain effective, scalable, and responsive to sector needs.

II-P-F.03

From Second Fiddle to Feeding Partner: Swedish First-time Fathers' Perceptions of their Role in Feeding their Toddler

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Purpose: This study explores how first-time fathers in Sweden perceive their role in feeding, focusing on children aged 10 to 24 months. While earlier studies on infant and toddler feeding mainly have included mothers, this study focuses on how paternal roles in early feeding are understood and formed.

Methods: Qualitative interviews with 21 first-time fathers (95 % university degree, 19 % foreign background) of children (57 % girls) aged 10–24 months (mean age 15 months) were transcribed and analyzed using reflexive thematic analysis.

Results: Three themes were developed. The first theme, *The fathers' path into the feeding relationship* captures how the fathers experienced playing second fiddle in the beginning, but felt able to take on a greater role once the child

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started eating solid food or when feeding became easier. Some fathers saw the introduction of food as an opportunity to relieve the mothers, while others considered it natural for mothers to take greater responsibility. The second theme, *Striving for equality*, captures the fathers' ambitions and ideals around sharing responsibility for the child's feeding. This included a perceived need for some to "push themselves in" or to be given space by the mothers to establish their own routines. The fathers also expressed feelings of guilt when the mothers took more responsibility. The third theme, *Knowledge, confidence and support* highlights how the fathers' interest in cooking and food shaped their involvement in feeding their child. While some fathers took on significant responsibility driven by a personal interest, others followed the mothers' lead. The fathers experienced that taking paternity leave gave them more confidence and also a bigger role in feeding, but expressed a lack of father-specific support groups, and some of the fathers wished for more individual support from child health care without the mother present.

Conclusion: The study demonstrates that fathers' engagement and role in early childhood feeding are shaped by relational dynamics, paternity leave, and personal motivation. The findings underscore paternity leave as beneficial while fathers express a desire for more targeted support—particularly father-specific groups—to strengthen their confidence and engagement in feeding.

II-P-F.04

Needs of Parents and ECEC Staff of 0-2 Year Old Children Regarding an Intervention Addressing Dietary Behavior, Physical Activity and Sleep

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Purpose: SuperFIT is a widely implemented evidence-based effective multi-component intervention approach targeting parents and Early Childhood Education and Care (ECEC) to improve energy-balance related behaviors of 2-4 year old children in the Netherlands. Based on the needs expressed by parents and professionals working in ECEC, we decided to adapt this intervention to additionally include 0-2 year old children. In the current study, we conducted a needs assessment with parents and other stakeholders to explore their specific needs and preferences regarding the promotion of healthy nutrition, physical activity and sleep in this younger age group, informing the adaptation of SuperFIT for children aged 0-2 years.

Methods: We conducted qualitative semi-structured interviews with >20 parents and other stakeholders (e.g., ECEC staff, experts working with 0-2 year old children, SuperFIT implementers). The interviews were conducted online or in person and focused on stakeholders' needs and possible barriers and facilitators regarding the promotion of nutrition, physical activity and sleep, based on the characteristics categories as categorized by Damschroder in the CFIR model: intervention, individuals, inner setting and outer setting.

Results: First analyses showed that in general parents did not express urgent needs on lifestyle related topics. They did, however, express a need to improve the communication on these topics with ECEC staff members. ECEC staff indicated that they struggled to align the needs of parents with current ECEC policies, particularly regarding sleep. Further detailed results will be presented.

Conclusion: The study will formulate some clear points to be incorporated in the SuperFIT for 0-2 year old children, based on the input of stakeholders, and in line with the existing SuperFIT intervention. Current results will form the basis for the codesign sessions with parents and professionals working in ECEC.

II-P-F.05

Building Responsive Early Childhood Environments in the Canadian Maritime Provinces through CELEBRATE Feeding

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Purpose: There is recent investment in nutrition and early care and education (ECE) through the bilateral commitments in the Canada-Wide Early Learning and Care Agreements, a national school lunch program, and provincial/territorial nutrition policies for ECE settings. However, there is a gap between these policy investments and support for implementation. This presentation will describe the nutrition policy context in Canada alongside of the CELEBRATE Feeding (Coaching in Early Learning Environments to Build a Responsive Approach to Eating and Feeding) intervention that aimed to build capacity for responsive feeding environments to foster children's self-regulation skills related to food.

Methods: Coaches worked collaboratively with ECE programs in the Canadian Maritime Provinces to apply a behaviour change approach to support implementation of responsive feeding with the ECE program context. Using a pre-post mixed-methods design, quantitative and qualitative data were collected to evaluate the six-month intervention. Data sources included baseline/post-intervention observations of feeding environments ($n=16$ classrooms), pre-post educator surveys, interviews, coaching logs, and a six-month follow-up survey. Paired samples t-tests and Wilcoxon signed rank tests assessed changes in overall and individual responsive feeding scores across 21 components (0–3 scale; total 0–63).

Results: The intervention was associated with significant improvements in responsive feeding environments and practices. Observation scores increased from baseline ($M = 38.16$, $SD = 6.55$) to post-intervention ($M = 45.75$, $SD = 5.87$), $t(15) = 4.91$, $p < .001$. Educators reported engaging more frequently in responsive feeding practices and observing positive changes in children's independence and food acceptance. They valued expert guidance, coaching support, and practical tools but noted challenges related to communication, scheduling, and staff turnover. Follow-up data indicated sustained use of key practices across all centres.

Conclusion: There is a timely opportunity to support a growing workforce of educators through recent federal-provincial/territorial commitments to ECE and nutrition. The CELEBRATE Feeding coaching intervention effectively enhanced responsive feeding environments to support implementation of local nutrition standards. Ongoing support and strategies are needed to sustain and scale across ECE settings, ultimately promoting more responsive environments for young children.

II-P-F.07

Prevalence and Correlates of Meeting 24-hour Movement Guidelines among 3-4 Year-Olds in Japan: The SUNRISE Japan Study

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Purpose: SUNRISE is an international study of movement behaviours in the early years. In Japan, the main study started in October, 2021 and finished in February 2024. We examined adherence to the World Health Organization's (WHO) Global guidelines for physical activity, sedentary behaviour and sleep for children under 5 years of age in Japan.

Methods: Data on 3 to 4-year-old children from urban and rural areas in Japan were obtained. Physical activity was measured using a triaxial accelerometer (ActiGraph GT3X). Screen time and sleep duration were assessed via parent questionnaire. Meeting the WHO guidelines was defined as participating in, over a 24-hour period: ≥ 180 mins of total physical activity, of which at least 60 minutes was of moderate-to-vigorous intensity physical activity, ≤ 1 hr of sedentary screen time, and 10-13 hrs of sleep (including naps).

Results: Participants included 827 children (4.2 ± 0.5 years-old, girls $n=396$, boys $n=431$; urban $n=437$, rural $n=390$). The proportions of children meeting physical activity, sedentary behaviour, sleep and all guidelines were 35.8%, 14.9%, 87.9% and 4.5%, respectively. A higher proportion of boys than girls met the physical activity guideline (45.9% vs, 24.7%), with average total physical activity and moderate-to-vigorous intensity physical activity in girls (155.4 ± 38.0 min/day and 70.5 ± 23.1 min/day) shorter than in boys (178.2 ± 43.1 min/day and 86.0 ± 28.1 min/day), even after adjustment for age and area (urban or rural). There were no significant differences in meeting sedentary behaviour and sleep recommendations between girls and boys. A higher proportion of children from rural areas (655 ± 51 min/day) than urban areas (647 ± 54 min/day) met the sleep guideline (90.5% vs, 85.6%), with average total sleep time in rural longer than in urban children.

Conclusion: The prevalence of meeting the guidelines was low, mainly due to long periods of sedentary screen time. More physical activity time among boys compared to girls was observed. Living in a rural area was associated with more children meeting the sleep guideline.

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II-P-F.08

Effects of Active Outdoor Play Interventions on Movement Behaviours in Preschoolers: A Systematic Review and Meta-analysis

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Purpose: Active outdoor play (AOP) is widely promoted for young children, yet its effects on movement behaviours remain uncertain. This systematic review and meta-analysis aimed to determine the effects of AOP interventions on movement behaviours among preschoolers.

Methods: Six databases (MEDLINE [Ovid], PsycINFO [ProQuest], EMBASE [Ovid], PubMed, Web of Science and SPORTDiscus [EBSCO]) were searched through 27 February 2025. Randomised controlled trials and non-randomised intervention studies examining the effectiveness of AOP interventions on movement behaviours (physical activity [PA], sedentary behaviour [SED]/screen time, or sleep) in healthy preschoolers aged 3 to 6 years were included. Intervention strategies were categorised as: environment-based (modifying outdoor play environments), time-based (modifying outdoor playtime allocation), or combined environment-and-time (both components). Risk of bias was assessed using revised Cochrane tools. Random-effects meta-analyses were conducted using standardised mean differences (SMD) for post-intervention outcomes.

Results: Thirty-five studies were identified; nine studies with 1,409 participants were included in the meta-analysis. Screen time and sleep outcomes were insufficient for synthesis. When pooling all AOP interventions versus usual care (UC), no statistically significant effects were observed for total PA (TPA), moderate-to-vigorous PA (MVPA), light PA (LPA) (each $n = 6$ studies), or SED ($n = 4$), with substantial heterogeneity across outcomes (all $I^2 > 90\%$). In subgroup analyses by intervention strategy versus UC, combined environment-and-time interventions showed significant small-to-medium effects on TPA (SMD = 0.495), LPA (SMD = 0.498), and SED (SMD = -0.495), although each estimate was based on a single study. In contrast, environment-based and time-based interventions did not differ significantly from UC for any outcome; environment-based effects were highly heterogeneous where estimable (all $I^2 > 87\%$), whereas time-based effects showed lower heterogeneity (all $I^2 < 67\%$). In comparisons with teacher-led programmes (brief instruction followed by free play), time-based interventions showed no significant differences across TPA, MVPA, LPA, or SED ($n = 3$ studies).

Conclusion: Overall, evidence was inconclusive regarding the effects of AOP interventions on preschoolers' movement behaviours. Further evidence from high-quality, adequately powered trials is needed to draw firm conclusions regarding the impact of AOP interventions on movement behaviours and expand evidence on sleep and screen time outcomes.

II-P-F.09

Confidence in Evidence for Hong Kong Report Card on 24-Hour Movement Behaviours for Children under 5 Years: Findings from a Novel Structured Rating Tool

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Purpose: The Hong Kong Report Card on 24-hour Movement Behaviours for Children under 5 Years provides the first evidence-based assessment for 12 related indicators. This study aimed to conduct a structured quality appraisal by rating the Research Work Group's (RWG) confidence in the data supporting the initial indicator grades.

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Methods: Where sufficient data were available, the RWG assigned initial letter grades to indicators based on predefined benchmarks. A confidence rating tool, informed by the confidence ratings used in the Australia Report Card (based on data representativeness and robustness) and supplemented by items from established risk of bias tools, was developed for 11 indicators (excluding the Government indicator). It was used to rate each data source across four domains (representativeness, statistical power, measurement quality, and context and recency). Two researchers rated each data source independently. Scores range from 0 to 14 for behaviour indicators and from 0 to 15 for influence indicators. For each rated indicator, an average score was calculated and then converted to a 1-star (low: 0-5), 2-star (moderate: 6-10), or 3-star (high: ≥ 11) confidence rating.

Results: A total of 21 references, representing 16 unique data sources, were rated across 7/12 indicators that received initial letter grades (Government and indicators with insufficient evidence were excluded). High confidence was assigned only to School/Early Childhood Education. Moderate confidence was assigned to Overall Physical Activity, Active Play, Sedentary Behaviour, Sleep, and Family and Peers indicators. The 24-hour Movement Behaviours indicator was assigned low confidence. Domain-level ratings revealed common limitations across data sources, particularly in the areas of context and recency. The majority of data were collected more than five years ago (12/16), and most behaviour indicators did not account for seasonal variations (11/12).

Conclusion: To the best of our knowledge, this confidence rating tool represents the first structured instrument designed specifically to assess grading decisions for a Report Card. Applying this tool enhances the transparency of grading decisions. The validity and reliability of this tool should be rigorously examined in future studies.

II-P-F.10

Adapting a Home-based Health Promotion Program to Early Educational Settings in American Indian Communities

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Purpose: *Turtle Island Tales* is a 12-month evidence-based health promotion intervention for American Indian families with young children originally tested as a home-mailed intervention. Community-led scale-out expanded program delivery to include classroom-based implementation, which necessitated adaptations in program content, structure, and strategy to fit the classroom setting. This study systematically tracked adaptations from the original at-home setting to classroom-based settings serving young children to inform outcomes in this new context.

Methods: *Turtle Island Tales* was implemented in 2023/2024 and 2024/2025 in 6 American Indian communities in four U.S. states as part of a planned phased adoption schedule. Characteristics of program delivery, including adaptations, were systematically tracked during regularly scheduled meetings, feedback checklists, and informal communication with local program delivery partners for each implementation period. Using the Framework for Reporting Adaptations and Modifications–Enhanced (FRAME), multi-level adaptations to content, structure, and delivery strategy were identified. Although effectiveness was not evaluated in the current study, adaptations were systematically linked to anticipated and observed outcomes using the expanded RE-AIM framework to understand implications for expanded reach and sustainment.

Results: Adaptations occurred primarily at the delivery-system and implementation levels, while core content was maintained. Community- and educator-level adaptations emphasized cultural relevance, classroom feasibility, implementation schedule and dosage adjustments, and integration with existing curricula. The research team focused on facilitating delivery in classrooms of up to 20 children ages three to six with adaptations to packaging, classroom feasibility, educator supports, and curriculum alignment with government mandated standards. Most adaptations were planned around limitations identified in the initial adoption phase. Adaptations to content, structure, and delivery strategy were associated with increased reach, adoption, and implementation, and sustained delivery in the classroom setting.

Conclusion: Community-driven transitioning *Turtle Island Tales* from home to classroom delivery required coordinated, practical changes to lesson structure, materials, delivery schedule, and educator supports while maintaining core program content. Next steps include understanding program effectiveness in these settings; however, adaptations allowed the program to fit classroom schedules, group learning environments, curricular requirements and local cultural priorities. Together these changes supported expanded reach and sustained delivery in early care and education settings in American Indian communities.

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II-P-F.11

Active Play, Sedentary Time, and Screen Use in Canadian Childcare: A Cross-sectional Analysis of Associations with Childcare Facility Characteristics

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Purpose: Despite childcare settings serving as key environments for supporting physical activity among young children, national-level data on related practices in Canadian childcare contexts remain limited. This study explored physical activity and sedentary behaviour opportunities in Canadian childcare facilities serving young children (<5y) and associations with facility characteristics.

Methods: A cross-sectional online survey employing a modified version of the Play Spaces and Environments for Children's Physical Activity Centre Director and Educator Survey was administered to 1,340 directors/owners of childcare facilities across Canada. Descriptive statistics summarized physical activity and sedentary opportunities and linear regressions explored associations between facility characteristics (childcare type, urbanicity, enrolment size) and duration of daily active play (indoor, outdoor, total, educator-led) and sedentary opportunities (longest bout of seated time, screen time).

Results: Participants reported offering 144.1 (± 99.3) minutes of indoor active play, 127.9 (± 73.0) minutes of outdoor active play, and 250.6 (± 139.0) minutes of total active play daily, with 88.5% of participants offering at least 120 minutes of total daily active play. Outside of meal and nap times, children were expected to sit for a maximum of 19.8 (± 16.7) minutes at a time. Among childcares using screens ($n = 380$), 57.1% noted screen use differed by child age; averages of 5.5 (± 11.8) and 20.2 (± 17.5) min/day were reported for children <2y and 2-4y, respectively. When screen time did not differ by age, an average of 25.4 (± 23.3) min/day was reported. Home-based childcare was associated with more daily indoor active play ($p = .011$), longer bouts of seated time ($p = .001$), and more daily screen time ($p < .001$) compared to centre-based childcare. Urban location was associated with more daily indoor active play ($p = .012$) and total active play ($p = .029$) compared to rural location. No associations were found for outdoor active play or educator-led physical activity.

Conclusion: While most Canadian childcares provide sufficient active play, physical activity and sedentary opportunities varied by childcare type and urbanicity, highlighting the need for targeted strategies to optimize active play, reduce prolonged sitting, and limit screen time across settings.

II-P-F.12

Biopsychosocial Indicators of Adolescent Participants Compared to Non-participants in Structured Sports Programs: A Network Analysis

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Purpose: To analyze potential differences in the biopsychosocial profile between students who participate and those who do not participate in sports within a public governmental program, using network analysis. Understanding participant profiles improves interventions, maximizes benefits, and expands youth access.

Methods: This cross-sectional study was conducted with adolescents aged 11 to 14 years, allocated into two groups: (1) participants from two structured sports schools ($n = 77$) and (2) students from two public schools who did not participate in these sports schools ($n = 122$). Assessments included anthropometric measures (body mass, height, waist circumference, and somatic maturation), physical fitness tests (standing long jump, sit-and-reach, and one-minute sit-up test), executive function measures (Visual Search, Mental Rotation, Corsi Block-Tapping Task, and Reaction Time Test), psychosocial indicators (sadness, peer rejection, and body image), and behavioral variables (difficulty performing school tasks, weekly Physical Education classes, screen time watching television, weekday and weekend mobile phone use, and number of friends at school). Network analysis was conducted in R using the *qgraph*, *bootnet*, and *ggplot2* packages, applying the EBICglasso estimator (0.1). Networks were estimated and presented using weighted adjacency matrices.

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Results: Network analysis revealed structural differences between groups. Students participating in sports programs exhibited a more interconnected network across domains of physical fitness, cognition, behavior, and individual characteristics. A higher frequency of Physical Education classes was positively associated with better reaction time (0.238). Additionally, greater difficulty in completing school tasks was associated with poorer body image perception (-0.239), which was negatively related to waist circumference (-0.067). In contrast, the network of non-participating students presented a more sparse and fragmented structure, with connections concentrated in a smaller number of variable pairs, indicating less integration between the analyzed domains. Greater interaction was observed between the individual and psychosocial domains and physical fitness, with particular emphasis on gender, girls showed a greater correlation with feelings of sadness (-0.123) and boys showed better results in fitness tests, such as jumping (0.240) and sit-ups (0.052).

Conclusion: Participation in structured sports programs was associated with a more integrated pattern of relationships among physical fitness, cognitive performance, behavioral, and psychosocial variables.

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I-P-G.01

Machine-learning Prediction of Obesity from Physical Activity, Sleep, and Screen Use in School-aged Youth

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Purpose: Childhood obesity is multifactorial, and physical activity (PA), sleep, and screen use are common targets of intersectoral prevention efforts. However, the predictive capacity of these movement behaviors remains underexplored. The aim of this study was to assess the predictive performance of PA, sleep duration, and recreational screen-use for obesity among children and adolescents aged 7-14 years in a southern Brazilian city.

Methods: Cross-sectional study with 1,449 participants (56% female) from Florianópolis, Brazil. Weight and height were directly measured to compute body mass index (BMI). Obesity was classified using World Health Organization BMI-for-age, sex-specific z-score references. Movement behaviors were self-reported with PA across active play, organized sports, and household chores, sleep hours on weekdays and weekends, and prior-day use of computer, smartphone, video games, or television. Sex, age, and maternal schooling were included as predictors. Sex-by-movement behavior interaction terms were engineered and tested, and included as candidate predictors in all models. The sample was split into training (70%) and test (30%) sets. Four machine learning (ML) models, LASSO, Elastic Net (ENet), Random Forest (RF), and Gradient Boosting (GB) were evaluated using area under the ROC curve (AUC), sensitivity, and specificity.

Results: All ML models showed moderate discrimination for obesity (AUC 0.62 [GB] to 0.65 [RF]). ENet (sensitivity = 0.76) and GB (sensitivity = 0.84) yielded the highest sensitivities, whereas LASSO achieved the highest specificity (0.89). Across models, consistent predictors of obesity were lower maternal schooling, male sex, younger age, and recreational screen use among males. PA and sleep were not significant independent predictors.

Conclusion: Recreational screen use, particularly among males, emerged as a predictor of obesity in school-aged youth. Movement behaviors showed limited utility for individual screening, indicating that prevention efforts should prioritize reducing screen time and consider sex-specific strategies.

I-P-G.02

Screen Time among Children and Youth with Disabilities: A Systematic Review and Meta-analysis

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Purpose: Given links between excessive screen time and adverse health outcomes, public health guidelines recommend children under 2 years should not engage in recreational screen time, children 2-4 years should engage in less than 1 hour of recreational screen time per day, and children and youth 5-17 years should engage in less than 2 hours of recreational screen time per day. However, missing from our understanding is the prevalence of screen time for children and youth with disabilities. Low rates of physical activity and high levels of sedentary behaviours in this population mean this cohort may be particularly at-risk for consequences associated with excessive screen time.

Methods: This study examined screen time, and adherence to screen time guidelines, among children (0-17 years) with varying disabilities. Via systematic review and meta-analysis, available data on screen time levels and adherence to screen time guidelines among children and youth with disabilities was searched in $n = 7$ electronic databases. Eligible studies included observational or baseline intervention data reporting recreational screen time among children and youth with disabilities. ASReview, an open-source machine learning model, was used to aid screening of titles and abstracts. Data were extracted by two reviewers and assessed for risk of bias. Random-effects meta-analyses estimated pooled daily screen time and adherence to screen time guidelines by disability types. Subgroup analyses

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explored age-related differences.

Results: Eighty-one studies representing over 1.2 million participants across 24 countries were included. Most studies focused on children with autism spectrum disorder ($n = 59$), and attention-deficit/hyperactivity disorder ($n = 21$). Screen time ranged from 0.5 to 7.27 hours/day with most children and youth exceeding population-based screen time guidelines. Older children spent more time engaged in recreational screen time than children in the early years (ages 0–4). Screen time also varied substantially by device type with televisions ($n = 135$) being the most reported.

Conclusion: These findings underscore the need for disability-specific interventions that address the unique participation barriers and social contexts of children and youth with disabilities impacting recreational screen use. Standardized screen time measures and targeted public health guidance are essential to measure and promote appropriate screen use behaviours.

I-P-G.03

Identifying Family Movement Behavior Profiles and Associations with Child BMI: Findings from the Pacific Island's Cohort for Cardiometabolic Health (PICCAH) Study in Guam

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Purpose: Movement behaviors are shaped within family contexts, yet few studies integrate both child and parent behaviors to identify family-level patterns. Using data from the Pacific Island's Cohort for Cardiometabolic Health (PICCAH) study, we aimed to (1) identify family movement behavior profiles using parent and child indicators and (2) examine associations with child BMI in a sample of children aged 4–8 years in Guam.

Methods: We analyzed data from 344 child-parent dyads in the PICCAH study (Guam, 2017–2022) with complete data on 8 movement-related variables: child average daily screen time, parent sitting while watching TV and in other contexts, and five Likert-style indicators of parental monitoring, structure, and support. All variables were standardized and subjected to principal components analysis (PCA). K-means clustering ($k = 3$) was conducted on PCA scores to identify distinct family movement behavior profiles. ANOVAs were used to assess differences in child BMI across profiles, stratified by child age group (4–6 vs 7–8 years).

Results: Principal components analysis (PCA) on eight child and parent behavior variables identified three components explaining 74% of the variance. K-means clustering on these components yielded three distinct family movement profiles. Cluster 1, “Structured & Supportive Parenting” (42%), showed the lowest child screen time (2.9 hrs/day), lower parental sedentary time, and the highest scores on screen time monitoring (3.35), routine (3.46), and limits (3.61). Cluster 2, “High Parent Sedentary / Low Structure” (31%), had the highest parental sitting (6.7 hrs/day TV, 3.4 hrs/day other), moderate child screen use (3.6 hrs/day), and lower monitoring (2.42) and structure (2.80). Cluster 3, “Less Engaged / Moderate Screen” (27%), had the lowest parental engagement (monitoring = 2.09, routine = 2.51, limits = 2.66), moderate child screen time (3.6 hrs/day), and the lowest parental sedentary time. Although BMI differed descriptively across clusters, ANOVA results showed no statistically significant differences in child or parent BMI.

Conclusion: Family movement profiles differed in screen use and engagement but showed no BMI differences. Findings highlight the value of targeting family-level behaviors to support healthy movement patterns in children.

I-P-G.04

Striking the “Sweet-Spot” of 24-hour Movement Behaviors to Achieve Healthy Weight across the Lifespan: A Pooled Data Meta-analysis of Individual Participant Data from 11 Studies

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Purpose: This study aimed to pool individual participant data to identify “sweet-spots” of 24-hour movement behaviors associated with healthy weight.

Methods: Wrist-worn accelerometer data was harmonized for 24-hour movement behaviors collected from 9,818 participants across 11 studies. Reprocessed raw data provided estimates of sleep duration, and time spent in sedentary behavior, light physical activity (LPA), and moderate-to-vigorous physical activity (MVPA). Healthy weight was determined using body mass index and waist circumference. Sweet-spot was defined as the compositional mean of all movement behavior compositions associated with healthy weight. We performed the analysis separately for children, adolescents, adults, and older adults.

Results: Healthy weight was more likely achieved with overall movement behavior composition including 7.3–9.0 hours of sleep, 9.9–12.5 hours of sedentary behavior, complemented by shorter periods of LPA (2.3–3.8 hours) and MVPA (0.7–1.7 hours). Clinically significant differences in sweet-spots were observed for sex, with males requiring less LPA and more MVPA than females. Differences in LPA and MVPA were also observed between socioeconomic groups, although no consistent pattern was identified.

Conclusion: Optimizing movement behaviors presents a promising lifestyle strategy for weight management across the lifespan. However, durations of time required for these behaviors to achieve a healthy weight do not always align with current guidelines, suggesting a potential need to reappraise these recommendations. The observed variations between sex and socioeconomic groups further challenge the “one size fits all” approach, suggesting that more flexible and individualized guidelines are needed to better address individual needs.

I-P-G.05

Collaborative Development of Dynamic School Days: Perspectives from the School Community

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Purpose: Short bouts of physical activity during the school day can interrupt sedentary learning and enhance pupils' wellbeing. However, many Dutch schools struggle to implement a dynamic school day. This study supported eight primary schools in developing local dynamic school day implementation plans. We present lessons learned from the developmental process, based on pupils' perspectives, teachers' experiences, and school leaders' views.

Methods: Eight Dutch primary schools participated in an educational program to develop a local dynamic school day. Photo elicitation sessions were conducted with pupils aged 8-9. Pupils guided researchers through their schools, taking polaroid photos of areas where they were physically active or inactive. In follow-up sessions, pupils reviewed the photos and drew activities they wished to engage in within the classroom, school building, and schoolyard. Data were analyzed using the Youth Physical Activity Promotion Model (YPAPM) and shared with schools to guide their implementation plans. At the start of the implementation year, school development teams evaluated the process by creating a timeline. Semi-structured interviews with school leaders explored their experiences and perspectives on implementing dynamic school day policies.

Results: Photo elicitation revealed pupils' perspectives on physical activity opportunities and barriers, including environmental, social, and emotional factors. Semi-structured interviews with school leaders provided insights into policy components realized during the development year. Timeline evaluations highlighted challenges such as balancing curriculum demands, engaging staff, and aligning policies with the school's context.

Conclusion: A structured yet flexible development process is key to creating dynamic school day policies. Incorporating pupils' voices, teachers' experiences, and school leaders' perspectives enabled schools to design context-specific, actionable plans. The yearlong implementation period allowed schools to reflect, adapt, and refine their approaches, demonstrating the value of iterative development and collaboration. Supporting schools through an inclusive and reflective process can lead to more sustainable and effective implementation of dynamic school day policies.

I-P-G.07

Associations between Hispanic Fathers' Physical Activity Parenting Practices and their Children's Physical Activity Participation at Different Intensities

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Purpose: Fathers' physical activity (PA) parenting practices are associated with their children being physically active, engaging in PA with their children, and modeling PA for their children. We evaluated fathers' PA parenting practices and their associations with children's sedentary time (ST), light PA (LPA), and moderate-to-vigorous PA (MVPA), using baseline data from the Healthy Dads, Healthy Kids-Hispanic Efficacy Trial.

Methods: Fathers with overweight and obesity (N=187) and their 5-11-year-old children were recruited at churches, clinics, community events, and social media during 2022-2025. Most fathers (48%) reported incomes between \$26,000-\$51,999. Fathers completed a 16-item survey in English or Spanish, on PA parenting practices consisting of 1) Autonomy Promotion (Involvement and Praise subfactors), and 2) Structure (Modeling and Co-participation subfactors). Children who had valid accelerometer data (>600 min/day, 4 days including 1 weekend day, N=170) were included and data were processed for ST, LPA, and MVPA. Three separate structural equation models were conducted to examine the associations between fathers' PA parenting practices and children's ST, LPA, and MVPA, with children's age, sex, and accelerometer wear time as covariates.

Results: Model 1's RMSEA=0.025, CFI=0.997, SRMR=0.057, Model 2's RMSEA=0.026, CFI=0.996, SRMR=0.057, and Model 3's RMSEA=0.038, CFI=0.991, and SRMR=0.057 suggest the data fit to the models was acceptable. There were no significant associations between fathers' Autonomy Promotion ($\beta=0.07$, SE=0.15, 95% CI[-0.24, 0.37], $p=.67$) or Structure ($\beta=0.09$, SE=0.15, 95% CI[-0.20, 0.38], $p=.55$) and children's ST. Children's LPA was not significantly associated with fathers' Autonomy Promotion ($\beta=-0.10$, SE=0.20, 95% CI[-0.49, 0.30], $p=.63$) or Structure ($\beta=0.12$, SE=0.20, 95% CI[-0.26, 0.50], $p=.54$). Children's MVPA was not significantly associated with fathers' Autonomy Promotion ($\beta=-0.05$, SE=0.21, 95% CI[-0.46, 0.35], $p=.79$) or Structure ($\beta=0.21$, SE=0.20, 95% CI[-0.17, 0.60], $p=.29$).

Conclusion: We found no significant associations between Hispanic fathers' PA parenting practices and children's ST and PA levels. Our findings contrast with some previous research and highlight the need to examine other factors that may contribute to children's ST and PA levels. Future studies should investigate other PA parenting practices such as control, logistic support, and the influence of mothers' parenting practices among Hispanic families.

I-P-G.08

Predicting Energy Expenditure in Preschoolers: Evaluating Machine Learning Models, METs Estimation Methods, and their Influence on Activity Classification

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Purpose: The growing use of raw accelerometer data and machine learning presents new opportunities to enhance the utility of wearable data and promote harmonization across datasets (Farrahi & Rostami, 2024). In preschool-aged populations, machine learning has been applied to model and predict physical activity from accelerometer data; however, limited research has compared how these models perform. The purpose of this study was to compare estimates of time spent in different physical activity (PA) intensities derived from activity classification random forest (RF) models and metabolic equivalent (MET)-based models using different approaches to calculate METs.

Methods: Data were obtained from preschool-aged children participating in the Guelph Family Health Study (n=118; ages 3 to <6 years). Children wore an ActiGraph wGT3X-BT accelerometer (100Hz) on their right hip continuously for a week. Two activity classification RFs (Ahmadi et al., 2020b; 2022) were applied in addition to two RFs trained to predict youth-METs (Ahmadi et al., 2020a; Coyle-Asbil et al., 2025), one RF trained to predict adult-METs, and two RFs trained to METs derived from resting metabolic rate (RMR; adjusted Coyle-Asbil et al., 2025 model). Time spent in sedentary (SED), light (LPA), and moderate-to-vigorous (MVPA) activity intensities was compared using repeated-measures ANOVA with Bonferroni-adjusted pairwise comparisons.

Results: The ANOVA indicated that model choice resulted in significant differences in calculated time spent in SED, LPA, and MVPA ($p<.001$). RF models trained to predict youth- or adult-based METs produced unrealistically low SED times (0.4–5.8 min/day) and implausibly high PA estimates (725.99–730.89 min/day). In contrast, RF models trained to predict METs derived from resting metabolic rate (RMR) showed the opposite trend, yielding greater daily SED

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(438.6–539.8 min/day) and lower PA times (191.1–292.3 min/day). Activity classification models generated the most realistic estimates (SED=300–302 min/day; PA=428.5–430.9 min/day).

Conclusion: Model choice substantially influenced estimates of time spent across activity intensities, emphasizing the importance of methodological consistency. Activity classification models produced estimates within the broad range of METs-based models and yielded the most plausible results under free-living conditions. These findings underscore that public health interpretations may vary considerably depending on the machine learning model applied.

I-P-G.09

Factors Associated with Fundamental Movement Skills among 6-12-Year-Old Children in a Northern Canadian Community

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Purpose: Fundamental movement skills (FMS), a core component of physical literacy (PL), develop in childhood and form the foundation for lifelong physical activity (PA). While socio-demographic, behavioral, and environmental factors are known to influence PL, most of the evidence comes from metropolitan settings. This study examined correlates of FMS among children in a medium-sized city in north-central British Columbia, Canada, addressing gaps in understanding FMS development in smaller communities with potentially limited access to organized sport and recreation opportunities.

Methods: This cross-sectional analysis included 166 children aged 6-12 years (66.9% boys; mean age = 8.3 ± 1.7 years) enrolled in short-term community sport programs. FMS (run, hop, overhand throw, kick, balance) were assessed using the PLAYbasic tool (good inter-rater reliability: ICC = .83–.90). Children completed the Physical Activity Questionnaire for Children (PAQ-C) for habitual PA, and parents reported past-week moderate-to-vigorous (MVPA), children's school commute, outdoor play, education, and coached sport participation. Bivariate correlations and multivariable regressions identified predictors of FMS competence.

Results: Most children scored in the “emerging” (70.3%) or “initial” (29.7%) range of FMS competence. In multivariable models, age ($\beta = 2.53$, SE = 0.30, $p < .0001$) and participation in coached sport ($\beta = 8.11$, SE = 1.81, $p < .0001$) were strong independent predictors of total FMS scores, explaining 45.4% of the variance. Parent- and child-reported PA were associated with FMS at the bivariate level but were not significant in adjusted models. Gender differences were minimal overall; however, boys scored higher on kicking ($p = .0003$) and reported higher PAQ-C scores ($p = .05$). In a separate model of kicking FMS scores, a significant age-by-gender interaction emerged, indicating that gender differences were absent in younger children but became more pronounced with age.

Conclusion: Children in this medium-sized city demonstrated generally low FMS competence. Participation in coached sport was the strongest predictor of skill development, highlighting the importance of structured, developmentally appropriate opportunities. The age-by-gender interaction in kicking suggests widening skill gaps with age, likely reflecting cumulative differences in opportunity. Equitable access to inclusive, coached sport programs may be key to advancing physical literacy and lifelong physical activity.

I-P-G.10

Lifestyle Habit Profiles and Emotional Eating in Children and Adolescents of Global Health Program

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Purpose: To date, research on lifestyle habits latent subgroups in youth has mainly focused on associations between profiles and psychosocial factors, often omitting to consider sex differences between profiles (i.e., using female-only

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samples or, at most, using sex as a control variable). The aims of this paper were to a) identify lifestyle habit profiles of adolescents based on sleep, diet, physical activity and screen time; b) explore potential differences in profiles according to sex, age, parental education level, and number of years in the program; c) examine the associations between lifestyle habit profile membership and emotional eating/body dissatisfaction; d) investigate the moderating role of sex in these associations.

Methods: Participants included 581 children and adolescents (6-17 years, $M = 14.05$ years, $SD = 1.68$; 44.1% girls) drawn from the baseline cross-sectional data of the Global Health Program (GHP) quasi-experimental study. Online questionnaires assessed sociodemographic, lifestyle habits, body dissatisfaction and emotional eating variables. Latent Profile Analysis was used to identify underlying participant profiles based on lifestyle habits. Linear regression and moderation analyses were also performed.

Results: Three profiles emerged: 1) “inactive, average lifestyle” ($N = 231$), 2) “healthier lifestyle” ($N = 174$) and 3) “unbalanced lifestyle” ($N = 176$). No meaningful differences in profile composition by sex, age, or parental education level ($p > .05$). Sex modified the association between profile membership and subtypes of emotional eating, but not body dissatisfaction. Girls in the “healthier lifestyle” profile showed less vulnerability to emotional eating (particularly for depressive and comfort) ($EMM = 2.08$, $SE = .10$) than girls in the “unbalanced lifestyle” ($EMM = 2.47$, $SE = .11$), $t(571) = -0.39$, $p = .025$. In contrast, in boys, profiles were not associated with any subtype of emotional eating.

Conclusion: This study identified three lifestyle profiles among GHP participants, showing sex-specific patterns in their associations with emotional eating. These results underscore the need for tailored school and healthcare interventions that integrate sleep, nutrition, physical activity, and mental health to foster balanced and protective routines in youth.

I-P-G.11

Associations between Independent Mobility and Perceived Barriers to Active Commuting to School among Spanish Youth

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Purpose: Independent mobility to school, defined as youth’s ability to commute without adult supervision, has been associated with greater autonomy among young people. However, its prevalence has declined in recent decades due to safety concerns and features of the built environment. This study examined the associations between independent mobility and perceived barriers to school among Spanish children and adolescents.

Methods: This cross-sectional study, part of the PACO project, included 1,841 participants (52% girls; mean age 13.9 ± 1.4 years) from 27 schools across 11 Spanish cities between 2015 and 2021. The sample comprised 407 children (mean age $= 10.7 \pm 0.6$ years; 49% girls) and 1,434 adolescents (mean age $= 14.6 \pm 0.9$ years; 53% girls). Analyses were conducted separately for children and adolescents. However, given the very low prevalence of independent mobility among children (8%), regression analyses were restricted to the adolescent subsample. Independent mobility was self-reported and defined as commuting to school without adult supervision. Perceived barriers were assessed using the BATACE questionnaire, grouped into two main categories (environmental/safety and planning/psychosocial barriers) and analyzed by category and individual items. Age, sex, and distance to school were self-reported and included as covariates in the models. Logistic regression models examined the associations between perceived barriers and independent mobility.

Results: Among children, only 8% commuted independently, and no significant associations were found between independent mobility and perceived barriers. Among adolescents, 47% reported commuting independently. Higher planning and psychosocial barriers were associated with lower odds of independent mobility ($OR = 0.71$; 95% CI: 0.54–0.95), whereas environmental and safety barriers showed a non-significant positive association ($OR = 1.30$; 95% CI: 0.95–1.79). No significant sex interactions were observed (all $p > 0.45$). At the item level, none of the barriers showed significant associations with independent mobility, but the absence of sidewalks or bike lanes showed a marginal significance ($OR = 1.19$; 95% CI: 0.99–1.43).

Conclusion: The main findings indicated that planning and psychosocial barriers were the most influential factors associated with independent mobility. In contrast, environmental and safety barriers showed no clear association between adolescents with and without independent mobility. Addressing these barriers may help promote adolescents’ autonomy through independent commuting.

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I-P-G.12

Influences of Physical Activity Participation amongst Female Tamariki: A Qualitative Investigation of Physical Activity Provider Perspectives

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Purpose: Physical activity is associated with many physical and mental health benefits for children and adolescents. Despite these recognised benefits, physical activity rates in Aotearoa New Zealand are low amongst children aged 5-11 years (tamariki), with significantly lower participation numbers evident amongst female tamariki. There is a lack of qualitative gender specific research in this area and an identified need to consider various stakeholders perspectives when understanding female tamariki physical activity behaviours. The findings presented herewith are part of a larger ongoing study examining stakeholders' perceptions of female tamariki within the Tāmaki Makaurau Auckland region. Findings specifically focus on the insights of Auckland-based physical activity providers, including their perceptions of barriers to, and facilitators of, participation.

Methods: Semi-structured, in-person interviews were carried out with representatives from physical activity providers across the Tāmaki Makaurau Auckland region. These providers were from a range of settings, including local clubs, regional sport organisations, and a representative regional sports trust. Given the complexities around physical activity behaviours, the socio-ecological model was used as a theoretical framework to guide the interview questions. Interviews were transcribed verbatim, and transcripts sent to participants for member checking. Data was analysed using thematic analysis.

Results: Key themes identified included: meeting the needs of the girls; empowering through leadership; and, reliance on societal support. It was recognised that fun and friendship were key motivators and girls also wanted to have a say in how sessions were run. Although it was noted that girls seem to thrive in an all-girl environment, this was not the case for all with some thriving in a mixed gender setting. The importance of female role models was also perceived as playing a key role in facilitating physical activity. A significant barrier to participation was the funding and implementation of the programmes.

Conclusion: The findings contribute to a more detailed understanding of factors that support and hinder physical activity participation in female tamariki. Such insights could help inform future efforts to support female tamariki to become more active.

I-P-G.13

Nutrition Education in Father-focused Childhood Obesity Prevention Interventions: A Scoping Review

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Purpose: Fathers are increasingly involved in child feeding, yet little is known about how nutrition education is integrated into father-focused childhood obesity prevention interventions. This scoping review is the first to map:

- (1) the extent to which nutrition education is incorporated;
- (2) the nutrition education topics reported;
- (3) the individuals delivering the interventions; and
- (4) the dietary outcomes evaluated.

Methods: A comprehensive literature search was conducted in April 2024 and updated in June 2025 across MEDLINE (Ovid), Web of Science, and CINAHL (EBSCO). Peer-reviewed, English-language articles were included with no restrictions on publication date or geographic location. Eligible interventions were preventive in nature, primarily targeted fathers as the change agent, and incorporated a nutrition education component. Multi-component interventions that concurrently addressed other weight-related behaviours (e.g., physical activity) were also included. Five reviewers independently screened studies and extracted data using a standardized tool developed for this review. Data were analyzed using content analysis following JBI Evidence Synthesis Conduct Standards.

Results: Of the 3,213 titles and abstracts screened, six unique interventions conducted in high-income Western countries met the inclusion criteria. Nutrition education was infrequently emphasized. Three interventions had ≤25%

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of sessions classified as nutrition-focused; one intervention allocated 26%–50% of sessions to nutrition, another included 51%–75%, and only one devoted >75% of sessions to nutrition-focused content. Commonly reported nutrition education topics were food parenting practices (n=6), goal setting (n=6), energy balance (n=5), national dietary guidelines (n=5), and relapse prevention/maintenance (n=5). Topics central to childhood obesity prevention, such as sugar-sweetened beverages (SSBs) (n=1), fast food (n=2), and fruit and vegetable intake (n=3), were less frequently reported. Many interventions (n=4) were delivered by physical education teachers and research students, with none delivered by registered dietitians. Commonly assessed outcomes included vegetable intake (n=5), SSB intake (n=4), and food parenting practices (n=4).

Conclusion: Few father-focused interventions adequately integrated nutrition education or involved dietitians, highlighting missed opportunities to strengthen fathers' nutrition knowledge and food parenting skills. Future interventions should embed more comprehensive nutrition education, engage registered dietitians, and assess a broader set of dietary outcomes to better support fathers' roles in promoting children's healthy eating and weight-related outcomes.

I-P-G.14

Agreement between the WHO Surveillance Questions on Diet: Estimates of Fruit and Vegetable Consumption Frequencies among Children in Germany and Ireland

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Purpose: Monitoring fruit and vegetable (F&V) consumption through a harmonized surveillance system is essential for shaping international public health policies. However, comparability of F&V data across national and international surveillance systems is hampered as different instruments are used. Our aim was to study the agreement between COSI and STEPS questions in estimating the frequency of F&V consumption among children.

Methods: In 2022, random samples of pupils were drawn from schools in Germany and Ireland, where data collection followed the COSI protocol. Parents were asked to complete both the COSI questions (a short food frequency questionnaire with six answer options ranging from “never” to “every day, more than once”) and the STEPS questions (open answers indicating the number of days per week), each assessing consumption frequencies of F&V separately. Weighted Kappa coefficients [95% confidence intervals] were computed for the variables into three categories (0-3 days/week, 4-6 days/week, every day). Multivariable binary logistic regression models were used to identify factors associated with agreement between the COSI and STEPS estimates.

Results: Among 4,582 and 4,436 families invited to participate in Germany and Ireland, and after excluding observations with missing data, analyses were conducted on 2,084 entries for fruit and 2,064 for vegetables. The proportion of vegetables consumed at least once/day was 44.7% according to the STEPS question, and 52.5% according to the COSI question. For fruit, these figures were 62.9% and 67.5%, respectively. Weighted kappa coefficients were 0.63 [0.60-0.66] for vegetables and 0.59 [0.56-0.63] for fruit. In separate analyses for F&V, having the highest parental education below a Master's degree (vs. ≥ Master's) or an overweight/obese child (vs. thin/normal weight) were independently associated with reduced agreement (AOR ranging between 0.56 and 0.78). For fruit frequency estimates, lower agreement was observed among families with no native parent (vs. both parents native: AOR= 0.60 [0.46-0.79]) and for COSI frequencies of 0-3 days/week (vs. 7 days/week: AOR= 0.21 [0.16-0.28]) and 4-6 days/week (AOR= 0.45 [0.34-0.59]).

Conclusion: Moderate agreement between existing WHO questions, with notable variability across subgroups, highlights the need for improved wording. Validation studies against comprehensive assessment of diet, such as 24-hours dietary recalls, are required.

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I-P-G.15

Evaluating Convergent Validity of the Canadian French Version of the Youth Activity Profile (YAP-F)

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Purpose: The Youth Activity Profile (YAP) is an online, self-report tool for assessing and promoting physical activity (PA) in schools. This study assessed the convergent validity of a new French translation (YAP-F) with concurrent accelerometry data, as a preliminary test of potential for A) broader use in Canada, and B) cross-cultural applications in YAP-related research.

Methods: Participants were 121 school-aged youth (6-17 y) in Québec, Canada, who wore an ActiGraph activity monitor for 24 hours on seven consecutive days before responding to the YAP-F. The survey provided an array of summary scores describing activity profiles in various segments (school PA, outside-of-school PA, weekday PA, weekend PA and total PA). Segment averages from the YAP-F were compared against temporally matched ActiGraph data processed using Monitor Independent Movement Summaries (MIMS). Average YAP-F scores were categorized into quintiles, and boxplots were constructed to depict the distribution of MIMS within each quintile bin. Emphasis was placed on the descriptive patterns, with correlation coefficients (Pearson r and Spearman ρ) providing quantitative insights on convergent validity.

Results: Boxplots followed the expected monotonic increase, with each successive category of YAP quintile corresponding to a higher median and/or interquartile range of MIMS scores. The correlations varied across school PA ($r=0.35$, $\rho=0.38$), outside-of-school PA ($r=0.13$; $\rho=0.17$), weekday PA ($r=0.20$; $\rho=0.23$), weekend PA ($r=0.38$; $\rho=0.40$), and total PA ($r=0.30$; $\rho=0.32$), with similar patterns and magnitudes for boys and girls.

Conclusion: The YAP-F provided an efficient way to capture data on youth PA patterns, showing promising associations with MIMS in every segment except outside-of-school PA. Our findings support the convergent validity of YAP-F with accelerometry, suggesting there is warrant in further research, including calibration and criterion validation of updated algorithms to predict PA. YAP-F can be reliably used as an assessment tool in PA programming for youth in Québec, Canada, and data can be compared with other regions that utilize YAP for similar purposes.

I-P-G.16

The Home Environment Moderates the Association between Physical Activity Parenting Practices and Children's Moderate-to-Vigorous Physical Activity

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Purpose: The home environment is a critical but underleveraged setting for promoting children's movement behaviors. This study examined whether physical activity (PA) resources in the home shape children's fundamental motor skills (FMS) and moderate-to-vigorous physical activity (MVPA), and whether these resources enhance the impact of physical activity parenting practices (PAPP).

Methods: This cross-sectional study included parents ($N = 55$, Mage = 39.6 years, 82.6% mothers) of children (Mage = 6.4 years, 55.1% female) enrolled in the Children's Health Activity Motor Program-Afterschool Program (National Institutes of Health NR-01786601) completed the Home Environment Survey. Subscales captured PA Availability (resources present) and PA Accessibility (ease of use). Children completed the Test of Gross Motor Development-3 and wore accelerometers for 7 days.

Results: Linear regression models showed that greater PA Accessibility was unexpectedly associated with lower FMS ($\beta = -0.23$, $p = .030$). In contrast, PA Availability moderated the effect of PAPP on MVPA: when more resources were available, supportive parenting was more strongly linked to children's activity ($\beta = 0.28$, $p = .014$). No moderation effects were observed for FMS.

Conclusion: Findings suggest that increasing the availability of home PA resources can amplify the effectiveness of

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supportive parenting practices, creating conditions that promote active lifestyles. Translationally, this underscores the need for multilevel interventions that combine parent-focused strategies with efforts to equip homes with accessible resources. Embedding such approaches in family and community programs may accelerate uptake, sustain impact, and bridge research-to-practice gaps in promoting healthy child development.

I-P-G.17

First-Time Parent and Child Health Professional Experiences on Support for Healthy Infant Nutrition and Teeth – Findings from Qualitative Interviews

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Purpose: Overweight, obesity and dental caries (tooth decay) in early childhood are preventable conditions with overlapping aetiologies through nutrition and feeding practices. Formula and bottle feeding behaviours can lead to overfeeding and exposure to free sugars – this includes feeding that is non-responsive to hunger and satiety, such as feeding to sleep or feeding to bottle emptying; or long-term bottle or formula use past 12 months age. Research on formula and bottle feeding remain in weight or dental health silos, with few studies focusing on how parents use non-responsive feeding manage child behaviour.

Understanding the advice provided around healthy eating and dental care—from the perspective of first-time parents and child health professionals—can support the development of communication and messages for supportive and responsive formula or bottle feeding behaviours, to prevent both excess weight gain and tooth decay.

This study aims to explore the beliefs, experiences and practices of first-time parents and child health professionals on supporting healthy nutrition and teeth for infants.

Methods: Semi-structured qualitative interviews were conducted with child and family health nurses and first-time parents of infants aged under 12 months. Inductive thematic analysis, following the Braun and Clarke method, will be undertaken.

Results: To date, 23 first-time mothers and six nurses have been interviewed. All mothers were university educated – most primarily spoke English (n=21) or were born in Australia (n=16). Preliminary analysis indicates mixed awareness on bottle cessation, cup transition, and feeding to sleep, and the association to tooth decay or overfeeding. Parents broadly agreed that healthy teeth and weight in infants were important for holistic and longer-term health outcomes. For parents feeding with bottles, few reported receiving information on paced feeding, or identifying hunger and satiety cues.

Conclusion: Some, but not all, first-time parents recalled receiving information on health nutrition and teeth from professional and social sources. Parents of babies at high risk of excess weight gain and poor dental health need targeted support on responsive parenting, including for sleep and settling, to support healthy teeth and growth. Primary health care providers are ideally situated to provide this support, but other needs may take precedence.

I-P-G.18

Refining the Choosing Health Eating for Infant Health Intervention and Implementation Strategy with Professional and Parent Stakeholders

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Purpose: The Choosing Healthy Eating for Infant Health (CHERISH) intervention was developed to support healthy infant feeding and prevent childhood obesity. The intervention included brief, consistent, verbal messages delivered by healthcare professionals (HCPs) at primary-care childhood vaccination visits. A feasibility study identified areas for refinement of intervention and trial processes. This study identified and addressed feasibility and implementation issues in the CHERISH recruitment processes and intervention delivery.

Methods: Methods. A multi-phase, mixed-methods approach was employed to include professional and parent needs

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and perspectives. Phase 1: The multidisciplinary team developed potential refinements to the CHERISH intervention delivery and trial processes. Phase 2: An online survey informed by the Theoretical Framework of Acceptability, was conducted to evaluate parents/caregiver attitudes about proposed refinements. Survey data were analysed using descriptive statistics. Phase 3: Interviews conducted with HCPs (e.g., lactation consultants, midwives) to ensure that parent/caregiver favoured refinements are feasible in practice. Qualitative interview data were analysed using reflexive thematic analysis.

Results: Phase 1 potential refinements involve including other HCPs (e.g., public health nurses (PHNs), and increasing frequency and timing of intervention delivery. In Phase 2, 95 parents/caregivers indicated that including PHNs in intervention delivery, incorporating additional intervention delivery timepoints, online intervention delivery, antenatal recruitment, and updated recruitment processes were feasible and acceptable. Preliminary findings from 19 HCP interviews HCPs indicate that including PHNs in intervention delivery, and additional intervention delivery timepoints are acceptable and feasible. Further interviews are scheduled and analysis of HCP data is ongoing.

Conclusion: Refining and adapting the CHERISH intervention in ways which are acceptable and feasible to HCPs and parents/caregivers is key to maximising the likelihood of successful future implementation and evaluation of the CHERISH intervention.

I-P-G.19

How Do Social Norms Influence Complementary Feeding: A Qualitative Longitudinal Study of Australian Caregivers

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Purpose: The complementary feeding period (6–23 months) is a critical stage for growth and development, when early eating behaviours begin to form and track into later life. Caregivers play a key role in shaping these early behaviours, yet adherence to complementary feeding recommendations remains low. Social norms are an important but underexplored influence on caregivers' feeding decisions. We aimed to explore how social norms influence complementary feeding practices among Australian caregivers, and how these norms shift across the feeding period.

Methods: A qualitative longitudinal study was conducted with Australian caregivers of infants recruited via social media. Semi-structured online interviews were undertaken when infants were approximately 6, 9, and 12 months old. Interviews explored feeding practices, advice, sources of influence, and perceptions of social norms. Data were analysed using reflexive thematic analysis, informed by discursive insights.

Results: Preliminary analyses of the interviews (n=16-18) identified three themes across timepoints: 1) Diverse complementary feeding norms exist, 2) Norms are ambiguous, 3) Negotiating and managing the norms. At six months, caregivers navigated diverse expectations around timing, feeding approach, and food types. Norms were often unclear but influential, communicated through subtle cues or advice from family, professionals, peers, or social media. By nine months, caregivers navigated expectations to provide "healthy" foods with growing confidence. By twelve months, the influence of social norms had largely reduced, with caregivers balancing health, convenience, and established routines. However, when describing their choices, it became clear that social expectations continued to shape caregivers' language and reasoning, revealing a paradox of perceived independence within ongoing social influence.

Conclusion: This novel research provides a nuanced view of the social context of early food provision, demonstrating how complementary feeding practices reflect an ongoing negotiation between social expectations, professional guidance, and lived realities. The introduction of solids appears to be a critical point for behavioural support, as caregivers are most uncertain and susceptible to social pressures. Recognising and addressing the subtle, ongoing influence of norms through providing stage-specific support, reinforcing positive norms and reducing pressures around "perfect" feeding may strengthen caregiver confidence and promote healthy, sustainable feeding behaviours.

I-P-G.20

Community-guided Adaptation of the LA CASA Nutrition Program for Hispanic Families

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Purpose: Childhood obesity is a national crisis, and Hispanic children are disproportionately affected. However, there is a lack of culturally tailored interventions to address these inequities. This presentation will describe the acculturation of the LA CASA (Comunidad, Alimentación, Seguridad y Amén), a nutrition intervention consisting of seven modules developed by the Hispanic community in conjunction with faith-based leaders

Methods: Guided by community-based participatory research principles and the Ecological Validity Model (EVM), we used a qualitative descriptive design and conducted four focus groups (FGs) with 29 participants. They were recruited through purposive sampling from faith-based organizations, the Mexican Consulate, and community organizations. Participants completed an 11-item demographic data sheet. The FGs were guided by the eight domains of the EVM, were conducted in Spanish, audio-recorded, transcribed, and translated. Rapid Analytic techniques were used to analyze the transcripts, and descriptive statistics were used to characterize the sample.

Results: Three FGs were conducted via Zoom and one in person. Average length was two hours. Mean age of the participants was 42 years, mean time living in the US was 12 years, 70% were from Mexico, and 41% spoke Spanish only. Five Themes aligned with the eight EVM domains.

Language and Metaphors: *Translation is insufficient.* Participants noted simple translation was insufficient for meaningful engagement. They recommended providing Spanish-language materials, reducing text density on slides, incorporating familiar food-related terminology, and tailoring content to the community's literacy levels.

Concepts and Content: *Eat well, honor culture.* Participants recommended including images of familiar Hispanic foods and requested colorful, visually appealing materials.

Goals & Methods: *Goals that matter, methods that resonate.* Participants preferred to receive the intervention in trusted and familiar settings, such as churches, and that sessions should not interfere with work or childcare demands. Weekend or evening classes were preferred.

Context and Person: *Grounded in culture, centered on people.* Participants emphasized that the intervention should be delivered by individuals who look like them and have a strong understanding of their cultural background. They also expressed a desire for images that reflected themselves and their families.

Conclusion: Interventions tailored to sub-groups could improve obesity prevalence and increase healthy eating in families.

I-P-G.21

How Can We Increase Physical Activity and Reduce Sedentary Behaviours in Adolescents? The Effects of Three School-based Interventions in Spain

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Purpose: Active commuting to school offers a valuable opportunity to counteract adolescents' low levels of physical activity. School-based interventions designed and implemented by teachers play a crucial role in fostering behavioural change and promoting healthy habits in this population. This study aimed to evaluate the effects of three distinct school-based intervention programs on usual commuting mode, physical activity, and sedentary behaviour among rural Spanish adolescents.

Methods: A total of 188 adolescents (mean age = 15.81 ± 1.02 years; 45.74% girls) participated in this study. Participants, grouped by class, were assigned to one of three intervention groups or a control group. All three intervention groups followed a Project-Based Learning approach consisting of four phases: planning, implementation, culmination, and evaluation. While sharing a common methodology within Physical Education lessons, the three interventions differed in duration (ranging from three months in Intervention Group 1 [IG1] to a full academic year in IG2 and IG3) and in the types of activities conducted (indoor [IG1 and IG2] vs. outdoor [IG3]). Adolescents self-reported their usual mode of commuting to school, physical activity levels, and sedentary behaviour. The effects of the intervention were examined using multiple linear mixed models.

Results: No significant changes were found in the usual mode of commuting across any group from baseline to follow-up. However, IG1 and IG2 intragroup analysis showed increased physical activity during recess (0.57; 95% CI: 0.08 to 1.06) compared to baseline. Additionally, IG1 demonstrated higher daily physical activity outside school and reduced sitting time (1.23; 95% CI: 0.74 to 1.73), with a medium to large effect size (0.74; 95% CI: 0.32 to 1.16) compared to the control group. Finally, IG3 showed an increase in weekend physical activity (0.39; 95% CI: 0.04 to 0.73) relative to the control group, although with a small effect size (0.30–0.32).

Conclusion: Interventions targeting the mode of commuting may lead to changes in physical activity and sedentary behaviour; however, a longer intervention is not necessarily the most effective. These findings suggest that teacher-led,

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school-based interventions can successfully promote physical activity and reduce sedentary behaviour, particularly when outdoor activities are incorporated, encouraging active and healthy lifestyles.

I-P-G.22

Analysis of Existing Interventions Stimulating Physical Activity and Motor Competence in 0–4-year-Old Children in the Netherlands Using EBI-mapping

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Purpose: Early childhood (0–4 years) represents an essential period for developing physical activity (PA) habits and motor competence (MC). However, compliance with PA guidelines among young children remains low, and MC levels are declining. Although multiple interventions exist in the Netherlands to promote PA and MC in this age group, there has been no systematic overview of their underlying behaviour change mechanisms. Consequently, it remains unclear how these interventions are expected to work and where opportunities lie for strengthening them. This study therefore applied Evidence-Based Intervention (EBI) Mapping (Walker et al., 2022), a systematic approach, to analyse and understand existing Dutch interventions aiming to promote PA and MC in children aged 0–4 years.

Methods: Following EBI-mapping steps, a qualitative analysis was conducted on Dutch EBIs and best practices. EBIs were identified through a national intervention database, and documentation was systematically analysed to extract the implementation setting, components and underlying behaviour change mechanisms (i.e., determinants and behaviour change techniques (BCTs)). Best practices were identified through advisory council consultation and snowball sampling, followed by semi-structured interviews with intervention owners/developers. Targeted determinants were categorised using the Theoretical Domains Framework, and BCTs were coded using BCT Taxonomy v1.

Results: Twenty-five interventions were included (13 EBIs, 12 best practices). Most were implemented in the childcare setting (n=14) with varying degrees of extension to the home environment. One intervention explicitly integrated multiple settings. Commonly targeted determinants in 0-4-year-old children were environmental context and resources (n=18), skills (n=17) and emotion (n=14), often operationalised through BCTs including adding objects to the environment, behavioural practice/rehearsal, and graded tasks. For environmental change agents (parents and childcare professionals), commonly addressed determinants were knowledge, beliefs about consequences, and skills, with BCTs of instructions on how to perform the behaviour and demonstration of behaviour.

Conclusion: Few Dutch interventions adopt a system-based approach to stimulate PA and MC in young children. EBI-mapping proved valuable for systematically identifying components and mechanisms of existing interventions. Integrating these insights with a broader understanding of needs and perspectives within the ecological system surrounding 0-4-year-olds will reveal opportunities for developing system-based strategies to stimulate MC and PA in these young children.

I-P-G.23

Digital Paths to Prenatal Yoga: The Feasibility of Online Prenatal Yoga in Canadian-living Women

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Purpose: The 2019 Canadian Prenatal Physical Activity guidelines recommend pregnant women practice prenatal yoga weekly; however, only 15-20% of pregnant women participate in yoga. Reported barriers to prenatal yoga include environmental (e.g., lack of access) and logistical (e.g., time) barriers. While asynchronous (i.e., pre-recorded) prenatal yoga offers addresses some of these barriers, it also has limitations (e.g., no individual feedback, no social interaction), which can be addressed through synchronous (i.e., live) prenatal yoga; no research to date has investigated the feasibility of synchronous online prenatal yoga programs. Thus, this study explored the feasibility

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and acceptability of a 10-week online synchronous prenatal yoga program.

Methods: The yoga program, designed and taught by a registered yoga teacher (500-hours), consisted of one weekly 45-minute class. Classes included a combination of physical movements, relaxation, and guided visualizations. Indicators of feasibility included recruitment (e.g., number of eligible participants), adherence, retention, number and type of adverse events, and intervention fidelity. Program feasibility and acceptability were assessed using validated measures at 10-weeks, when program evaluation measures were also completed.

Results: Thirty-three pregnant women from across Canada were recruited through maternal health care providers and social media. Eighteen were eligible; however, six dropped out of the program, leaving twelve participants enrolled ($M_{\text{gestational age}} = 19$; $SD = 6.98$). Participants attended an average of 5.27 (2.51) out of 10 classes. Nine women completed all measures at all time points, resulting in a retention rate of 75%. No adverse events were reported, and all classes were delivered as intended. The program was perceived as implementable, but low interest and poor adherence suggest conflicting evidence. Program evaluation data showed that participants chose to join the program, and continued attending, based on its exclusivity to pregnant women, the online setting, the type of physical activity, and free cost.

Conclusion: Given the low interest and poor adherence, significant adjustments to the intervention should be made before further assessing it. Future studies should collaborate with prenatal health care services (e.g., prenatal yoga studios, public health prenatal programs) to increase exposure to online synchronous prenatal yoga programs to increase uptake.

I-P-G.24

Criterion and Convergent Validity of Youth Physical Activity and Sedentary Behavior Questionnaires in Schools' Setting: Current Evidence and Future Perspectives

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Purpose: Physical activity (PA) and sedentary behaviour (SB), both valuable for monitoring the health status of the youth individuals, can be assessed using questionnaires that are easy to implement and provide a cost-effective way to collect data. The purpose of this study is to systematically summarize the available studies that evaluate the criterion and convergent validity of questionnaires measuring PA and SB in children and adolescents within school environments.

Methods: A systematic review was conducted to evaluate research that used questionnaires comparing PA and SB to an objective measure among children and adolescents. Studies published in the following databases SPORTDiscuss, Medline, Scopus, ERIC, Academic Search Complete, Education Source and Cochrane Library were searched with no date limits. Studies were eligible for inclusion if they employed self-reported questionnaires among individuals aged between 5 and 20 years and assessed criterion/ convergent validity using an objective measure in a school setting. Studies also had to assess both PA and SB measurements' properties and be written in English. Two researchers (MG-SB) independently screened studies and extracted data. The standardized Consensus-based Standards for the selection of health Measurement INstruments (COSMIN) checklist is used for the studies risk of bias (assessment in progress).

PROSPERO Registration: CRD420251125556

Results: Among 3,278 title and abstract screens, 17 articles examining a total of 12 different questionnaires were included in this review. Within the 17 articles, in addition to the criterion and convergent validities, eight studies also assessed the test-retest reliability, and three studies evaluated the content and construct validity. The validity of questionnaires was generally significantly and moderately correlated to the objective measures, with correlation coefficients ranging from $r=0.11$ to 0.80 , $p=0.20$ to 0.87 ; Bland-Altman plots were $\rho=0.56$ to 0.7 and MAPE results were = 50.6% to 199.6%.

Conclusion: Five questionnaires were identified: PAQ, MARCA, YAP, YPAS and a home-made questionnaire from Bringold-Isler et al. We found conclusive evidence for acceptable validity (moderate to good results) for both PA and SB. More attention on the criterion and convergent validity of PA and SB questionnaires is needed to confirm that questionnaires measure what they intend to measure.

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I-P-G.25

Daytime Sleepiness Is Associated with Physical Activity and Time Spent Sedentary among Chinese Adolescents

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Purpose: Understanding the dynamic relationship between sleep, physical activity, and sedentary behavior is essential to addressing the health and well-being of adolescents. Of particular interest, Chinese adolescents are increasingly failing to achieve physical activity and sleep recommendations and engaging in high amounts of sedentary behavior. However, how sleep duration or daytime sleepiness might impact physical activity or sedentary behaviors is unclear. The present study was designed to examine the association between daytime sleepiness, physical activity, and sedentary behaviors among Chinese adolescents in the hopes that these results could inform future interventions.

Methods: A cross-sectional study was conducted at a large secondary school in Wuhan, China. Data were collected using a translated version of questionnaires developed for the Family Life, Activity, Sun, Health, and Eating (FLASHE) study. Daily moderate-to-vigorous physical activity (MVPA) and sedentary time (SED) were estimated using the Youth Activity Profile (YAP), while sleep duration (minutes/night) and daytime sleepiness (1-5, never-always) were assessed using previously validated questions. Two ordinal least squares regression analyses were performed to examine the relationship between daytime sleepiness and PA (model 1) and SED (model 2) while controlling for BMI-z score, grade, gender, income, SED (model 1), PA (model 2), PA barriers/attitude/motivation (model 1), self-efficacy/motivation to reduce SED (model 2), and sleep duration.

Results: A total of 2,750 participants provided complete data for analysis. The results of model 1 indicated that daytime sleepiness was significantly associated with MVPA, with a one-point increase in daytime sleepiness associated with 2-3 minutes less MVPA per day. The results of model 2 indicated that daytime sleepiness was significantly associated with SED, with a one-point increase in daytime sleepiness associated with 3-26 minutes more SED per day.

Conclusion: Understanding the relationship between sleep, daytime sleepiness, physical activity, and sedentary behavior is essential if interventions are to be developed to increase physical activity and decrease sedentary time among Chinese adolescents. Future research should explore these relationships to better understand how they interact and how to better target the problem in future public health interventions.

I-P-G.26

Investigating the Interplay of Movement, Engagement, and Wellbeing in Physically Active Learning Contexts: A Multi-case Study of Elementary Schools in Nova Scotia, Canada

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Purpose: Physically active learning (PAL) is an emerging movement-based pedagogy in schools beneficial for student learning, physical activity (PA), and wellbeing. However, more research is needed on effective implementation of PAL, specifically where, how long, and in what ways movement is being integrated, and its associated outcomes, especially in the Canadian context. This study explored what types and intensities of PA, and related student behaviours and wellbeing outcomes (i.e., enjoyment, engagement, collaboration) were observed from typical PAL lesson structures, settings, and teacher behaviours (i.e., engagement, instruction).

Methods: A multi-case study was conducted, combining teacher demographics, PAL lesson observations (adapted from Texas Initiatives for Children's Activity and Nutrition Active Lesson Implementation form), and student accelerometry (ActiGraph GT3X+). Data were collected during one full school day among classes (students aged 9-11 years) that regularly implement PAL, as a result of training with the Nova Scotia (NS) Active Smarter Kids Project, across three school regions in NS, Canada. Observation data were examined using within and cross-case analysis. Demographic and movement data were analyzed descriptively, where movement intensities were categorized using Evenson's cut points.

Results: Participating teachers (n=3, all identifying as women) had 11-23 years of teaching and 2-5+ years of PAL experience. PAL lessons ranged from 21-45 minutes, were delivered outdoors on school grounds, and integrated

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math and/or literacy through relay-style formats involving primarily locomotor movements (e.g., running/walking/climbing). Students were consistently observed to be happy, engaged, and collaborative. Teachers' engagement varied from instructing on the sidelines to interactive, supportive participation. Fifty students (site 1: n=13; site 2: n=16; site 3: n=21) wore accelerometers. PAL lessons contributed 5.6 ± 0.9 minutes of moderate-vigorous PA (MVPA) and 9.6 ± 2.4 minutes of light PA (LPA), representing $15.0\% \pm 4.4\%$ and $9.8\% \pm 2.0\%$ of the total school-day MVPA and LPA, respectively. PAL lessons consistently produced a greater proportion of school-day MVPA than both traditional math classes and morning recess.

Conclusion: PAL lessons facilitated predominantly locomotor movements across varied intensities, aligning with provincial school-based and national movement guidelines and were found to support positive student wellbeing. These findings provide support for the continuation and expansion of PAL as a health-promoting school initiative.

I-P-G.27

Objective Assessment of Differences in Physical Activity and Sleep from School Year to Summer in Children with Intellectual and Developmental Disabilities

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Purpose: The Structured Days Hypothesis suggests that structured environments, such as school, help improve physical activity (PA), sedentary time, and sleep, whereas unstructured periods, like summer, contribute to worsening obesogenic behaviors. However, very few studies have applied the SDH to children with intellectual and developmental disabilities (IDD), or objectively measured differences in these behaviors (e.g., physical activity, sedentary time, sleep) from school year to summer in this population.

Methods: Nine children with IDD (8.9 ± 1.8 years, 56% female, 89% White, 56% with obesity, 44% with autism) were recruited from a local community program. This study children's moderate-to-vigorous PA (MVPA), light PA, sedentary time, and sleep (onset/offset time and onset/offset variability) measured via a 14-day waist-worn accelerometry protocol during school (April/May) and summer (June/July). Descriptive statistics were used to describe the sample characteristics and differences in outcome measures from school to summer.

Results: Seven of the nine children provided both school and summer measures with a total of 151 days meeting criteria for analysis (school: 12 days per child, summer: 10 days per child). MVPA aligned with the SDH in 5 of the 7 children with an average of 11.9 minutes/day less MVPA during summer. Light PA aligned with the SDH in 6 of the 7 children with an average of 67.9 minutes/day less light PA during summer. Sedentary time aligned with the SDH in 5 of the 7 children with an average of 16.4 minutes/day increase in sedentary time during summer. Sleep offset time aligned with the SDH across all children with sleep offset occurring 123 minutes later during summer but was more variable in during the school year in 5 of the 7 children. Sleep onset aligned with the SDH in 5 of 7 children with onset occurring 46 minutes later during summer but and was more variable during the summer in 5 of the 7 children.

Conclusion: PA and sleep behaviors aligned with SDH (e.g., improved during the school year) in a majority of this sample of children with IDD. A structured environment, like school, may positively influence PA and shift sleep timing earlier in children with IDD.

I-P-G.29

Two Methods for Personalizing the Delivery of Nutrition Education Based on Adolescent Diet

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Purpose: Consuming the five essential food groups—fruits, vegetables, grains, protein, and dairy—is important for promoting health. However, many adolescents do not follow United States Department of Agriculture guidelines. Personalizing interventions to individual needs (e.g., current eating patterns) may more effectively improve dietary habits than providing general nutritional education. This study compares two approaches to personalizing nutrition education.

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Methods: Adolescents completed a demographic survey and the SPAN food frequency questionnaire assessing consumption of the recommended amounts of fruits (<3 or ≥3 servings), vegetables (<4 or ≥4), grains (<5 or ≥5), protein (<7 or ≥7), and dairy (<3 or ≥3). Each food group, consumption was dichotomized (Y/N) based on if adolescents were meeting recommendations, and nutrition patterns were evaluated using latent class analysis (LCAs), then labeled according to potential targets for delivering personalized nutrition content.

Results: Only average, adolescents ($n = 133$; 15.7 ± 1.1 years old; 67.4% female) were not meeting recommendations for 3.83 ± 1.10 food groups (range 0-5), and less than half were meeting recommendations for each group: fruit (21.8%), vegetables (37.6%), dairy (5.3%), grain (9.8%), and protein (42.9%). Adolescents were classified into two patterns. Pattern 1, ($n=117$; 87%) was characterized by personalization targets for fruits, vegetables, grains, protein, and dairy. Pattern 2 ($n=18$; 13%) had fruit, grains, and dairy as personalization targets. When comparing the targets identified by the nutrition patterns vs. categories where students were not meeting recommendations, 36.1% matched exactly, 43.6% included one extra target, 21.1% included two extra targets, and 1.5% included three extra targets. On average, the LCAs identified $0.90 \pm .78$ extra targets, which were overestimated across all categories: fruits (21.8%), vegetables (27.8%), dairy (5.3%), grains (9.8%), and protein (29.3%).

Conclusion: Adolescents in this sample exhibited two distinct nutritional patterns; however, they overestimated personalization targets by ~20% (on average, one additional target per person). Still this type of approach could help personalize group education content whereby adolescents could be broken into two groups based on their nutrition profiles. Conversely, digital interventions that offer an opportunity could higher degrees of tailoring may want to use adolescent's individual alignment with dietary recommendations to create personalized nutrition education targets.

I-P-G.31

Parents' Perceptions of Screen Time in Early Childhood: Results from the NavScreen Pilot Study

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Purpose: Screen time and its potential health consequences in early childhood (0–5 years) is a rapidly emerging focus area. Despite existing screen time guidelines, evidence-based parental support tools are lacking. The transition from no screen use to allowing limited exposure (e.g., up to one hour daily) during ages 1–3 presents a particular challenge for families. This study explored parents' perceptions to inform the development of a scalable intervention for navigating screen time during this critical period.

Methods: This study, initiated in October 2024, involved semi-structured interviews (online via Teams) with 15 parents of 1–3-year-olds (mean age 22 months), recruited through preschools and convenience/snowball sampling. Participants were predominantly Swedish born mothers with university education. Interviews were audio-recorded, transcribed verbatim, and are being analyzed using inductive thematic analysis.

Results: Preliminary findings reveal recurring patterns in parental perspectives. Parents expressed a need for guidance beyond screen time duration, including content appropriateness and parenting strategies. Most questioned the necessity of screen use at all in this age group, while also distinguishing between “better” and “worse” screen time (e.g., program pace, device type). Most found it manageable to limit screen time but anticipated greater challenges as children grow older, particularly when introducing it for the first time. Simultaneously, several suggested introducing support tools already from birth. Parents reported having family routines or rules, mainly for their child, but also expressed a desire to reduce their own screen time, something they found difficult and to negatively impact parent-child interactions. These results will be used to co-create an intervention, which will be evaluated in a randomized controlled trial that we recently got funding for. We will also present the study design of this trial.

Conclusion: Parents need practical support in navigating screen use, especially when first introduced. Findings highlight the importance of developing scalable interventions that address not only screen time duration but also content and parental habits. Supporting parental screen behavior may improve child screen use and family interactions. The results will be used to inform the new NavScreen intervention that will be evaluated in a full-scale trial in 2026-2028.

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First Insights into the Effectiveness of the Food Challenge: A Nutrition Education Program for Vocational and Practical Secondary Education

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Purpose: Nutrition education can be an effective strategy for positively influencing adolescent's eating behavior. The Food Challenge is a program developed to improve the eating behavior and lifestyle of students in vocational and practical secondary education. It consists of classroom lessons, guest lectures by students, and an excursion to a farm, during which students, for example, design a healthy poké bowl and take part in a bootcamp. The effectiveness of this program has not been evaluated yet, leaving it unclear to what extent the program achieves its goals. This study aimed to explore the effectiveness of the 2025 edition.

Methods: Using a pretest-posttest design, 89 students in the first two grades from nine schools in the Netherlands participated in the study (ages 12-14, 75% in vocational education). Before and after the program, students completed a digital questionnaire assessing their capacity (knowledge and skills), physical and social opportunity (ability at home and their friends' behavior), and motivation towards seven behaviors related to healthy and sustainable eating and physical activity (mostly measured on 5-point scales), as well as the behaviors themselves (mostly in days per week). Differences between the pretest and posttest scores were analyzed using paired t-tests and Wilcoxon signed-rank tests.

Results: The results demonstrated a few modest changes. Scores on knowledge and physical opportunity related to sustainable behavior ($7\% \pm 3\%$ and 0.18 ± 0.11 , both $p=0.05$) and physical activity behavior (1, $p=0.00$) were significantly higher after the program. Scores on knowledge related to healthy behavior ($5\% \pm 3\%$, $p=0.08$) and skills related to sustainable behavior (0.16 ± 0.10 , $p=0.10$) after the program approached statistical significance. No notable differences were observed regarding the other outcome measures.

Conclusion: This study represents a valuable first step in evaluating the effects of the Food Challenge for adolescents in vocational and practical secondary education. The results indicated modest positive changes in physical activity and in several determinants related mainly to sustainable eating behaviors. Future research, ideally with a larger sample and a control group, is needed to further examine the effectiveness of the Food Challenge and other nutrition education programs, particularly for adolescents in more practical educational tracks.

I-P-G.33

Feeding Practices across Contexts: Fifteen Years of the Feeding Practices and Structure Questionnaire (FPSQ)

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Purpose: Over the past 25 years, numerous parental food parenting measures have been developed. Some have been extensively tested and used in many different samples, while others were developed for study-specific purposes and seldom reused. The initial version of the Feeding Practices and Structure Questionnaire (FPSQ) was developed and validated 15 years ago in Australia and later extended with two additional developmentally appropriate versions. It was one of the first measures to assess structure-related feeding practices, in addition to the commonly measured coercive or non-responsive practices associated with childhood obesity. This presentation reflects on the evolution and usage of and issues with the FPSQ, with relevance to other feeding questionnaires.

Methods: FPSQ use across countries, languages and samples is summarized, based on records of requests from prospective users and systematic literature review. Issues arising from translation, adaptation, and implementation, particularly in recent Scandinavian applications, are also examined.

Results: The FPSQ has been used in 25 countries, with potential translation into 23 languages other than English. Validation studies include samples from Vietnam, Turkey and Scandinavia, as well as some specifically focused on samples of fathers. The FPSQ has been employed to evaluate intervention effectiveness (e.g., PICNIC, Fussy Eating Rescue), as content guide for qualitative research, and its scores utilized for targeted nutrition education. Translation work revealed cross-cultural comprehension challenges (e.g., terms such as being firm or upset in Vietnam), while Danish and Swedish adaptations required clarifying "(favourite) foods" to encompass snacks and meals (e.g., sweets or a dish of spaghetti). Internal reliability for structure-related feeding practices was occasionally lower than for

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non-responsive practices.

Conclusion: The FPSQ is widely used, validated across multiple contexts and including fathers, and demonstrates (longitudinal) measurement invariance. Its age-appropriate versions allow assessment of non-responsive and structure-related feeding practices from infancy to later childhood. Ongoing cultural adaptation and psychometric testing remain essential to ensure conceptual and linguistic equivalence across contexts, offering valuable insights for the continued refinement of this and other food parenting measurement tools.

I-P-G.34

Learning Aquatic Skills? Stay Balanced

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Purpose: Motor challenges, such as balance are a relevant topic in children with autism spectrum disorders (ASD). These motor challenges may affect more developmental areas, causing 'double trouble'. This study aimed to investigate whether the lower quality of motor skills also extends to water-related balance skills. These skills are crucial for learning to swim, ensuring safety in the water, and participating in aquatic sports and leisure activities. Balance control is essential to maintain a stable position and feel secure in the aquatic environment.

Methods: In this cross-sectional study, we compare land- and water-related balance skills of children with and without ASD in the 3th lesson of their swimming education. Participants were recruited from commercial swim class providers, swim clubs and through special education school swim programs. A sample of children (n=106) between 5 and 10 years old with ASD (n=26) and without ASD (n=80), have been assessed for their land-related balance skills with the Movement ABC-2 and for the water-related balance skills with the Water Orientation Test for ASD (Wot-ASD). The data were analysed with the Mann-Whitney U tests and regression analyses.

Results: Descriptive statistics indicate differences in age and gender distribution between the groups. The mean age of children with ASD is 7,6 years (sd 1,50), the mean age of TD children is 6,1 (sd 1,57). The division between boys and girls in the ASD group is 22:4, and in the TD group, 40:40

On total balance, dynamic balance and static balance, significant differences were found, respectively, α is .001, .001 and .018 in favour of the TD group. No significant differences were found on any of the Wot-ASD subscales or total scale. The correlation coefficient R for land-related balance and the total Wot-ass scale is 0.55 for the whole group, 0.66 for the TD group, and 0.159 for the ASD group.

Conclusion: Despite the significant differences in land-related balance, we may cautiously assume that this has only a small effect on learning aquatic skills in children with ASD as they adapt as effectively to the properties of the water as TD children at a younger age.

I-P-G.35

Examining Parental-child Associations in Physical Activity and Fitness: A Mediation Analysis of a 12-week Multicomponent Intervention

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Purpose: To determine the effect of a multicomponent intervention on the moderate-to-vigorous physical activity (MVPA) of parents and their children; secondly, to examine the change in physical fitness (PF) as a result of the intervention; thirdly, to explore how the intervention modifies the time when children's MVPA takes place by examining changes in their parents' MVPA.

Methods: Participants were 68 fathers or mothers (age=41.0 [IQR:38.0,45.0]) and 68 children (age=11.0 [IQR:10.0,11.0]).

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These parent-child dyads were volunteers from two private and one public school, intentionally allocated to control and intervention groups. Both groups completed questionnaires about MVPA and PF. The 12-week multicomponent intervention included educational infographics and videos highlighting the health benefits of regular physical activity, which were sent every Monday to parents via email and WhatsApp. On Fridays, parents received messages with suggestions for engaging in physical activities during the weekend. In addition, three face-to-face sessions were conducted with parents and children. The analysis was adjusted by age, sex and school. The comparison was made with the Wilcoxon rank sum test, and statistical significance was set at $p < 0.05$. All analyses were performed using “tidyverse” and “gtsummary” packages, and the “PROCESS” macro in R Studio for mediation analysis.

Results: Only general PF showed a statistically significant difference ($p = 0.030$) over time and between the delta values of the intervention and control groups. The intervention improved parents’ MVPA and increased children’s MVPA out-of-school ($p = 0.038$) and on weekends ($p = 0.024$). In mediation analysis, no direct or indirect effects were found in any of the proposed models, except for a significant association between the change in MVPA of parents and the change in MVPA of children. Specifically, the change in parents’ MVPA was inversely associated with in-school MVPA in children ($\beta: 0.01$; 95%CI: -0.01 – -0.00), while it was positively associated with out-of-school and weekend MVPA in children ($\beta: 0.04$; 95%CI: 0.00 – 0.04).

Conclusion: Intervention improved parents’ PF and increased children’s MVPA out of school and on weekends. These findings underscore the complex interplay between parental engagement and children’s physical activity, suggesting that even without direct mediation, parents’ participation in interventions can create meaningful benefits for their children’s active behaviours.

I-P-G.36

A Pilot Randomized Controlled Trial of a Pediatrician’s Referral to Summer Camp to Treat Obesity in Underserved Children: Study Protocol for the Summer CAMPs Trial

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Purpose: Children from low-income households and who are overweight or obese (OWOB) are at an increased risk of accelerated weight gain during summer months compared to peers. Current behavioral interventions and clinical practices to treat children with OWOB lack the necessary intensity, incorporate multi-component interventions that are difficult to deliver consistently; fail to address barriers such as cost, and are not implemented during a critical period for weight gain (summer). This study examines the feasibility, acceptability, and preliminary effectiveness of a pediatrician’s referral for low-income children with OWOB to attend summer day camps free of charge.

Methods: This US-based pilot randomized clinical trial will enroll 80 children (eligibility criteria: OWOB status, 5-11 years old, Medicaid-insured) who attend three pediatric endocrine clinics. Participants will be randomized to either a pediatric voucher referral (PVR) group ($n = 40$) from their endocrinologist to attend an 8-week summer camp free-of-charge, or a standard care control group ($n = 40$). Outcomes include: 1) feasibility (PVR delivery) and acceptability (PVR uptake), 2) changes in zBMI and %bodyfat during summer (PVR vs. standard care groups), and obesogenic behaviors (physical activity, sleep, screen time, and diet) differences between PVR and standard care groups, and 3) a qualitative exploration with children, parents, and clinic and camp providers of facilitators/barriers of participating in the intervention and challenges facing all families in relation to weight management during summer.

Results: This study is currently in the recruitment phase. Descriptive statistics will summarize feasibility and acceptability outcomes (*recruitment, adherence, data collection quality, intervention acceptability and fidelity*). Multilevel growth models will evaluate differences in slopes between the PVR and standard care for zBMI and %Bodyfat (Δ summer). Mixed-effects models will examine differences in obesogenic behaviors between PVR and standard care groups. Inductive and deductive processes will be used for coding qualitative transcripts and analysis of themes.

Conclusion: This study has great potential to inform policies supporting subsidized access to local summer day camps for underserved children and families meeting health- and income-based criteria. This approach is highly scalable given the widespread presence of summer day camps and pediatric health centers in communities across the US -- and other countries potentially.

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I-P-G.37

Greater Home-specific Stress Is Positively Associated with Parents' Automatic Smartphone Use

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Purpose: Screen use often becomes habitual under stress because it is constantly prompted by situational cues, is immediately rewarding, and can be cognitively undemanding, making it an efficient default when parents' mental bandwidth is reduced. Under stress, behavior shifts from goal-directed control to automatic responses, yet it remains unclear what type of stress is associated with automatic phone use in parents. This study investigates whether automatic phone use is associated with general perceived stress, or, more specifically, with context-dependent cues such as parental demands or environmental unpredictability (e.g., household chaos). We examined whether different types of stress differentially predict automatic smartphone use among parents with young children.

Methods: Parents of preschool-aged children ($n = 252$; 96% female, 69.4% White, mean age 36.0 ± 5.41 years) reported automatic phone use (Self-Report Behavioral Automaticity Index [SRBAI]), household chaos (Confusion, Hubbub, and Order Scale [CHAOS]), and general perceived stress (Perceived Stress Scale [PSS]). Home-specific stress was assessed via a 14-day EMA of stress arising from home demands, averaged across days. Hierarchical regression analyses were conducted to examine the associations of general perceived stress, home stress, and household chaos predicting automatic phone use. Covariates included parent sex, age, education, and income-to-poverty ratio.

Results: Greater home-specific stress significantly predicted greater automatic phone use ($B = 0.84$, 95% CI [0.11–1.58]). In contrast, neither household chaos ($B = 0.02$, 95% CI [0.00–0.05]) nor general perceived stress ($B = 0.01$, 95% CI [–0.03–0.04]) were associated with habitual automatic phone use after accounting for demographic factors. The model explained approximately 10% of the variance in habitual automatic phone use.

Conclusion: These results highlight the unique association between homespecific stress and parents' automatic smartphone use, suggesting that situational demands within the parenting environment may serve as cues for habitual screen behaviors. Stressors within the parenting environment may be particularly relevant for understanding automatic screen habits. Given the cross-sectional design, longitudinal assessments are needed to clarify the directionality of the relationship between home-specific stress and automatic phone use, and to examine how these screen time habits evolve over time.

I-P-G.38

Secular Trends in Accelerometer-derived Movement Behaviour Compositions among Czech Adolescents: Repeated Cross-sectional Analyses

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Purpose: Movement behaviours (MB) are increasingly recognised as interdependent determinants of adolescent health. However, recent evidence on trends in 24-h MB suggests a decline in physical activity (PA) and an increase in sedentary behaviour (SB) compared with the pre-COVID-19 period. This study examined trends in the MB composition consisting of physical activity (PA), sedentary behaviour (SB), and sleep among adolescents.

Methods: Repeated cross-sectional data were collected between 2018 and 2025 (excluding 2020 and 2021) from a sample of 1,685 adolescents aged 10–18 years. Twenty-four-hour MB, including moderate-to-vigorous physical activity (MVPA), light physical activity (LPA), SB, and sleep duration, were assessed using accelerometers. Daily time-use compositions were analysed using a compositional data analysis approach. Temporal trends were examined using mixed-effects regression models, with data collection categorised into three periods (2018–2019, 2022–2023, 2024–2025) and 24-h MB expressed as a set of isometric log-ratios. Analyses were stratified by age (10–14 years and 15–18 years) and sex. Estimates of 24-h MB are presented as bootstrapped 95% confidence intervals (CI). Differences in sex and age distribution across observed periods were evaluated using the chi-squared test.

Results: There were no differences in the proportion of sex across the observed periods ($p > 0.5$). The sample included a higher proportion of older adolescents (15–18 years) in the 2024–2025 period compared with the other periods ($p < 0.02$). After adjustment for age and sex, stable trends in MB compositions were observed across the three periods. For the whole sample across all periods, estimated MVPA averaged 34.4–49.8 minutes, LPA 247.5–284.3 minutes, SB

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628.1–668.1 minutes, and sleep 467.7–502.6 minutes. Significant differences between age groups and sexes were observed in MB compositions.

Conclusion: Accelerometer-derived data analysed using compositional methods indicate stable secular trends in time-use compositions among adolescents from 2018 to 2025. These findings suggest that observed declines in MVPA and increases in SB during COVID-19 may reflect short-term disruptions rather than sustained changes in underlying time-use patterns. Continued surveillance using objective measures is essential to accurately monitor MB and inform population-level intervention

I-P-G.39

Health and Fitness of Children with Dyslexia during Summer versus School Months: A Longitudinal Study

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Purpose: Children with dyslexia often face unique challenges that extend beyond academic performance, such as motor deficits (e.g., poor balance, coordination) that may reduce enjoyment, confidence, and participation in physical activity. The structured days hypothesis posits that the structured school year promotes healthier behaviors (increased physical activity) compared to less-structured periods, such as summer months. During summer, several studies in neurotypical children have shown accelerated weight-gain and cardiorespiratory fitness (CRF) loss occurs in neurotypical children, yet, whether this finding holds true in neurodiverse children – such as children with dyslexia – is less understood. The purpose of this study was to compare changes in weight-related and fitness outcomes among children with dyslexia during summer versus school months.

Methods: Participants were recruited from a specialized school for children with dyslexia to participate in periodic anthropometric assessments (Pre-summer; May, Post-summer/Pre-school; August, and Post-school; December 2025). Anthropometric data (height, weight, and percent body fat (%BF)) were collected using a Tanita DC-430U bioelectrical impedance scale. CRF was assessed using the Progressive Aerobic Cardiovascular Endurance Run (PACER). All measurements were administered in school by research assistants during physical education. Paired t-tests were used to evaluate summer and school changes (Δ). All analyses were conducted in Stata (v16.1).

Results: Eighteen children with dyslexia (mean age 10.6 years $\pm$ 2.0, 55% male, 78% normal weight) participated in pre/post summer (~102 days apart) and pre/post school (~112 days apart) measures. Statistically significant changes were not observed for zBMI or %body fat during summer months compared to school months. PACER laps decreased over summer (Mean Δ pre-to-post summer = -11.39 laps; $t(17) = 4.49$, $p < 0.01$) compared to school (Mean Δ pre-to-post school = +3.5 laps; $t(17) = 1.98$, $p = 0.06$), representing a statistically significant Δ in CRF during summer months compared to school months (Mean $\Delta = 14.9$ laps; $t(17) = 4.72$, $p < 0.01$).

Conclusion: Preliminary findings indicate physical fitness declines over summer compared to school months in children with dyslexia. These initial data highlight the need for targeted interventions during out-of-school periods to maintain physical activity and CRF in vulnerable populations, such as children with dyslexia.

I-P-G.40

School Breakfast Initiatives Associated with Increased Participation

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Purpose: School meals are critical to children's health, as ~30 million children participate in school meals and children consume up to 50% of their caloric intake at school. School breakfast is associated with improved health and academic outcomes. To increase participation, schools have implemented innovative strategies, such as adding smoothies, adding equipment to offer more hot or cold food items, or increasing marketing for school breakfast. This study examines whether new strategies are associated with changes in participation rates.

Methods: A cross-sectional analysis included 84 Pennsylvania schools participating in a statewide initiative that provided funding to implement new breakfast strategies. Analysis of variance found differences in mean breakfast participation rates across initiatives. Descriptive analyses assessed identified barriers.

Results: Adding or expanding an alternative serving strategy, such as breakfast after the bell or grab-and-go breakfast,

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was associated with a 1.66% increase in participation, which would equate to an additional ~28,220 students across Pennsylvania (PA). Adding equipment to serve more hot food, increasing hot food options, and adding cold food items were associated with participation increases compared to schools that did not implement these strategies (0.35% or ~5,950 students across PA, 0.87% or ~14,790 students, and 1.10% or ~18,700 students, respectively). Adding other equipment to expand food offerings, adding smoothies, and increasing breakfast marketing were not associated with increased participation. The most reported barriers were staffing shortages (50.6%), delays in receiving equipment/supplies (45.1%), and limited time for breakfast (35.2%). Notably, the least common barrier was resistance from school administrators (10.5%). None of the observed differences reached statistical significance.

Conclusion: Modest changes in participation could translate to substantial additional student participation. The lack of statistical significance may be attributable to a small sample size. Alternative serving strategies and expanded food options, including the equipment needed, could increase student breakfast participation. Addressing staffing and supply challenges could enhance efforts. Implementing targeted breakfast strategies may be a practical approach for schools to increase participation and support student health and academic success. Future research could use a larger sample of schools to accurately test for statistical significance.

I-P-G.41

Validation of the Ghanaian Version of the Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ): A Pilot Study

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Purpose: Physical activity surveillance among children and adolescents in low- and middle-income countries (LMICs) is constrained by limited culturally validated tools and the omission of key activity domains (e.g., chores and active play) in existing questionnaires. To address this gap, the app-based Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ) is currently being validated in 17 countries. This pilot study assessed the feasibility and acceptability of the app in Ghana in preparation for the main validation study.

Methods: Thirty-three child–parent dyads (children aged 8–17 years) were recruited from two schools in the Effutu Municipality, Winneba, Ghana. Participants completed the English language app-based GAC-PAQ with minimal research assistant support. Feasibility and acceptability outcomes included completion rate, completion time, post-survey ratings, and participant comments. Satisfaction was assessed with a 5-point scale ranging from very dissatisfied to very satisfied. Descriptive statistics summarize sociodemographic and outcome variables.

Results: The mean age of participating children and adolescents was 12.2 ± 2.7 years (54% female; 50% aged 8–11 years; 55% rural). Sixty-five participants completed the survey (100% adults, 100% children, 94% adolescents), yielding an overall completion rate of 99%. Mean completion time was 14 minutes. Overall, 92% of respondents reported being satisfied or very satisfied with the app. Seventeen participants provided in-app comments, with most describing the app as easy to use and reflective of children's routine activities. No negative usability concerns were reported.

Conclusion: The app-based GAC-PAQ demonstrated high acceptability and feasible completion time among child–parent dyads in Ghana, supporting progression to large-scale cross-sectional validation and broader implementation in LMIC surveillance contexts.

I-P-G.42

Examining the Relationship between Parental Eating Behaviours and Parental Feeding Practices and Styles: A Systematic Review

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Purpose: Parental feeding practices and styles can have lasting impact on the development of eating behaviours in children. However, the origins of parental feeding practices are not fully understood. We hypothesize that parental feeding practices and styles are informed in part by the parent's own eating behaviours. Therefore, the objective of this systematic review was to explore how eating behaviours of parents of children and adolescents are associated to their feeding styles and practices.

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Methods: This systematic review (PROSPERO Registration: CRD42024602542) explores the concept of parental eating behaviours, measured using questionnaires such as the Adult Eating Behaviour Questionnaire, Intuitive Eating Scale 2 or the Three-Factor Eating Questionnaire, and how they may be linked to parental feeding practices and styles, measured using tools such as the Child Feeding Questionnaire or Comprehensive Feeding Practices Questionnaire or observational methods. Searches were conducted in Medline, PubMed, Web of Science and PsycINFO. Observational studies (e.g., cross-sectional studies, cohort studies) or qualitative studies published in English between 2000 and 2025 were considered examining generally healthy parents and their children between 0 and 18 years old. All articles were screened using Covidence software by two researchers. Quality appraisal was conducted using the JBI Checklist for Analytical Cross Sectional Studies.

Results: Database searches yielded 5,736 records; 41 articles were included in this review. Articles explored notably parental eating behaviours such as emotional eating, dietary restraint and external eating found positive associations between these behaviours and parental feeding practices such as dietary restriction, instrumental eating and pressure to eat. Overall, studies mainly included mothers, were conducted in high income, western countries and focused on maladaptive eating behaviours and coercive feeding practices.

Conclusion: This review has the potential to improve our understanding of how parental feeding practices are linked to the parent's own eating behaviours. Future research should investigate eating behaviours and feeding practices of fathers as well as more positive eating behaviours and parental feeding practices. The results of this review could impact how family-based eating behaviour change interventions are developed, taking into consideration the eating behaviours of the parent to address how they feed their children.

I-P-G.43

Capturing Healthy Growth: A Photovoice Study of Professional Perspectives on Multilevel Influences on Nutrition and Physical Activity for Children across Texas

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Purpose: Childhood high weight has been labeled a pandemic and represents a multifactorial, multilevel public health challenge deeply connected to local context. While research has identified risk factors and effective interventions, the global burden continues to grow, disproportionately affecting vulnerable populations—revealing a disconnect between available evidence and contemporary contextual realities. Despite research on community experiences, little is known about how public health (PH) professionals perceive broader social and environmental influences on obesity prevention. Guided by implementation science, the Local Engagement through Narratives and Snapshots (LENS) Study used photovoice to identify community-level barriers and facilitators for helping children maintain healthy growth patterns. This study innovatively applies photovoice within a professional context, enabling participants to critically examine childhood high weight prevention influences informed by field experience.

Methods: Co-designed with community stakeholders and organized by the socioecological model (SEM), the LENS study conducted two photovoice sessions with 13 PH professionals at a Texas public health gathering in Fall 2025. Participants submitted images related to healthy living and engaged in hour-long focus groups facilitated by the SHOWeD framework. Sessions were audio-recorded and transcribed verbatim. Two researchers conducted thematic analysis combining inductive coding with deductive SEM mapping.

Results: Participants were predominantly (61.5%) employed in state/local government health organizations. At the community level, conducive built and social environments—including parks, playgrounds, beautified trails, health promotion messaging, and social connection—were identified as facilitators, while food deserts, limited transportation, and unhealthy community norms emerged as barriers. At the organizational level, healthy food menus and behavior-change incentives facilitated prevention. At the interpersonal level, influences had dual effects: intergenerational learning and coworker modeling fostered healthy behaviors, whereas family pressure, cultural norms, and unhealthy home environments presented barriers. At the individual level, knowledge, motivation, and cultural preferences enabled healthy living, while stigma, personal preferences, and skill deficits acted as barriers. Findings underscored the interconnected nature of these multilevel factors, demonstrating that influences on obesity prevention rarely occur in isolation.

Conclusion: These findings provide PH professionals with actionable leverage points within communities and relationships to design targeted, multilevel behavior change strategies for healthy child growth and obesity prevention.

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I-P-G.44

Early Childhood Home Food Environment Is Linked to Fruit and Vegetable Consumption in Pre-adolescence: A Longitudinal Study

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Purpose: The early childhood home food environment, including food availability, parental role-modelling, and parental self-efficacy, plays a primary role in shaping children's food consumption, which may persist into later life. We examined whether the early childhood home food environment is associated with fruit and vegetable consumption in pre-adolescence.

Methods: We used longitudinal data from 207 children participating in both the baseline (2017; aged 3-6 years) and the 6-year follow-up (2023-2024; aged 9-12 years) of the DAGIS Salo study in Finland. At baseline, parents completed a questionnaire assessing the family's socioeconomic status (as parental educational level and household relative income), the child's age and gender, the availability of fruits and vegetables at home, parental role-modelling of fruit and vegetable consumption, and parents' self-efficacy in their ability to get the child to consume an adequate amount of fruits and vegetables. At follow-up, children completed a food frequency questionnaire on their fruit and vegetable consumption during the preceding week, with assistance from a parent. Associations between aspects of the early childhood home food environment and children's fruit and vegetable consumption during pre-adolescence were assessed using linear regression models adjusted for the child's age, gender, and family's socioeconomic status.

Results: In the regression model adjusted for the child's age, gender, and family's socioeconomic status, higher fruit and vegetable availability at home ($B=3.7$, 95% CI 1.6–6.0, $p=0.002$) and higher parental self-efficacy ($B=1.6$, 95% CI 0.2–3.2, $p=0.03$) in early childhood were significantly associated with more frequent fruit and vegetable consumption in pre-adolescence.

Conclusion: Improving home availability of fruits and vegetables and supporting the boosting of parental self-efficacy in getting their children to consume adequate amounts of fruits and vegetables during early childhood may enhance children's fruit and vegetable consumption in the long term, regardless of the family's socioeconomic status. These factors should therefore be targeted in future health promotion policies and interventions.

I-P-G.45

Schools Shape Who Moves, Where and How: Child-centred Realist Systems Mapping of Gendered Movement Inequalities in Scotland

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Purpose: Qualitative research on schoolbased physical activity (PA) often lists independent barriers and facilitators without explaining how everyday practices interact to (re)produce movement inequalities. Working with young children also raises questions about capturing this complexity in childcentred ways. This study used ChildCentred Realist Systems Mapping (CCRSM) to examine how primary school children experience movement and explain gendered inequalities in who moves and where.

Methods: A qualitative systems study was conducted with 24 pupils (aged 5–11 years) in two Scottish primary schools, using walking interviews ($n=22$) and drawandtell activities ($n=14$) to generate childcentred accounts of movement and how routines, social norms and school spaces interrelate. Data were analysed using a realistinformed thematic approach to identify causal mechanisms that shape movement patterns. Insights were first developed as context–mechanism–outcome (CMO) configurations, then translated into causal loop diagrams that visualised feedback processes and interconnections in the PA system.

Results: Children described interconnected themes showing how routines, gendered expectations and experiences

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of (un)belonging shape who moves where and how. “Movement wanted, movement rationed” captured desires to be active alongside tightly controlled opportunities, with brief “up on your feet” tasks remembered as calming and supporting learning. “Real sport is football” showed boys routed into visible, wellresourced football, while girls’ appetite for competition was pushed into lowerstatus, more fragile options. “Feeling safe to join in” highlighted how anticipated judgement and perceived competence shaped girls’ use of active spaces. Through iterative refinement, we developed four overarching and multiple supporting finegrained CMOs, and then causal loop diagrams, revealing interconnected, reinforcing feedback loops (n=5) that help explain how the gender gap in PA is reproduced over time.

Conclusion: CCRSM made visible the contexts and mechanisms through which schools (re)produce gendered hierarchies of movement, positioning boys’ activity as central while constraining and obscuring girls’ movement. As the first participatory CCRSM study in Scotland, this childcentred systems mapping connects children’s lived experiences to wholeschool practices and policy decisions, offering ways to plan changes that disrupt gendered patterns of whose movement is visible, valued and supported.

I-P-G.46

Dad Central: Evaluating the Usability and Acceptability of a Digital Father-focused Child Feeding Resource for Home Visiting Programs

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Purpose: Fathers play a critical role in shaping early childhood feeding behaviors yet are often underrepresented in early intervention programs, including home visiting programs (HVPs). Intentionally tailoring resources for fathers within HVPs offers a promising avenue to engage them in promoting healthy feeding practices and preventing childhood obesity. Using a community-engaged approach, a novel digital child feeding resource, Dad Central, was created for fathers. This study evaluated the usability and acceptability of Dad Central among fathers involved with HVPs.

Methods: A concurrent mixed methods design was utilized. Fathers (n=17) of young children, either currently or previously enrolled in HVPs or employed as fatherhood coaches, were recruited using purposive sampling and completed a three-part usability protocol. The protocol included an informational session and tutorial of Dad Central, a one-week usability period, and a follow-up, virtual semi-structured interview informed by the Technology Acceptance Model and Theory of Planned Behavior. Fathers also completed the validated mHealth App Usability Questionnaire (MAUQ; 1=low, 7=high). Quantitative data were analyzed using descriptive statistics, and interviews were audio-recorded, deidentified, transcribed, and analyzed using inductive thematic analysis.

Results: Overall, MAUQ scores indicated high perceived usability of Dad Central (6.35±0.56), with ease of use rated highest (6.55±0.48), followed by interface and satisfaction (6.31±0.59), and usefulness (6.20±0.86). For acceptability, participants reported they would use Dad Central again (6.41±0.51), were satisfied overall (6.47±0.51), and agreed it was an appropriate way to receive child feeding information (6.29±0.85). Qualitative insights supported these findings, with fathers describing the platform as intuitive, user-friendly, and engaging, with appealing branding and useful content and features. Suggestions for improvement include adding more visual aids and vibrant colors, consolidating or differentiating overlapping content, expanding topics and features, and increasing accessibility.

Conclusion: Dad Central was perceived as highly usable and acceptable by fathers of young children participating in HVPs. Findings support further refinement and larger-scale testing to evaluate effectiveness and highlight Dad Central’s potential as a model for tailoring digital child feeding resources in other early childhood intervention settings.

I-P-G.47

Cultural Adaptation and Content Validation of the Family Nutrition and Physical Activity (FNPA) Screening Tool for Tamil-speaking Families

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Purpose: Unhealthy dietary patterns and insufficient physical activity in childhood are major contributors to adverse health outcomes across the life course. Global evidence indicates that one in five children or adolescents experience excess adiposity, with more than 80% residing in low- and middle-income countries undergoing rapid nutrition and lifestyle transitions. In India, southern regions such as Puducherry and Tamil Nadu report combined overweight and obesity prevalence exceeding 20% among certain school-aged populations, particularly in urban settings. These trends highlight the urgent need for culturally responsive tools to assess family-level nutrition and physical activity behaviors within Tamil-speaking communities. The Family Nutrition and Physical Activity (FNPA) screening tool is widely used internationally to evaluate home environments that support healthy behaviors; however, a validated Tamil version is not currently available. This study aimed to translate, culturally adapt, and evaluate the content validity of the FNPA for use among Tamil-speaking families.

Methods: A structured cross-cultural adaptation process was conducted in community clinics across Tamil speaking population. The original English FNPA was forward translated into Tamil by bilingual researchers and independently back translated into English to ensure conceptual equivalence. Ten experts in pediatrics and internal medicine evaluated content validity using structured rating forms; item-level and scale-level Content Validity Indices (I-CVI and S-CVI) were calculated. Cognitive interviews with 50 parents using verbal probing techniques assessed clarity and cultural relevance, with thematic analysis guiding revisions. The finalized Tamil FNPA was administered to 50 participants to evaluate internal consistency using Cronbach's alpha and item-total correlations.

Results: Expert ratings demonstrated strong content validity across items. Cognitive interviews confirmed overall comprehension and cultural appropriateness, with minor refinements for locally relevant terminology related to dietary practices, screen time, and physical activity. The Tamil FNPA showed good internal consistency (Cronbach's alpha = 0.83), with item-total correlations ranging from -0.06 to 0.85. All 20 items were retained.

Conclusion: The Tamil adaptation of the FNPA demonstrates strong content validity and cultural appropriateness for assessing family nutrition and physical activity behaviors in Tamil-speaking clinical populations. This culturally refined instrument provides a foundation for subsequent psychometric validation and broader implementation in community health settings.

I-P-G.48

Energy Balance-related Behaviors Trajectories among Latino Fathers and Youth

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Purpose: To evaluate the longitudinal effects of Padres Preparados, Jóvenes Saludables (Prepared Parents, Healthy Youth), an obesity-prevention program, on fathers' and adolescents' energy-balance-related behaviors.

Methods: Design: A randomized controlled trial. Setting: Community-based organizations in a US Midwestern city. Participants: Seventy-three father-adolescent dyads (intervention group: n = 38; delayed treatment control group: n = 35).

Intervention: Father-youth dyads attended eight in-person, 2.5-hour weekly educational sessions delivered by trained bilingual Latino educators. The intervention focused on healthy eating behaviors and physical activity and their importance

in leading a healthy lifestyle. During each session, parents and adolescents participated in skill-building activities related to meal preparation, physical activity, nutrition, and an active lifestyle. Caregivers also participated in activities to develop their parenting skills and improve their dietary and physical activity parenting practices, whereas youth education focused on healthy lifestyle behaviors. Variables Measured: Self-administered surveys to measure fathers' sugar-sweetened beverage (SSB) and fast food (FF) intakes and physical activity (PA) levels; 24-hour recall interviews to determine adolescents' SSB and FF intakes and self-administered surveys to assess their PA levels. Analysis: Mixed-effects models for repeated measures.

Results: This study aimed to examine fathers' and adolescents' consumption of sugar-sweetened beverages and fast food, and their physical activity levels, longitudinally from baseline to three months post-Padres intervention program. We found a statistically significant difference in fathers' SSB consumption (P=0.010) between the intervention and delayed-treatment control groups from T1 to T3. No significant differences in adolescents' SSB consumption were observed between the two groups over time. There were no significant results for either fathers' or adolescents' fast-food consumption or physical activity levels.

Conclusion: The program decreased fathers' SSB consumption. However, the program did not address other dietary behaviors among participants. Future research should focus on several key areas to build on the findings of this study.

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One important direction is to optimize the Padres Preparados, Jovenes Saludables' intervention by incorporating a physical activity component, such as the Familias Activas (Active Families) program. Adding structured physical activity sessions could enhance the intervention's overall effectiveness in promoting healthier lifestyles among fathers and adolescents.

I-P-G.49

Association between Children's Screen-based Device Use and Accelerometer-measured 24-h Movement Behaviours on Weekdays and Weekend Days in Rural Ontario, Canada

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Purpose: The pervasive use of screen-based devices has rapidly changed in a short period of time, with access occurring at younger ages. There is concern about how screen-based devices impact the movement behaviours of children and youth, particularly during their discretionary time, such as on weekends, as it promotes increased sedentary behaviour (SB) at the expense of health-enhancing behaviours such as sleep and physical activity (PA). The purpose of this study was to investigate associations between screen-based device use and movement behaviours, specifically sleep and sedentary behaviour, among elementary school children during weekend days.

Methods: Participants were 218 children (50.5% girls) ranging in age from 4 to 14 years ($M_{age} = 9.41 \pm 2.61$) from two schools in rural Ontario, Canada. Participants wore a GENEActiv accelerometer on their non-dominant wrist for 24 hr/day for 7 consecutive days. Data were filtered for 16 hours of wear-time per day, and the proportion of time spent on each behaviour per day was estimated using Hildebrand et al. (2016) cut-off points. Participants answered questions about their electronic device ownership and use of electronic devices before bed (within 30 minutes to 2 hours before bed). Independent samples t-tests were performed to determine group differences in the proportion of time spent on weekday and weekend activities (sleep, SB, LPA, and MVPA) between students who used or not use screen-based devices.

Results: Participants who did not use/own electronics had higher sleep proportion times on weekdays (.39 vs .37, $p < 0.01$) and weekends (.41 vs .38, $p < 0.01$), as well as lower SB on weekdays (.39 vs .43, $p < 0.01$) compared to students who use/own electronics. No significant differences were observed for PA.

Conclusion: The findings highlight the impact of screen-based device use on increasing SB and displacing sleep, given no observed differences in PA. Since sleep is important for health, learning and overall development, the results underscore the importance of enhancing awareness among parents/guardians and children about the importance of good sleep hygiene habits and intentionally managing screen use, particularly in the evening.

I-P-G.50

Persuasive Design for Feasible Nutrition Education in Primary Schools: Insights from Future Educational Professionals

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Purpose: Primary schools are important environments for supporting healthy eating behaviors, yet educators often struggle to select and implement suitable nutrition education tools. This study aimed to map available Dutch nutrition education tools and identify which persuasive design elements and feasibility conditions future educational professionals consider most relevant. The innovation lies in applying the Persuasive Systems Design model (Oinas-Kukkonen & Harjumaa, 2009) together with feasibility insights from experts and students training to become educational professionals.

Methods: A literature review identified existing Dutch nutrition education tools and relevant persuasive design elements. Eleven tools were selected using predefined criteria, including primary-school suitability, distinctiveness, theory-practice balance, time requirements and focus on food-related learning. Four semi-structured interviews with programme developers, educational designers and a public health professional validated the categorisation.

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Subsequently, four focus groups were held with 52 students enrolled in the Associate Degree programme Pedagogical Educational Professional (pre-service educational professionals working in primary education or childcare). Participants reviewed hypothetical cases representing different configurations of nutrition education tools. Transcripts and worksheets were thematically analysed, focusing on the perceived usefulness of persuasive design elements—practice, reduction (task simplification), social learning and simulation—and feasibility determinants such as time, workload, financial resources, space and parental involvement.

Results: Participants consistently preferred practice-oriented activities, such as cooking and school gardening. These were perceived to offer meaningful opportunities for practice, social learning and simulation. Participants expected such activities to support engagement and awareness, while recognising that no child outcomes were measured. Structural, repeating formats were viewed as more educationally valuable than one-off activities, yet weekly delivery was considered unrealistic. Monthly or quarterly integration was regarded as feasible. Major barriers included limited time, workload, budget constraints, logistical challenges and difficulties engaging parents. Perceived suitability did not differ across school types due to limited variation.

Conclusion: Effective nutrition education for primary schools should be practice-oriented, repeated but realistically scheduled, and designed using persuasive design elements such as practice, reduction, social learning and simulation. Feasibility depends primarily on time, resources and organisational support. These findings provide actionable guidance for developers and schools seeking to create feasible and meaningful nutrition education tools.

II-P-G.01

Integrative Interventions to Address Food Insecurity: Ideas From Professionals Working across Multiple Sectors of Hunger Relief

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Purpose: Food insecurity is a critical public health problem that is associated with harmful health and wellbeing outcomes for children and adults. Research is needed to understand the role(s) of different sectors that could contribute to integrative solutions to mitigate food insecurity. The aim of this study was to identify potential integrative solutions to address food insecurity with professionals who work across multiple sectors with families experiencing food insecurity.

Methods: Interactive focus groups using principles from Human Centered Design were conducted with participants/professionals (n=47) working in research, health care, education, policy, faith-based, and hunger relief sectors in the Twin Cities area of Minnesota. Participants (age range=31-80 years; 60% women; 40% underrepresented in research) participated in one of ten virtual focus groups via zoom. Qualitative data collected from focus groups and Jamboards were analyzed using a hybrid deductive/inductive thematic approach to address three research questions.

Results: Fourteen overarching qualitative themes with thirteen subthemes were identified for three study research questions. For research question one, three main themes were found regarding what was currently happening in the hunger relief system including:

- (a) siloes with existing partnerships formed via referrals;
- (b) partnerships formed over time; and
- (c) looking for connections for more integration.

Four main themes were found for research question two related to what key components are necessary for a strong hunger relief system including:

- (a) choice and autonomy for participants;
- (b) education/skill;
- (c) stigma; and
- (d) basic needs first.

Seven main themes with multiple subthemes were found for research question three regarding integrative approaches to address food insecurity including:

- (a) creative solutions promoting collaboration that benefits individuals and families;
- (b) new systems/platforms for running programs;
- (c) policies;
- (d) food distribution/delivery systems;
- (e) fearless collaborations;
- (f) communication; and (g) intentional integration.

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Conclusion: This study identified key factors that may contribute to developing and implementing integrative solutions to improve food security among families such as creative solutions using faith-based sectors for implementation, breaking down siloes, leveraging current collaborations instead of reinventing the wheel, need for strong and flexible policy, and fearless collaboration.

II-P-G.03

PICNIC in Sweden: Pilot Phase Results to Adapt a Peer-education Child Feeding Intervention from Australia to Swedish Child Healthcare

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Purpose: Globally, child healthcare promotes healthy eating in families but lack evidence-based resources tailored for parents requiring additional child feeding support. The ‘PICNIC Sweden’ pilot study aimed to test the feasibility, acceptability, appropriateness, and perceived impact of the Australian peer-education child feeding program PICNIC with Swedish parents. This abstract focus on key learnings that will inform the next phase, where PICNIC will be further adapted and evaluated as a targeted, need-based support within Swedish child healthcare.

Methods: The mixed methods pilot study tested an adapted version of PICNIC with 47 parents of children aged 0-2 years. Parents attended a 2-hour dietitian-led online workshop and were invited to engage in a closed Facebook group for further child feeding guidance and peer-support. Data were collected through digital pre-and-post questionnaires (91% response rate) and semi-structured interviews (n=15; thematic analysis) after two months, with the data integrated and interpreted using a convergent parallel mixed-methods approach.

Results: Mean self-efficacy was 7.8±1.5 at baseline and 8.1±1.4 at follow-up. Online engagement varied, but 93% reported preference to continue in the closed Facebook group. More than half the parents had shared PICNIC information/advice with other parents (77%), friends (58%) and/or family (56%). Qualitative findings indicate the intervention was well received and met parents’ needs. Parents felt more confident and trusted their child’s abilities during mealtimes, valued the ‘safe space’ and sense of community PICNIC provided, and found reassurance from recognizing oneself in others’ situations. While in-person interaction with dietitian and peers was appreciated, parents also highlighted benefits of self-directed options. Involvement of both parents was desired but strategies to reach and engage more fathers remain unclear.

Conclusion: This pilot study showed high acceptability and appropriateness of the PICNIC intervention model among Swedish parents. While self-directed learning modules may improve access and scalability, our findings also highlight the value of providing opportunities for peer-support and shared learning. Next, co-design with parents and professionals will refine intervention content and adapt the mode of delivery to a more scalable format while preserving peer-support as a core component.

II-P-G.04

Influence of Dietary Habits, Screen Time, and Sleep on Anthropometric Variables, Physical Fitness, and Motor Competence in Preschool Children

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Purpose: This study examined the associations between dietary habits, screen time, and sleep with anthropometric indicators, physical fitness, and gross motor competence in preschool and early school children from Chile’s Araucanía Region. It was hypothesized that compliance with lifestyle recommendations would be positively associated with physical and motor outcomes.

Methods: A cross-sectional study was conducted with a non-probabilistic sample of 363 children aged 4–7 years from various communes in southern Chile. Anthropometric variables (weight, height, BMI, waist circumference), physical

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fitness (cardiorespiratory endurance, muscular strength, speed/agility), and gross motor competence (MABC-2) were assessed. Parents completed questionnaires on eating habits (Krecek Plus), screen time, and sleep duration. Compliance was categorized as follows: screen time <2 h/day, sleep ≥10 h/night, and eating habits classified as high, medium, or low according to Krecek Plus scoring. Group differences were analyzed by age and compliance level using Student's t-tests and ANOVA ($p < 0.05$, SPSS v.28).

Results: No significant differences were observed according to screen time compliance. Limited differences emerged for dietary habits, including height among 5-year-olds ($p = 0.039$) and jump performance among 6-year-olds ($p = 0.040$). Sleep compliance revealed more pronounced differences in height (4- and 6-year-olds, $p < 0.05$), handgrip strength (4 years, $p = 0.005$), and balance (4 years, $p < 0.05$). Associations were generally weak, likely influenced by parental reporting biases underestimating unhealthy behaviors.

Conclusion: Lifestyle factors showed minimal associations with anthropometric and functional outcomes, with sleep appearing as the most consistent predictor of favorable development. Interventions should emphasize healthy routines and incorporate objective assessments to overcome self-report limitations and support early child development in Chilean preschoolers.

II-P-G.05

Promoting Exclusive Breastfeeding to Reduce the Dual Burden of Malnutrition: Formative Research Insights from the Galápagos Islands, Ecuador

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Purpose: Exclusive breastfeeding (EBF), a 'double duty action' that simultaneously protects children against under- and overnutrition and decreases maternal risk for non-communicable diseases, is not practiced by most women living in the Galapagos. To co-design an intervention to improve EBF, we used formative research methods to better understand EBF experiences in the islands.

Methods: We conducted semi-structured interviews among 20 mothers of infants <24 months, 6 family members, and 10 community stakeholders. Interviews were conducted in Spanish and audio recorded. Team-based rapid qualitative analysis (RQA) was used to summarize and interpret data. The first author listened to each recording and directly entered summaries into a structured matrix based on the interview guide. A second analyst reviewed the audio-recording or transcript to confirm or refine the initial summary. Themes were identified through analysis of the matrices. 'Member checks' were performed, whereby preliminary findings were shared with mothers to provide opportunity to validate, clarify, or expand initial themes.

Results: Mothers described insufficient milk, lack of confidence and local lactation support, separation from family living on the mainland, convenience of commercial milk formula (CMF), and unsupportive employers as key barriers. Although family members and health professionals expressed support for breastfeeding, there was a gap in understanding how early CMF introduction disrupts the biological process of lactation. Perception of available support differed among mothers and health professionals, with health professionals describing a lack of initiative among mothers and mothers feeling uncomfortable asking providers for advice due to lack of trust. To improve EBF, participants recommended using WhatsApp chats, incorporating social media, offering perinatal home visits centered on infant and maternal nutrition and mental health, involving family members, clarifying employer responsibilities to support breastfeeding, and creating a milk bank. They also identified trusted locals who could help create and deliver the program.

Conclusion: While breastfeeding is the norm in the Galapagos Islands, rates of EBF are low and may contribute to the dual burden of malnutrition. Mothers, family members, and community stakeholders identified modifiable barriers and proposed multiple opportunities for helping families practice EBF. These findings may be relevant in other Latin American or rural communities.

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II-P-G.06

The Impact of Food and Non-alcoholic Beverage Sponsorship and Marketing in the School Environment on Food Choices of School-going Children and Adolescents: A Scoping Review

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Purpose: Globally, childhood obesity presents as a major public health challenge that is steadily on the increase. This is a result of, among other factors, children consuming excessive amounts of empty calories, specifically from foods high in saturated fats, refined sugar, and sodium, which may be exacerbated by targeted marketing and sponsorships. This scoping review aimed to investigate the prevalence of food and non-alcoholic beverage marketing in schools and to determine the impact marketing and sponsorship in the school environment has on the food choices of school-going children and adolescents. The objectives of the scoping review were to conduct a systematic search of available and relevant literature, identify recurring themes and knowledge gaps, and make recommendations for future research.

Methods: For this scoping review, PubMed, Scopus, Web of Science, and EBSCO were searched for relevant studies published between 2011 and 2023. Gray literature was searched for on ProQuest and Google Scholar. The results were exported from the database into CADIMA for screening and data analysis; 1608 references were screened. Twelve primary studies (n = 12) were included in the final review.

Results: The evidence map found that a link has been established between food and non-alcoholic beverage marketing and enhanced interest in these products from adolescents, although traditional forms of advertising have become less relevant and new forms have emerged. The evidence indicated that food and non-alcoholic beverage marketing is prevalent in schools and influences the food preferences and consumption of school-going children. Additional contributing factors identified were the availability, affordability and accessibility of these products and peer influence.

Conclusion: Policymakers and other relevant stakeholders should focus on the school food environment as a setting and opportunity to positively influence children and adolescents' food choices and consumption habits. More research needs to be conducted in this field, primarily focusing on the internal school food environment. Future research may be broadened to assess the long-term impact of food and non-alcoholic beverage marketing targeted at children and adolescents.

II-P-G.09

The Importance of BMI Categories for Motor Competence in Rural Spanish Adolescents: Insights Beyond Gender Differences

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Purpose: This study aimed to explore sex-based differences in motor competence and assess how motor competence varies across BMI categories among early adolescents in rural secondary schools of Castilla-La Mancha. By focusing on a typically underrepresented rural population, the research provides insights into how sex and body composition influence motor skill development, informing targeted strategies to promote physical literacy and health during adolescence.

Methods: A cross-sectional design was used with 210 first-year secondary students (108 boys, 12.24±0.68 years; 102 girls, 12.12±0.64 years) from 11 rural schools participating in the "Motor Competence in Castilla-La Mancha" project. Motor competence was measured using the Körperkoordinationstest für Kinder (KTK), comprising side jumps, moving sideways, single-leg jump, and backward balance, summarized as a Motor Quotient (MQ). BMI was calculated from measured height and weight, and participants were classified into four categories: thinness, normal weight, overweight, and obesity. Sex differences were analyzed using independent t-tests or Mann-Whitney U tests. Differences across BMI groups were examined using one-way ANOVA with Bonferroni or Games-Howell post-hoc tests. Chi-square tests assessed sex distribution across BMI categories. Significance was set at p≤0.05, with effect sizes reported.

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Results: No significant sex differences were found in BMI distribution. Boys scored significantly higher than girls in overall MQ (89.94 ± 20.03 vs. 81.38 ± 18.39 ; $p < 0.001$; $ES = 0.43$) and in all KTK subtests. A significant main effect of BMI was observed ($p < 0.001$; $ES = 0.312$), with overweight and obese adolescents showing lower MQ scores than their normal-weight and thin peers. No significant BMI $\times$ sex interaction was found, although sex differences were only significant in the normal-weight group.

Conclusion: Motor competence was higher in boys than girls, and excess weight was consistently associated with reduced motor proficiency. These findings underscore the importance of considering BMI categories when assessing motor development and designing interventions. Since sex differences were only evident in normal-weight adolescents, BMI appears to be the dominant factor influencing motor competence. Promoting motor competence in adolescents with overweight or obesity may be key to enhancing physical activity engagement and reducing health disparities in rural youth.

II-P-G.10

Researching School Food in Special and Alternative Provision Schools: A Reflection on Suitable Qualitative Methods

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Purpose: In this study, we sought to understand how pupils in special and alternative provision schools in England perceive and experience school food, including factors shaping food choices, facilitators and barrier to healthy eating, and food-related learning. Children attending these schools have varied special educational needs and disabilities, yet their perspectives are often absent from school food research and there is a lack of literature guiding inclusive research practice for engaging this group. In the current analysis, we aimed to reflect on the suitability of the qualitative methods employed and consider learnings for future research with this population group.

Methods: Flexible qualitative research methods were developed with advice from experts and community advisors, and tailored to diverse communication styles and cognitive profiles, including adaptable assent protocols and a multi-modal data collection toolbox. We evaluated our methodological approach using engagement metrics, researcher fieldnotes and reflections, and post-project researcher workshops. Analysis was conducted using Reflexive Thematic Analysis.

Results: Three themes were developed capturing methodological reflections, highlighting challenges and learnings in eliciting pupils' experiences of school food.

Preparation – best intentions and clear communication: the broad project scope, requesting exploration of both special and alternative provision schools, was challenging to suit the highly varied needs of pupils across settings. Time invested establishing familiarity and adapting communication approaches with pupils was essential in supporting pupils to express preferences and experiences of food and eating in school.

During – rigorous but dynamic practice: data collection required balancing responsiveness to pupils' communication styles while ensuring ethical and methodological rigour, particularly when managing the risk of supporting school staff influencing pupils' responses. Ongoing reflexive decision-making and adaptation was essential.

Next time – more time, training, and information: researchers emphasized the need for extended time to understand pupils' communication styles, along with clearer guidance and researcher training to navigate ethical and methodological complexities of engaging pupils with cognitive and learning disabilities whilst capturing their views on school food experiences in a meaningful way.

Conclusion: These methodological reflections will support researchers in engaging pupils with special educational needs and disabilities, and capturing their school food perspectives and experiences, advancing inclusive, rigorous, and context-sensitive behavioural nutrition research.

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II-P-G.11

Engaging Faith-based Organizations in Obesity Prevention Intervention: Lessons Learned from the LA CASA Trial

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Purpose: Childhood obesity disproportionately affects Hispanic children in the United States, with over half of Arkansas students classified as overweight or obese. Faith-based organizations (FBOs) are promising but underutilized settings for culturally responsive interventions within Hispanic communities. Despite this potential, few obesity prevention programs have been tailored for this population. This formative work describes the lessons learned from community engagement efforts for the LA CASA trial, a healthy eating intervention designed to address this gap through meaningful partnerships with local churches.

Methods: An exploratory qualitative design was employed, utilizing detailed field notes to document the recruitment and engagement process in eight Catholic churches; four in the control group and four in the intervention group, throughout the state of Arkansas. A total of 39 field notes were documented promptly following site visits and analyzed using rapid analysis and iterative techniques to identify recurring challenges, facilitators, and contextual insights related to community engagement.

Results: Initial engagement work in 2023 identified potential churches through site visits, participation in church events, and establishing contact with key personnel, which laid the foundation for recruitment. The subsequent formal recruitment phase yielded essential themes for successful collaboration. *The Necessity of Presence was shown through* consistent physical attendance at church activities such as masses, bible studies, and food festivals to build trust. *Engagement of Gatekeepers* required 1-2 initial visits with FBOs, followed by additional 2-3 visits to secure formal permission from church leadership. However, *Permission is Necessary but Insufficient*, as official leadership approval did not guarantee community buy-in. The *Critical Role of Champions* proved that collaboration with internal, devoted congregants and influential lay leaders was crucial for engagement. Finally, *Sustainability Through Responsiveness* was fostered through ongoing active participation and health teachings based on congregant's expressed needs and interests.

Conclusion: Successful FBO engagement requires deep community integration founded on trusted relationships, consistent presence, and cultural humility. The identified themes provide a strategic framework for developing sustainable health promotion interventions and improving engagement and recruitment within Hispanic communities.

II-P-G.12

Feasibility and Preliminary Efficacy of DC-SIPS for Reducing Sugary Drink Consumption among Black Youth in Washington D.C

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Purpose: To assess the feasibility and preliminary efficacy of DC-SIPS (Decreasing Children's Sugar Intake through Pediatricians and Social Marketing), a six-week intervention to reduce sugary drink intake and promote water consumption among Black youth in Washington, DC.

Methods: Children aged 11–17 years (n = 14) and their parents were recruited from multiple clinical and community locations in the Washington, D.C. area. Eligibility criteria included the child self-identifying as African American/Black, consuming ≥5 servings of sugary drinks per week (e.g., soda, fruit juice, fruit drinks, sports drinks, or sweet tea), and reporting that they and their parent used Instagram daily. During a virtual enrollment visit, children completed a beverage intake questionnaire and participated in a motivational interviewing session with a trained research assistant. Over six weeks, participants received daily DC-SIPS content via Instagram, including goal prompts, nutrition education, and healthy-drink challenges. Feasibility was evaluated through recruitment, retention, and weekly questionnaire completion rates. Preliminary efficacy was examined by comparing weekly self-reported beverage

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intake (oz/day) at baseline and throughout the six-week intervention. Data were analyzed using mixed-effects linear regression models.

Results: The study completion rate was 79% (11 of 14 children), and children's total sugary drink consumption decreased from 67.5 ± 19.8 oz/day at baseline to 52.6 ± 21.4 oz/day at week six. Compared to the baseline, mean intake was significantly lower at week 2 (-51.4 oz, $p = 0.004$), week 4 (-49.0 oz, $p = 0.035$), and week 6 (-50.3 oz, $p = 0.023$). Fruit drink intake showed a significant linear decline over time ($\beta = -1.9$ oz/week, $p = 0.029$) and was consistently lower from weeks two-seven (all $p < 0.05$). Water consumption remained stable over the seven weeks (38.3 ± 5.9 oz/day at baseline and 35.5 ± 7.6 oz/day at week six).

Conclusion: DC-SIPS demonstrated good feasibility among Black children in Washington, D.C., and led to reductions in children's sugary drink consumption without reducing water intake. These results support the preliminary efficacy and scalability of a pediatric- and social media-based intervention and justify further evaluation in a larger randomized controlled trial.

II-P-G.13

Co-design of a Digital Support Tool for Promoting Healthy Lifestyle Behaviors during Infancy (Health4Life): A Formative Study with Child Healthcare Nurses and Parents in Sweden

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Purpose: In Sweden, child health services play a key role in supporting parents to establish healthy lifestyle behaviors in their children from birth through the first five years of life. Yet, support between routine visits remains limited, pointing to a gap in accessible evidence-based guidance for parents. Digital tools offer promising opportunities to address this gap. This study aimed to co-design the Health4Life app in collaboration with child healthcare professionals and parents of young children.

Methods: A co-design approach guided the development of Health4Life's content and layout. Initial semi-structured interviews with parents ($n = 5$; with a child aged 0-2 years) and a focus group with child healthcare professionals (nurses, $n = 4$ and a pediatric dietitian) identified key needs and informed a first version. Two additional focus groups with the same group of professionals provided formative feedback on content and features in the app. A prototype was then tested for two weeks by the same professionals and parents, followed by a focus group and interviews to refine tone, wording, layout, and functionality. Data was analyzed using inductive latent thematic analysis.

Results: The initial interviews with parents and professionals revealed key support areas during the child's first year and information gaps (e.g., food introduction, feeding challenges, sleep strategies). Both informant groups emphasized the value of a digital tool offering clear, concise guidance from a trusted source, i.e., child health services. Commercial apps were described by both parents and professionals as containing a mix of reliable and questionable information. Professionals also discussed how commercial apps often promoted excessive tracking of babies' feeding and sleep patterns and highlighted the importance of flexible, non-rigid content that encouraged reflection, which could empower parents to trust their instincts and normalize differences in child development. Both informant groups stressed the need for a supportive, reassuring tone and features such as simple, visual content, multilingual options, easy navigation, and optional interactive features like milestone tracking and recipe/play ideas.

Conclusion: There is a strong need for a trustworthy, evidence-based, and user-friendly app that promotes healthy lifestyle behaviors in infancy and early childhood while fostering reflection and empowering parents.

II-P-G.14

Improvements in Food Literacy among Children Participating in School-based Experiential Food Education

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Purpose: Children engaged in experiential food education demonstrate greater willingness to try new foods. School-based programs offer a key opportunity to consistently reach children at risk for low-quality diets; however, little is understood about the influence of these programs on the factors that shape dietary patterns as children mature. This study examined changes in food literacy among children participating in a school-based experiential food education program and explored differences according to prior program exposure.

Methods: In the 2024-25 school year, 4th and 5th grade students at 6 elementary schools with at least 3 prior years of continuous program participation and 2 schools implementing the program for the first time were recruited to participate. The Food Literacy BITE survey, a novel food literacy assessment tool developed from four child-centered food literacy dimensions, was administered in October 2024 and again in May/June 2025. Analyses were conducted at the group level, and pre/post mean scores for overall food literacy and each dimension were compared using *t* tests ($p \leq 0.05$). We also carried out stratified analyses to explore differences between the established and new program schools.

Results: A total of 545 students completed the pre-survey (48% 4th grade, self-report ~44% female, ~42% male), and 556 students completed the post-survey (52% 4th grade, ~46% female, ~43% male). There was a significant increase in total food literacy ($p = 0.046$) and in the dimensions of food systems and nutrition knowledge ($p = 0.01$) and confidence in everyday food skills ($p < 0.001$) from the start to the end of the school year. In the stratified analyses, both the established ($p < 0.001$) and new ($p = 0.03$) schools had increases in confidence in food skills, but only the established schools had increases in knowledge ($p = 0.01$) and total food literacy ($p = 0.03$).

Conclusion: Food literacy increased over the school year among 4th and 5th grade students participating in an experiential food education program, specifically in the areas of knowledge and confidence in their food skills. Further research is needed to understand the dose-response relationship over multiple years of program participation.

II-P-G.16

What Do Swiss Children and Adolescents Eat? Results from menuCH-Kids, the First Swiss National Nutrition Survey

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Purpose: The menuCH-Kids survey provides the first nationally representative data on diet and diet-related health of Swiss children and adolescents (CA). This work compares CA's diets to nutritional recommendations and identifies dietary patterns. By linking these patterns to sociodemographic characteristics, and subsequently to health indicators and environmental impacts of foods, we aim to identify subgroups among Swiss CA who would benefit most from targeted strategies promoting healthier and more sustainable diets.

Methods: menuCH-Kids is a cross-sectional, population-based survey conducted in 2023–2024 in six Swiss centres among 1,852 CA aged 6–17 years. Data collection included two non-consecutive 24-hour dietary recalls (24HDRs) and a food propensity questionnaire (FPQ), complemented by lifestyle, health, and sociodemographic information, anthropometric measurements, and blood and urine samples. Usual intakes of food groups will be derived from 24HDRs and FPQ using SPADE and compared to European recommendations. We will use the partitioning around medoids method to explore dietary patterns, and characterize the distribution of socio-demographic variables (e.g. sex, age, linguistic region, socioeconomic status) across patterns. The distribution of some health variables, like BMI, blood pressure and blood parameters, will also be compared across patterns. Based on the environmental impact of foods, calculated using the SALCA v2.01 method, we will estimate the impact of each food group and each eating habit.

Results: Initial findings indicate suboptimal dietary intakes among Swiss youth, characterized by high consumption of meat, snacks, and sugary drinks, alongside insufficient intake of fruits, vegetables, and plant-based protein sources. We will present detailed quantification of these gaps relative to recommendations. We will also show the analysis of distinct dietary patterns, their sociodemographic distribution and their relation to health variables. Preliminary data relative to environmental impact will be presented.

Conclusion: First menuCH-Kids results highlight the need for dietary improvements among CA in Switzerland. The upcoming analysis of dietary patterns, and their associations with the sociodemographic and health characteristics of CA and the environmental impact of food will provide crucial insights for identifying population groups that could benefit from targeted interventions promoting healthier and more environmentally sustainable eating behaviours in CA.

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II-P-G.17

Promoting Healthy Eating Behaviors among Mother-daughter Dyads in Group-based Interventions: Design of an Attention Control Condition

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Purpose: The US population is not meeting dietary guidelines. This study extends evidenced-based family intervention strategies by adapting and testing a mother-daughter intervention to promote healthy eating. The purpose of this presentation is to share the intervention adaptation process and the resulting Conmigo Healthy Eating intervention.

Methods: Intervention adaptations were informed by several considerations, including:

- (1) the context of intervention implementation-elementary schools, attention control condition, US-Mexico border region;
- 2) the focus on mother-daughter dyads versus individual family members or the whole family as in previous studies; and
- (3) relevant evidence-based processes of change (e.g., parenting, dietary behavioral strategies).

Results: Findings from considering each informed the development of a 10-session intervention to promote the consumption of fruits, vegetables, and fiber. For example, consistent with consideration (1), we reduced the length of the intervention to align with the elementary school academic calendar. In addition, the overall study design is a clustered randomized controlled trial in which schools are randomized to deliver a physical activity intervention or an attention control condition – this healthy eating intervention. Designing an effective attention control condition that involved a second health behavior related to common health conditions in the communities of interest (e.g., obesity, diabetes) required us to:

- (a) design a structurally equivalent program (e.g., time, attention, setting);
- (b) maximize equivalent participant engagement (e.g., with delivery and contents);
- (c) monitor and reinforce standardization in delivery to minimize confounders; and
- (d) strive for equivalent evaluations of potential program benefits).

Consistent with consideration (2), we modified the focus of goal setting and home practice to the mother/daughter dyad (vs. individual or family as in previous studies). Consideration (3) ensured that we maintained a focus on strengthening mothers' parenting strategies (e.g., monitoring, limit setting) that have mediated improvements in children's eating habits in previous studies.

Conclusion: This presentation shares important findings on considerations in the design of dyadic-based interventions for the promotion of an important healthy lifestyle. Designing contextually and culturally relevant interventions necessitates an understanding of the systems and people involved in implementation, as well as those the interventions seeks to reach.

II-P-G.18

Broadening Movement Possibilities: Understanding the Impact of After-school Outdoor Loose Parts Play on Children's Physical Activity and Physical Literacy

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Purpose: Outdoor loose parts play (OLPP) increases play possibilities by giving children the opportunity to combine open-ended materials and create their own play experiences. Research has linked OLPP to physical activity (PA) and physical literacy (PL) in early childhood, but more is needed in school-age children, particularly mixed-methods and participatory approaches, and including not only adults' perspectives but also children's. Purpose: To explore staff and child perspectives of an after-school OLPP intervention in supporting children's PA and PL.

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Methods: This analysis is based on data from the Physical Literacy in the Early Years (PLEY) School project, a six-week OLPP intervention in three after-school programs in Nova Scotia, Canada. Each received the same loose parts (LP) kit (tree cookies, pool noodles, tarps, logs, balls, pipes, tubes, wooden planks, spools, rope, buckets, hula hoops, tires). Qualitative data from focus groups (15 staff) and photo-documentation (n=50) and go-along interviews and photo-elicitation with children (n=11, 16), were explored using reflexive thematic analysis.

Results: Four themes describe OLPP's contribution to children's PA and PL. "Energizing Exploration: The Spirit of Play with Loose Parts" relates to PL's affective and behavioural components, with LP providing a fun, engaging experience that gave children confidence and motivation to be active. "Adaptable Adventures: Dynamic Play in Loose Parts Landscapes" describes how LP's flexibility supported physical engagement and imaginative, collaborative, inclusive play, and deeper interactions with outdoor environments. "Motion Medley: Diverse Movement with Loose Parts" highlights how LP encouraged diverse and sometimes risky movements, often in combination, supporting movement competence and confidence and motivating disengagement from sedentary activities. "Brainy Building: Nurturing Mindful Movement through OLPP" demonstrates how OLPP encouraged movement experimentation, cognitive engagement, communication, and teamwork, heightening body awareness and increasing confidence and motivation to engage in active play.

Conclusion: OLPP is perceived by adults and school-age children to offer children opportunities to move in diverse and sometimes risky ways and develop key movement skills that support confidence and motivation to move, and understanding of the value of moving, including with others. Our findings provide further evidence, including children's perspectives, of OLPP for supporting PL and lifelong PA.

II-P-G.19

Does Walking to School Influence Brain Health Outcomes? Evidence from the ActiveBrains Study

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Purpose: To examine differences between walking and passive commuting to school in psychological, cognitive, intelligence, academic, and brain magnetic resonance imaging (MRI) outcomes, and to further analyze the associations between estimated step count and brain health outcomes in children with overweight or obesity.

Methods: A total of 107 Spanish children (40.2% girls; 10.0 ± 1.1 years) from the ActiveBrains project participated. The usual mode of commuting to and from school was self-reported and categorized as walking vs passive. Psychological well-being, cognitive performance, intelligence, and academic achievement were evaluated using standardized questionnaires and neuropsychological tests. Brain MRI outcomes were derived from 3T structural scans. Estimated steps were computed from the reported home-school distance and measured height (steps = distance ÷ 0.42 × height). Analyses were performed in walkers only, adjusted for sex, peak height velocity, parental education, body mass index, and moderate-to-vigorous physical activity; total brain volume was additionally included for MRI outcomes. Linear regression models were fitted to analyze the associations between estimated step count and brain health outcomes.

Results: Children who walked from home to school reported higher happiness (p = 0.049) and better math performance (p = 0.037) than passive commuters. Those who walked to school showed greater pallidum volume (p = 0.039) and tended to present larger accumbens volume (p = 0.066). No significant associations were observed for the remaining psychological, cognitive, intelligence, or structural measures. Estimated steps to and from school were not significantly related to any brain outcomes.

Conclusion: Walking to school was not associated with most brain outcomes. Nonetheless, small and suggestive advantages in happiness, academic performance, and subcortical brain volumes were observed. Future research should examine the dose-response relationship of walking to school to further explore its potential links with brain health.

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II-P-G.20

Preliminary Efficacy Outcomes of Two High School MyPlate Ambassador Curricula in the United States

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Purpose: There are many benefits for youth engaging in healthy eating habits that follow the 2020-2025 Dietary Guidelines for Americans (e.g., reduced chronic disease risk). However, nutritional education programs across the U.S. can vary markedly, with two innovative approaches focusing on providing peer-to-peer education, and creating policy systems, and/or environmental change. This study evaluated and compared two new MyPlate ambassador curricula that used these approaches for improving nutritional outcomes among high school students.

Methods: In curriculum one, MyPlate Influencers execute a nutrition-focused environmental change project in their schools (e.g., taste testing recipes, enhancing local wellness policies, hosting agriculture events). In curriculum two, MyPlate Educators provide peer-to-peer education to younger students. A non-randomized, two-arm study design, paired sample t-tests, and linear regression models were used to evaluate (single arm pre-test to post-test changes) and make comparisons between the two curricula. We evaluated Healthy Eating Index (HEI), theory of planned behavior constructs around healthy eating, and household nutrition security outcomes and subconstructs.

Results: Ambassadors (n=50; 74.0% female; 15.8±1.1 years old) self-selected into Educator (n=30; 73.3% female; 15.9±1.2 years old) and Influencer groups (n=20; 75.0% female; 15.6±1.0 years old). Across both groups, we saw a statistically significant increase in the household healthfulness subconstruct within the food and nutrition security questionnaire (MD=0.59±1.65; p=.046; d=1.65), which was slightly larger for Educators (MD=.70±1.74; d=.40) than it was for Influencers (MD=.36±1.50; d=.24). Conversely, Influencers increased their HEI scores (MD=2.38±7.89; p=.297; d=.30), whereas Educators decreased their HEI scores (MD=-2.00±5.70; p=.107; d=-.35), but the between group difference was not statistically significant (b=2.74; 95%CI=-1.36-6.83; p=.184). Finally, Influencers also saw marginal increases in their subjective norms (MD=0.55±0.93; p=.082; d=.58) and perceived behavioral control (MD=0.36±0.50; p=.038; d=.72) around healthy eating, but changes were not statistically significant compared to Educators.

Conclusion: Preliminary data show that the Influencers may be improving individual level outcomes – subjective norms, perceived behavioral control, and diet quality – whereas Educators may be influencing their home environments. Given the small sample size, more research is needed to confirm (i.e., larger sample) and better understand (i.e., qualitative interviews) the reasons for these findings.

II-P-G.21

Bridging School and Home: Engaging Parents in Nutrition Education Interventions at Primary School

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Purpose: Schools form an ideal setting to reach children from diverse backgrounds with nutrition education programs. Research suggests that involving parents can enhance the effectiveness of such programs, yet it remains unclear which forms of parental involvement work best and how these are perceived in practice. This project investigated which types of parental involvement are used in primary school nutrition interventions, and assessed their perceived acceptability, feasibility and effectiveness.

Methods: Expert interviews (N=6) and a literature scan (N=34) were executed to identify existing forms and success factors of parental involvement. Subsequently, nine focus groups were held with teachers (N=8), parents (N=9), and youth health professionals (N=10) to investigate their perceptions about various forms of parental involvement. Thirdly, a survey was conducted among 1,000 parents (54% female; average age 39 ± 6 years). Finally, an online stakeholder session was held to reflect on the project's findings.

Results: School-based nutrition education interventions used various forms of parental involvement. The 19 identified forms were categorized according to two dimensions: location (school versus home) and role of parents (active contributor versus recipient). Each form had advantages and disadvantages. The aspects acceptance, feasibility, and reach were not always aligning. For instance, parents rated parent-child activities at school (mean M=5.1 out

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of 7) and practical assistance by parents (M=5.3) highest in terms of acceptance, but lowest in feasibility (M≤4.6). In contrast, school food policies scored highest on feasibility (M=5.3), reach (M=5.3), and expected effectiveness (M=4.8), but lowest on acceptance (M=5.0).

Key facilitators of acceptability were: interactive, child-centred, matching parents' interest, informal, acknowledging social norms and the sensitivity of topics. To support feasibility, parental involvement should be well-timed, convenient in terms of effort, costs, materials, and time-effective for both schools and parents. For reaching a large and diverse number of parents, culture, language and direct contact were important themes.

Conclusion: There is no silver bullet of parental involvement. Each form has its own advantages and disadvantages, with acceptance, feasibility, and reach not always aligning. It is recommended to use a variety of approaches over time tailored to the specific school context.

II-P-G.22

Integrating Promotion of Safe Psychosocial Family Environment in Early Obesity Prevention – An Innovative Approach Adapted by the Danish Bloom Study

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Purpose: To date the effectiveness of obesity preventive interventions is limited and observed effects tend to be modest and not sustained over time. This reflects the complex etiology and difficulties in translating evidence into effective intervention designs.

A growing area within empirical and theoretical research on the causes of childhood obesity relates to psychosocial strain during the early years of life. Growing empirical evidence documents an independent effect of family-related psychosocial strain, while experimental evidence is still limited.

The purpose of this study is to present the components promoting safe psychosocial family environment integrated into the Danish Bloom Study aiming at promoting healthy weight development in infancy. The study presents implementation strategies and intervention components applied to promote safe psychosocial family environment.

Methods: The Bloom Study is a randomized intervention study integrated in the universal Danish system of community health nurses (CHN) to promote healthy weight development among infants. The Danish standard CHN service is offered to all families with newborns and provides guidance and support tailored to each family's circumstances and needs. The Bloom Study explores the potential of the CHN service for promoting healthy weight development by strengthening a number of priority areas, including an innovative focus on supporting a safe psychosocial family environment. Specifically, the Bloom Study aims at increasing parental self-efficacy, decreasing parental stress and supporting parents in developing realistic expectations about parenting.

Results: The applied implementation strategies supporting safe psychosocial family environment includes CHN competence building on supporting parents in meeting their child's socioemotional needs and on health communication across social diversities. Intervention components include application of a dialogue tool to increase CHNs' insights into the needs of the family, early detection of perinatal depression among both parents, and social support for both parents through membership of parent-groups. Generally, the Bloom intervention involves prolonged and continuous guidance and support to the family.

Conclusion: The Bloom Study is one of the first experimental studies on obesity prevention examining the effect of supporting safe psychosocial family environment. The results will increase the causal understanding of childhood obesity and generate important experiences relevant for both practice and future experimental designs.

II-P-G.23

Exploring Gender Roles in Family Eating Practices as Experienced by Mothers with a History of Gestational Diabetes Mellitus

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Purpose: Despite fathers' increasing involvement in domestic life, mothers are still primarily involved in food-related tasks such as meal planning, grocery shopping and cooking. This gendered division of domestic labor reinforces gender inequities and may have consequences on mothers' health. Moreover, for mothers who experience gestational diabetes mellitus (GDM), the burden of food-related responsibilities may be further intensified, as diet is central to GDM treatment. This study aims to explore how parental roles are experienced regarding the division of food-related tasks and responsibilities, among mothers with a history of GDM, in Quebec City (Canada).

Methods: This exploratory study, based on a qualitative approach, is part of a larger project (SANTE-DG) launched in April 2025, which aims to recruit a total of 500 mothers and develop postnatal nutrition services for mothers with a history of GDM. During November 2025, this qualitative study is intended to recruit between 10 and 15 mothers from SANTE-DG's cohort, who gave birth between January 2025 and June 2026 and were diagnosed with GDM. From December 2025 to February 2026, individual interviews (n=10 or until data saturation) will be conducted online using a semi-structured guide. Interviews will explore participants' perceptions, attitudes, behaviours and level of satisfaction regarding the division of food-related household tasks. Barriers and facilitators for achieving a more equitable distribution of parental roles in food-related tasks and responsibilities will also be documented. Interviews will be recorded and transcribed with PREDIS software. Through an inductive approach, a thematic content analysis of transcribed verbatims will be performed using NVivo, from January to April 2026. Two meetings with the research team will take place midway through coding to enhance credibility of findings.

Results: Results are not ready by the submission date.

Conclusion: This innovative study addresses a topic that has yet to be thoroughly explored in the literature. By analysing participants' discourse, it will contribute to a deeper understanding of the challenges and realities faced by mothers with a history of GDM in relation to gender roles and social expectations surrounding food practices. This will support the development of appropriate strategies for those mothers to help them adopt healthy eating habits.

II-P-G.24

Youth Sports as a Setting from Promoting Physical Activity among High-risk Mothers: A Pilot Study

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Purpose: Youth sports are an obvious setting for physical activity (PA) promotion among children, but have yet to be utilized to promote PA among mothers. Interventions delivered to parents through youth sports circumvent physical activity barriers commonly cited by high-risk mothers including racial and ethnic minorities and those with low socioeconomic status (e.g., lack of time and childcare). We partnered with a youth football organization in Providence, RI, USA that predominantly serves low-income Black and Hispanic families to deliver a PA program to mothers, and examined feasibility, acceptability, and preliminary efficacy.

Methods: We conducted a 6-week single-arm open pilot trial of an intervention consisting of group PA sessions facilitated by a certified fitness instructor during practice. Sessions, which included 50 minutes of aerobic activities that encouraged moderate to vigorous physical activity (MVPA), were scheduled 3 times/week. Participants were mothers from the partner organization. Feasibility was determined based on whether enrollment and retention targets were met. Acceptability was determined based on participant engagement and satisfaction. For preliminary efficacy, We ran a series of unadjusted paired T-tests to compare baseline MVPA and PA self-efficacy to MVPA and PA self-efficacy at 3- and 6-weeks. We also conducted a stratified analysis to examine the same changes separately for participants who were already meeting PA guidelines at baseline (i.e., ≥ 150 minutes/week of MVPA) and those who were not meeting guidelines.

Results: We recruited 26 participants in 3 weeks with an 85% retention rate. Only 12 out of 18 scheduled sessions were offered due to practice cancellations; participant attendance ranged from 0 to 12 sessions (mean: 3.5 sessions). Participant satisfaction was extremely high, and significant increases in outcomes were observed. Specifically, we observed significant improvements in self-reported minutes/week of MVPA at 3-weeks, both among the full sample and those who were not meeting guidelines at baseline. We also observed significant improvements in self-efficacy among the full sample at 3- and 6-weeks.

Conclusion: Findings from this pilot trial suggest that youth sports practices may provide a promising opportunity to deliver PA interventions to high-risk mothers, but more studies are needed.

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II-P-G.25

Triple Feeding Online: An Exploration of Triple Feeding Messaging on Instagram Using Natural Language Processing

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Purpose: While significant strides have been made globally in breastfeeding initiation and continuation rates, rates of sustained breastfeeding at 6 and 12 months continue to fall short of national goals in the United States. Common reasons for early cessation of breastfeeding include low infant weight gain and perceived low milk supply. “Triple feeding” is a trending intervention to address these issues and involves 1) feeding the infant at the breast, 2) hand expressing or pumping any milk remaining in the breast once the infant is done feeding, and 3) feeding the infant expressed milk or formula. Our study team found little scientific evidence regarding the impact and effectiveness of triple feeding, yet there is mounting evidence in grey literature suggesting this intervention places high demands on maternal physical and mental health. Given the interconnection between maternal well-being and breastfeeding duration, additional evidence is needed to explore mothers’ lived experiences and informational influences while triple feeding. Thus, the purpose of this study is to utilize social media data to better understand the messaging mothers receive and share about triple feeding online.

Methods: Data for this project was collected using the Apify API for Instagram. A dataset of 650 Instagram posts containing the hashtag #triplefeeding and 1700 replies to those posts was created. The project team is currently manually tagging all posts and a subset of 500 comments for ternary sentiment (positive/neutral/negative). Using this labeled data, we will train two sentiment analysis methods: (1) fine-tuning a BERT model pre-trained on social media data and (2) few shot learning with Llama 3.1-8B.

Results: The results of the predictive models built in this project will provide a high-level understanding of the triple feeding information delivered through Instagram. Results will also identify triple feeding perceptions and opinions among Instagram users.

Conclusion: Understanding the triple feeding messaging shared on social media will provide a better understanding of 1) information and misinformation available online that could be informing triple feeding practices and 2) mothers’ lived experiences while triple feeding. This information will be useful to clinicians striving to address potential myths and provide better supports to mothers implementing this feeding approach.

II-P-G.27

ReDiKid: Integrating Movement Behaviour and Digital Contexts in the Study of Child Resilience

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Purpose: The ReDiKid (Resilient Kid in the Digital World) project introduces a transdisciplinary framework for examining how movement behaviour and digital technologies relate to children’s resilience—their capacity to cope with psychological, physical, and social challenges. It focuses on children aged 9–11 years, a key developmental stage when digital habits, self-regulation, and social skills begin to form, and their families. The project aims to clarify how digital exposure interacts with biological, behavioural, and contextual determinants of resilience and to inform strategies for supporting adaptive digital engagement.

Methods: ReDiKid comprises three research aims:

A) Theoretical Grounding: Establishes a clear definition of children’s digital resilience and identifies key protective and risk factors. Analyses of national and international datasets ensure comparability and a strong conceptual base. B) Empirical Research: Examines how resilience manifests in everyday life among children and parents. It combines longitudinal and cross-sectional designs with both subjective and objective methods. Surveys and interviews assess perceptions and family processes, while ecological momentary assessment (EMA) and wearable sensors capture real-time data on digital behaviour, physical activity, sleep, and sedentary patterns. Resilience is assessed through

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validated questionnaires. This approach enables understanding of how family context, movement behaviour, and digital engagement influence well-being.

C) Innovative Methods: Develops and tests new objective tools for assessing resilience in middle childhood. Integrates all collected data using Bayesian modelling and machine learning to identify resilience profiles and predictors of adaptation, setting new methodological standards.

Results: Initial testing shows that the ReDiKid design is feasible and effective for capturing subjective and objective aspects of resilience. The framework functions well across diverse data sources, movement behaviour, and family contexts, and refinement continues as data collection progresses.

Conclusion: ReDiKid offers a new, evidence-based approach to understanding and supporting children's and families' resilience in the digital age. By linking theory, movement behaviour, real-world data, and innovative methods, the project provides guidance for education, prevention, and policy.

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II-P-G.29

Active Travel for Care: A Scoping Review and Participatory Study with Caregivers in Toronto, Canada

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Purpose: Caregiving sustains the well-being of individuals, households, and society, and an important component of caregiving is the travel required to fulfil responsibilities. Although the frequency of care trips presents an opportunity to integrate physical activity into daily routines and contribute to public health gains, transport planning has typically prioritised economically productive mobility, such as commuting. This research aims to give visibility to the travel needs and experiences of caregivers and to identify barriers and facilitators for incorporating active modes into caregiving trips.

Methods: A scoping review identified 117 articles examining caregivers' active travel behaviours in the context of unpaid household care. Findings were synthesised using Cresswell's framework of mobility (movement, meaning, and experience) through a transport equity lens. In June 2025, seven focus groups and participatory mapping exercises were conducted with 32 caregivers in Toronto, Canada. Maps were digitized to quantify key care destinations, routes, and travel modes, and focus group transcripts were analysed inductively to connect review findings with participants' experiences.

Results: Most articles employed qualitative methodologies and were based in high-income contexts. Care-related travel was predominantly undertaken by women and characterised by short, chained trips but was rarely captured via travel surveys, highlighting gendered inequities in how mobility needs are measured (movement). While active travel was often framed by assumptions of choice, findings demonstrated that mobilities of care are shaped by structural constraints, including car-dependent environments and, conversely, long walking distances in lower-resource settings (meaning). Focus group participants mapped short, active care trips and in line with the review, valued active travel in relation to physical activity, but also for enabling play, family connection, and engagement with nature. Common barriers included inadequate infrastructure, load and logistical demands, safety concerns, and social norms, with participants explicitly linking factors and chosen travel modes with health, time pressures, and stress (experience).

Conclusion: Mobility of care is a key equity issue within active travel and physical activity research. Participatory methods highlighted caregiver's travel experiences, began to address data gaps through trip measurement, and enabled community partnerships to be developed, providing an important step for informing inclusive and healthy planning.

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II-P-G.30

Eating Behaviors and Food Parenting Practices with Siblings: Same or Different?

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Purpose: While it is common to have siblings in the household, very little is known about sibling eating behaviors and food parenting practices with siblings. It is also unknown whether parents use similar or different feeding practices with siblings based on individual child characteristics such as gender, weight status, or temperament. This is important to investigate to inform the development of family-based nutrition interventions. The main aim of the current study is to describe the variation in eating behaviors and feeding practices within families with siblings and to determine whether these variations depend on individual sibling gender, weight status, or temperament.

Methods: We analyzed a sibling dyad subsample (n=344 siblings from 158 unique families) from the Family Maters study, a National Institutes of Health (NIH)-funded longitudinal cohort study of families with children in Minnesota from 6 racial/ethnic groups (African American, Native American, Latino/a/e, Somali/Ethiopian, Hmong, and non-Hispanic White). Parents self-reported their feeding practices and child eating behaviors specific to each sibling separately on an online survey at baseline and again 18 months later. Differences across siblings were described, and then estimated using within-family regression models.

Results: Two-thirds of families had siblings with different eating behaviors. Parents engaged in different feeding practices across siblings in more than half of the families. Child eating behaviors differed by sibling gender and weight status, with girl siblings and siblings with overweight/obesity having more unhealthful eating behaviors compared to their counterparts. Food parenting practices differed by sibling gender, with parents engaging in more unstructured food parenting practices with daughters (p<0.01). Food parenting practices also differed by child weight status, with parents engaging in more pressuring-to-eat food with siblings with overweight/obesity (p<0.01). Additionally, food parenting practices differed by temperament, with parents engaging in more food restriction with siblings with difficult temperaments (p<0.05).

Conclusion: Findings showed that sibling eating behaviors and food parenting practices varied depending on sibling sex, weight status, and temperament. Researchers and interventionists working with families with siblings may want to assess for sibling gender, weight status, and temperament when assessing the home food environment or designing family-based interventions within the home environment.

II-P-G.31

Four-month Outcomes of an Efficacy Trial of the Culturally Adapted Healthy Dads Healthy Kids-Hispanic

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Purpose: To assess the efficacy of a culturally adapted version of the evidence-based program, Healthy Dads Healthy Kids (HDHK), among Hispanic fathers and children in the Houston community to reduce cardiovascular health disparities faced by both. Hispanic fathers have been largely underrepresented in family-based health promotion research.

Methods: A family randomized controlled group treatment trial was conducted involving Hispanic fathers with BMI>25, but <40 kg/m² and their 5-11-year-old children. The HDHK-Hispanic 10-week program was delivered at YMCA Centers on Sundays. Two primary outcomes were assessed: father's weight (kg) and children's moderate to vigorous physical activity (MVPA) via hip-worn accelerometers for 7 days. Secondary outcomes included dietary intake measured by ASA-24, screen use, BMI (BMIz for children), blood pressure (BP), and heart rate; and for fathers, HgbA1C

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and non-HDL. In intent-to-treat analysis of 4-month outcomes, generalized linear mixed models assessed outcomes by treatment group, adjusting for waves, children nested within families, and repeated time. The estimate of interest was the parameter estimate for the treatment by time interaction (β).

Results: 187 fathers (mean age 39.9 ± 7.1 years) and 259 children (7.9 ± 1.8 years, 40% girls) were enrolled and randomized to treatment or control groups. Among fathers, 31% had an annual family income $< \$26,000$; 47% had less than high school education; 46% were overweight and 54% obese; 35% had prediabetes; 74% had an elevated non-HDL; and 15% had an elevated BP. Among children, 19% were overweight and 30% obese. Retention at 4 months was 75% of families. Median program attendance was 6 sessions/family for intervention group. There were no significant differences by group for fathers' weight (β 1.0, $p=0.26$) or children's MVPA (β -0.13, $p=0.31$) nor for any of the secondary health or behavior outcomes for fathers or children post-intervention (4-month follow-up).

Conclusion: A community sample at risk for cardiovascular disease was reached, but HDHK-Hispanic did not have an effect on fathers' or children's health or behavioral outcomes at 4-months. The number of sessions attended may be related to the outcomes. Future analyses will include 12-month outcomes and dose response. Additionally, qualitative studies will be done to assess barriers to attendance.

II-P-G.32

Paternal Psychosocial Health at Pregnancy as a Foundation for Caregiving and Feeding Roles

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Purpose: Paternal involvement in infant feeding is increasingly recognized as important for child health outcomes, yet fathers often report lower confidence and engagement in feeding compared to other caregiving tasks. Fathers' psychological well-being, self-esteem, and attachment to their unborn child during pregnancy may establish foundational patterns that influence their later confidence and engagement in feeding and other caregiving behaviors. This analysis characterizes the baseline psychosocial profile of first-time expectant fathers enrolled in the Dad Bod Study, an ongoing longitudinal cohort examining fathers' cardiovascular and psychosocial health across the transition to fatherhood.

Methods: First-time expectant fathers aged 19-39 years were enrolled during their partner's second or third trimester. At baseline, participants completed validated psychosocial assessments including the Bradburn Scale of Psychological Well-Being, Rosenberg Self-Esteem Scale, Antenatal Baby Care Scale, and Paternal Antenatal Attachment Scale.

Results: The sample ($N=118$) has a mean age of 33 years was predominantly White (82.9%), married (93.2%), employed for wages (94.0%), and high-income, with 67.5% reporting annual household income $\geq \$150,000$. Baseline assessments revealed moderate-to-high self-esteem (mean=22.9, $SD=4.7$), with 33.9% scoring in the high range (>25). Psychological well-being scores averaged 1.2 ($SD=1.5$), indicating generally positive affect. Perceived stress levels were low-to-moderate (mean=14.2, $SD=5.8$), with 47.5% reporting low stress, 50.0% moderate stress, and only 2.5% high stress. Social support was robust (mean=4.4, $SD=0.6$). Perceived stress was inversely associated with self-esteem ($r=-0.50$, $p<.001$) and social support ($r=-0.53$, $p<.001$), while self-esteem correlated positively with psychological well-being ($r=0.39$, $p<.001$).

Conclusion: Within this predominantly advantaged sample of first-time expectant fathers demonstrated generally positive psychosocial health entering fatherhood, including moderate-to-high self-esteem, strong social support, and low-to-moderate stress. Fathers with stronger psychosocial resources experienced less stress during the prenatal period. These characteristics provide important context for understanding fathers' subsequent engagement in caregiving activities, including feeding. Longitudinal follow-up will examine how these prenatal factors predict paternal involvement in feeding and other caregiving behaviors.

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The Importance of Authentic Caregiver Involvement in Child Health Research Methods

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Purpose: Caregivers are central to behavioural child health research, often providing information on themselves and their child(ren). However, little is known about how caregivers interpret and respond to outcome measurement instruments, including surveys and anthropometric tools. This study explored caregivers' experiences with outcome measurement instruments to inform more effective and inclusive measurement practices in child health research.

Methods: Mothers of infants <12 months were recruited via social media to attend online and in-person meetings. Participants could bring their infants to meetings and were compensated for their time. Using a qualitative cognitive interviewing approach, participants completed outcome measurement instruments while verbalising their thought process, facilitated by trained researchers. Participants were prompted to evaluate the outcome measurement instruments through the lens of comprehension, comprehensibility, feasibility, and ease of use. Meetings were audio-recorded, transcribed, and supplemented with field notes. Meeting transcripts were thematically analysed using a combined inductive and deductive approach.

Results: Ten meetings were conducted with eight participants over seven months – six online and four in person at a local community space. Participants reported challenges interpreting outcome measurement instruments, including unclear terminology, and varied preferences for question design, response format, and recall period. Parenting experience influenced how outcome measurement instruments were interpreted and completed, underscoring the need for tools that are adaptable to diverse caregiver contexts. Participants valued the meetings as an opportunity to share their perspectives and reflect on how their lived experiences shaped their engagement with child health research.

Conclusion: Findings highlight the importance of involving caregivers in the development and selection of outcome measurement instruments to enhance data quality and participant engagement. This study offers novel insights into caregiver-centred measurement and emphasises the value of recognising diverse caregiver experiences. Fostering a respectful, flexible, and inclusive research environment is essential to obtaining authentic and meaningful data, but also for improving the design, relevance, and impact of child health research.

II-P-G.35

Mothers' and Fathers' Structure-related Food Parenting Practices and Their Association with Child Food Approach Eating Behaviors during the COVID Pandemic

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Purpose: During the COVID-19 pandemic, many mothers and fathers spent more time at home with their children, warranting consideration of parenting practices around food during the pandemic as influences on obesogenic eating behaviors among children. Structure-related feeding practices, particularly around snacking, may be particularly challenging yet influential in the pandemic setting. Parent sex and levels of feeding-related co-operation among parents (co-feeding) are understudied potential influences on parent-child feeding relationships.

Methods: We investigated relationships between structure-related parent feeding and child food approach behaviors during the COVID-19 pandemic, while considering potential moderating influences of parent sex and co-feeding levels. An online survey was completed by 318 parents (206 mothers and 112 fathers) of 2-12-year-olds who were living in states with statewide or regional lockdowns in May/June 2020 within the United States. Mothers and fathers were drawn from different families, with each survey corresponding to a unique parent-child dyad. Parental stress/mental health, co-feeding (Feeding Coparenting Scale), structure-related food and snack parenting (Feeding Practices and Structure Questionnaire and Parenting around SNacking Questionnaire), and child eating behaviors (Child Eating Behaviour Questionnaire) were assessed. Relationships of parents' structure-related food and snack parenting practices with their child's emotional overeating and food responsiveness behaviors were examined using structural equation modelling. Further, we investigated whether these relations were moderated by parent sex or

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level of co-feeding.

Results: Parent sex differences were seen in parental stress, mental health, and co-feeding, but not in structure-related food and snack parenting or child food approach eating behaviors. Structure-related food parenting was negatively associated with emotional overeating. However, structure-related snack parenting was positively associated with emotional overeating and food responsiveness. While regression paths varied between mothers vs. fathers, as well as by co-feeding levels, neither parent sex nor co-feeding levels significantly moderated relationships between parent feeding and child eating variables.

Conclusion: Future studies of food and snack parenting and co-operation in relation to feeding among mothers and fathers within a familial unit may be critical to identify intervention strategies that draw on all family resources to better navigate future disruptive events such as the COVID-19 pandemic.

II-P-G.36

Effectivity and Feasibility of Healthy Lunches at Primary Schools in Rotterdam, the Netherlands

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Purpose: The majority of children show unhealthy eating habits. For children in poverty, this is even a greater public health concern. School meals can contribute to making healthy food accessible for all children. Despite its proven health effects, in the Netherlands it is not common to provide school meals. Instead, children bring their own food from home. It is unclear whether providing healthy school lunches would be feasible and have positive effects in a multicultural city like Rotterdam. Therefore, in this study, we investigate the effectivity and feasibility of providing healthy lunches at primary schools in Rotterdam, the Netherlands.

Methods: Five primary schools in Rotterdam participated in a pilot providing healthy lunches to all children for half an academic year (2023-2024). The lunch concept was co-created by school staff, parents, children and relevant stakeholders in each school. The lunch pilot was evaluated through questionnaires about eating behavior, perceived health, taste preferences, school factors, financial stress of parents and feasibility (children/parents/teachers), observations on the content of food at school (children) and focus groups at the end of the intervention period (parents/teachers). For this study we evaluated pre-post effects of the 18-week school lunch. Quantitative data was analyzed in SPSS, findings will be supported by summarized qualitative data.

Results: Food brought from home is not in line with the guidelines for healthy nutrition. Regarding effectivity, a healthy school lunch significantly increases vegetable consumption and children bring less sweetened drinks from home. Small differences suggest improved taste preferences. However, some negative effects should be further investigated, like an increased consumption of cookies and cake and less breakfast consumption. Regarding feasibility, the satisfaction among children, parents and school staff differed. Many children mentioned they liked their lunch from home more compared to the healthy school lunch. Overall, parents and school staff agree a healthy school lunch is a good initiative, especially for the children who need it.

Conclusion: A healthy school lunch seems necessary and can have positive effects. However, the lunch concept should fit the school to ensure feasible implementation. Those findings can shape policy (both on regional and national level) and optimize practical aspects of implementation.

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Exposure vs. Experience: A Mixed-methods Study of Objective Food Outlets Measures and Families' Lived Experiences of the Neighbourhood Food Environment

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Purpose: Neighbourhood food environments are often assumed to directly influence children's diets, yet evidence from quantitative studies is inconsistent. This relationship is likely indirect, operating through parents who interpret,

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navigate, and act upon the food opportunities around them. This mixed-methods study integrated objective spatial measures of local food outlets with parents' lived experiences to better understand how neighbourhood context shapes family feeding and child diet in Rotterdam, the Netherlands.

Methods: The quantitative phase analysed cross-sectional data from $n=3,739$ children (8y) in the Generation R Study. Geographic Information System measures within 400m of each home captured absolute and relative fast-food outlet exposure, and an overall neighbourhood healthiness score. Diet quality (scored 0-10) was derived from a validated parent-reported food frequency questionnaire. Generalised linear models tested associations between the food environment and child diet, and moderation by maternal education. To further investigate these findings, semi-structured interviews were conducted with $n=15$ parents from socioeconomically diverse neighbourhoods and analysed inductively using a constructivist grounded theory approach.

Results: Quantitative analyses yielded unexpected findings. Higher neighbourhood healthiness score was associated with children's lower diet quality (-0.040 points per unit, 95%CI: -0.073 , -0.006). Greater absolute fast-food outlet exposure was associated with better diet quality, but only among children with higher-educated mothers ($+0.021$ points per outlet, 95%CI: 0.008 , 0.034), suggesting socioeconomic buffering effects. Qualitative analysis illuminated these paradoxical patterns, revealing that parents' engagement with the neighbourhood food environment was relational and adaptive rather than a direct consequence of exposure. Perceptions of what was available, accessible, and acceptable evolved through everyday use, influenced by transport options, time, affordability, safety, and cultural fit. Many families extended their food networks beyond the neighbourhood via commuting routes or digital food retail, and selectively engaged with outlets that aligned with their values and resources.

Conclusion: Integrating both research methods reveals that the influence of neighbourhood food environments on children's diets depends on how families mobilise and make sense of local resources. Variability in these processes explains inconsistencies in quantitative, proximity-based models. This study demonstrates the value of combining spatial exposure metrics with lived-experience data to explain heterogeneity in dietary behaviours within local context.

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Development of a New Program for After-school Care Staff to Promote Healthy Behaviours in Children

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Purpose: After-school care is an important setting to foster healthy behaviours in school aged children. However, this promising role has not yet been extensively studied. Staff working in after-school care are often not specifically trained in promoting a healthy lifestyle and have expressed a need for practical tools to support healthy eating and physical activity behaviours across diverse groups of children. In this project, we develop, implement, and evaluate an innovative program for after-school care staff. The overall aim is to enhance staff practices related to eating and physical activity, as well as to improve the eating and physical activity behaviours in children at after-school care.

Methods: The program will be developed using the Intervention Mapping approach and through co-creation with after-school staff and school aged children. The first year of this project involves the development and the second year the implementation and evaluation of the program. The development phase includes 1) desk research; 2) interviews with staff and experts in healthy child development and childcare; 3) creative sessions with children, based on the mosaic approach; and 4) co-creation sessions involving both staff and children. In the implementation and evaluation phase, a pilot study will be conducted at 15 locations in the region of Amsterdam and The Hague, the Netherlands. Data for the process evaluation will be collected through interviews with staff and children and a questionnaire for staff. Observations before and after the program are part of the evaluation to explore the effects of the intervention.

Results: The results of the needs assessment with after-school care staff, school aged children, and experts in healthy child development and childcare will be presented. In addition, a prototype of the developed program will be introduced.

Conclusion: This project will deliver a practical, user-friendly, and widely applicable program to support after-school care staff in promoting healthy behaviours among children from diverse socioeconomic and sociocultural backgrounds.

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Correlates of Engagement in Active Play among Children and Adolescents: Findings from the 17-Country Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ) Pilot Study

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Purpose: Active play is an important yet under-researched source of physical activity among children and adolescents. No previous study has compared active play levels assessed with a consistent measure across low-, middle-, and high-income countries. We explored the sociodemographic correlates of child- and parent-reported active play among 8- to 17-year-old participants in the Global Adolescent and Child Physical Activity Questionnaire (GAC-PAQ) pilot study.

Methods: In all participating countries, we recruited child-caregiver dyads (n=20 to 52) stratified by urbanicity and child sex. Participants and one of their caregivers completed the app-based GAC-PAQ, which includes a single-item assessing active play time in the past week. Children/adolescents reported their gender, and caregivers reported their child's sex. We categorized responses as >2 hours/day vs. ≤2 hours/day based on the Active Healthy Kids Global Alliance's benchmark. We categorized countries as low- and middle-income (LMICs) or high-income (HICs) based on the World Bank classification. We used generalized linear mixed models to assess sociodemographic factors associated with child- and caregiver-reported active play, controlling for child gender or sex (as appropriate), age, and country income classification.

Results: A total of 578 children/adolescents and 574 caregivers completed the questionnaire. Only 17.3% of children/adolescents reported engaging in >2 hours/day of active play (16.4% in LMICs and 18.8% in HICs). Based on caregiver report, 17.1% of participants met the >2 hours/day benchmark (14.5% in LMICs and 21.4% in HICs). Odds of engaging in active play for >2 hours/day decreased by about 10% for each year of age (child/adolescent-reported model: OR=0.90; 95% CI=0.83-0.98; caregiver-reported model: OR=0.88; 95% CI=0.81-0.96). Odds were lower among girls versus boys (OR=0.63; 95% CI=0.41-0.99).

Conclusion: If confirmed in future research, our findings suggest that more effort may be needed to promote active play, especially among girls and adolescents for whom it may be undervalued. Future research should further explore a broader range of correlates and assess the reliability and validity of our measure of active play among children, adolescents, and caregivers.

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Intersecting Inequalities in Maternal and Child Nutrition: The Double Burden of Malnutrition in Colombian Households

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Purpose: This study examines the social determinants associated with the Double Burden of Malnutrition in Colombian households.

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Methods: Using data from the 2010 and 2015 National Survey of Nutritional Situation (ENSIN), a representative, cross-sectional, multistage household survey covering the civilian population in urban and rural areas of all 32 departments. We conducted a cross-sectional descriptive analysis based on 8,580 mother-child pairs. The DBM was defined as the coexistence of a stunted child (height-for-age z-score < -2 SD) and an overweight or obese mother (BMI $\geq$ 25 kg/m²) within the same household. Socioeconomic and demographic variables were included to identify structural social determinants, such as household wealth quartile.

Results: The prevalence of DBM in Colombian households was estimated at 5.1%. Nearly half (49.3%) of households presented adequate nutritional status for both mother and child, while 45.6% showed mixed patterns of malnutrition. The DBM was more prevalent in rural areas (7.1%) than in urban areas (4.3%). A socioeconomic gradient was evident: prevalence decreased steadily from 6.3% in the poorest quartile to 3.0% in the wealthiest quartile. Regionally, Bogotá (6.9%) and the Pacific region (6.0%) exhibited the highest rates, compared with 3.8% in the Central region.

Conclusion: The findings highlight the intersection between social inequalities and nutritional outcomes in Colombia. The Double Burden of Malnutrition (DBM) reflects not only dietary transitions but also inequities in access to health, education, and economic resources. The social gradient observed, where DBM is concentrated among poorer, rural, and indigenous households, underscores the role of structural determinants such as wealth, education, and ethnicity. These results are consistent with studies in other middle-income countries, including Brazil, Mexico, and South Africa, where similar socioeconomic disparities shape DBM patterns.

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Examining Physical Activity Progression among Latinx Youth: The Familias Activas Program

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Purpose: This study examined whether pre-test exercise habits predict post-test exercise levels among Latinx youth in a low-income county in Maryland, USA.

Methods: A multiple linear regression was conducted with pre-intervention hours of vigorous, moderate, and mild exercise of youth as predictors and post-intervention vigorous exercise hours as the dependent variable.

Results: The model was statistically significant, $F(3,19)=9.49$, $p<.001$, explaining 60% of the variance in post-intervention vigorous exercise ($R^2=.600$, adjusted $R^2=.537$). Among the predictors, pre-test mild exercise was the only significant contributor ($\beta=0.389$, $p=.010$), indicating that individuals who engaged in more mild exercise prior to the intervention tended to increase their vigorous exercise afterward. These findings suggest that mild exercise may play a key role in facilitating transitions to more vigorous activity among Latinx youth.

Conclusion: Results indicate that pre-test PA habits collectively explain a substantial proportion of the variance in post-test PA. However, among the predictors, only pre-intervention mild exercise significantly contributes to the increase in vigorous exercise after the intervention ($p=.010$). One limitation of the study is the small sample size ($N=23$); however, this outcome can shed light on the critical link between mild exercise and future vigorous activity among Latinx youth. Public health messages aimed at increasing physical activity might emphasize small, achievable steps (e.g., walking or jogging) as a first step toward adopting long-term vigorous exercise.

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Effects of a Family Integrated Training Program (F.I.T Family) on Cardiorespiratory Fitness, Adiposity, and Psychosocial Outcomes among Children and Parents

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Purpose: Low physical fitness remains a significant concern among children in Hong Kong. While family-based interventions show promise, evidence of their effectiveness in culturally unique settings like Hong Kong is scarce. This study evaluated the impact of a Family Integrated Training (F.I.T. Family) program on cardiorespiratory fitness, adiposity, and psychosocial outcomes in Chinese children and parents.

Methods: In this two-arm, parallel, assessor-blinded randomized controlled trial conducted in Hong Kong from January 2023 to December 2024, 208 Chinese families (each consisting of one parent and their child aged 6–12 years) were randomly assigned in a 1:1 ratio to either the intervention or waitlist control group. The 15-week “F.I.T. Family” program included three parent-focused counseling sessions and twelve weekly, 60-minute practical sessions led by certified fitness instructors. Families were also prescribed a home-based exercise regimen to be completed three times per week, with 60 minutes per session. The control group maintained their usual routines. Primary outcomes included cardiorespiratory fitness and body composition in both children and parents. Secondary outcomes focused on psychosocial measures among parents.

Results: Of the 208 families randomized, 195 (93.8%) completed the study. After 15 weeks, the intervention group demonstrated significant improvements in cardiorespiratory fitness for both children ($\beta = 3.35$ PACER laps, 95% CI: 1.57, 5.13, $d = 0.70$, $p = 0.001$) and parents ($\beta = 3.43$ PACER laps, 95% CI: 1.72, 5.15, $d = 0.75$, $p = 0.001$) compared to controls. No significant between-group differences were observed in body composition. Parents in the intervention group reported significant improvements in psychosocial outcomes, including attitudes, intentions, enjoyment of physical activity, and certain domains of quality of life.

Conclusion: This 15-week family-integrated intervention improved cardiorespiratory fitness in both children and their parents, independent of changes in body weight status. Additionally, meaningful enhancements in psychosocial outcomes among parents were observed, highlighting the broader benefits of family-based approaches to health promotion. Future research with long-term follow-up is needed to assess the sustainability and generalizability of these effects across more diverse populations.

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Barriers and Facilitators to Outdoor Play among Filipino Children

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Purpose: Outdoor play is essential for childhood development, enhancing physical, mental, and social well-being. Yet, global participation in outdoor play is declining for various reasons. In the Philippines, prior research has identified high population density in urban areas and insufficient infrastructure as significant obstacles to access to and participation in outdoor play. However, factors affecting participation in rural areas have not been well-explored. Thus, this pilot study aims to identify the challenges and facilitators of outdoor play among Filipino children in rural areas. Understanding the role of outdoor play in these communities is essential for developing effective practices and policies that promote healthier, more active lifestyles in diverse cultural contexts.

Methods: A qualitative approach using semi-structured face-to-face focus groups and individual interviews was employed. Eleven children aged 8-15 years (6 boys, 5 girls) from a rural region in Mindanao participated through snowball sampling. Parental consent was obtained. Data were transcribed verbatim and analyzed using thematic analysis.

Results: The themes identified among the barriers to outdoor play include weather conditions, safety concerns, parental restrictions, and competing demands, such as increased screen time, busy schedules, other responsibilities, and fatigue. Conversely, themes such as encouragement from both parents and friends, the accessibility and availability of open spaces, and being with others were identified as facilitators of outdoor play.

Conclusion: The study highlights the critical challenges and facilitators of outdoor play among Filipino children in rural areas. Addressing these barriers to outdoor play while enhancing facilitators may promote healthier lifestyles and holistic development, and support effective policies that encourage outdoor engagement, fostering community well-being across diverse cultural settings. Future direction may also emphasize the need to understand how different cultural contexts define outdoor play and the importance of enhancing children’s awareness of its role and significance.

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Parental Perceived Barriers for Preschoolers' Physical Activity and Children's Physical Activity from Preschool to School Age; A Six-year Follow-up Study

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Purpose: Evidence on associations between parental perceived barriers and preschool age children's physical activity (PA) is mixed. Less is known about whether parental perceived barriers during preschool age are linked to PA in school age. We examined cross-sectional associations between parental perceived barriers and preschooler's PA, and whether the barriers for PA at preschool age associated with children's PA six years later.

Methods: DAGIS intervention study was conducted among 3-6 years-old in preschools in Salo, Finland in 2017-2018 (analytic sample n=447) with a six-year follow-up carried out in 2023-2024, children 9-12 years-old (analytic sample n=119). Intensity of PA was measured during 7 days by accelerometers (Actigraph wGT3X-BT). Light PA (LPA), moderate-to-vigorous (MVPA), and total PA were used as continuous variables in analysis. Parental perceived barriers for children's PA was asked from parents by 7 items rated on a three-point scale (1 = not a barrier, 2= a barrier to some extent 3 = a barrier to a great extent). A composite mean score was computed for barriers (mean 1.41, SD 0.30), showing modest internal consistency (Cronbach's $\alpha = 0.64$). Linear regression analyses adjusted for child's age, sex, and parental educational level were used to examine cross-sectional associations between perceived barriers and preschool children's PA. Longitudinal associations between preschool barriers and school age children's PA were further adjusted for baseline PA and preschool intervention status.

Results: Higher parental perceived barriers for children's PA were associated with lower LPA (B -10.1; 95% CI -19.0; -1.29), MVPA (B -10.5; 95% CI -15.7; -5.32), and total PA (B -20.7; 95% CI -32.5; -8.84) at preschool age. In the longitudinal analysis higher parental perceived barriers in preschool was associated with lower total PA (estimate B: -45.1, 95% CI -88.4; -1.72), but not with LPA or MVPA at school age.

Conclusion: Higher parental perceived barriers to children's PA were associated with lower PA in preschool and with lower total PA six years later. Parental perceived barriers to children's PA appear to be an important determinant of children's PA at school age and should be addressed in early childhood.

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Understanding Food Insecurity among Families in Flanders, Belgium: The School as a Supportive Setting

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Purpose: Food insecurity significantly affects children's dietary quality, health, and well-being, even in high-income settings, such as Flanders, Belgium. While qualitative research has extensively examined the lived experiences of food-insecure families in countries such as the United States, research in Europe remains scarce. Moreover, the perspectives of both parents and children are rarely integrated into strategies addressing food insecurity. In addition, limited research has examined how schools can respond to the needs of food-insecure families. This study aimed to (1) explore factors influencing the ability of food-insecure families in Flanders to provide sufficient, healthy, culturally and socially appropriate foods for their children, and (2) examine how the school environment can respond to these needs.

Methods: A qualitative study combining individual and focus group interviews was conducted in two Flemish municipalities in which participants were recruited through local social organizations. First, individual face-to-face interviews were conducted with five parents and two primary school-aged children. Second, two focus groups were organized within pre-existing parent groups linked to those social organizations. In addition, participating parents completed a socio-demographic questionnaire. All qualitative data were analyzed using reflexive thematic analysis,

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combining inductive and deductive coding strategies.

Results: Six overarching themes emerged. Three themes described individual and structural factors shaping food provision within the family context: (1) physical availability and accessibility of food, including limited cultural appropriateness and mobility constraints; (2) financial accessibility, with parents prioritizing quantity over quality due to high food prices; and (3) individual coping strategies, with parents consistently prioritizing their children's needs and preferences despite limited resources. Three additional themes reflected the school's potential supportive role: (4) as a structural and responsive food provider; (5) as a financial and material supporter; and (6) as a partner in food education.

Conclusion: Food insecurity among families in Flanders is shaped by interacting structural and individual dynamics within the broader food environment. Schools emerge as key settings with the potential to address nutritional inequalities through food provision, financial support, and educational engagement. These findings highlight the need for systemic, context-sensitive approaches that integrate the lived experiences of food-insecure families to ensure acceptability and effectiveness of support initiatives.

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Machine Learning Applied to Analyzing How Multidimensional Variables Affect Cognitive Performance in a School-based Physical Activity Intervention

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Purpose: Cognitive development in primary schools is influenced by multiple interacting variables at different levels, which are rarely fully controlled in physical activity intervention studies. As a result, small or indirect effects may go undetected when traditional statistical approaches are used. This study applies a machine learning metric, feature importance, to examine the relative contribution of variables from different dimensions to cognitive development.

Methods: The data derive from a cluster-randomized controlled clinical trial. The “ERGUER NORDESTE” project includes 770 first- and second-grade elementary school children, aged 7 to 9 years (54% girls), from four cities across three states in Northeast Brazil. Each city includes three intervention groups (physical activities lessons, physical active breaks and control group). Feature importance from different machine learning models (C5.0, SVM, BART, EARTH, and Random Forest) was extracted after training the models to classify children's performance on five tests assessing executive functions (working memory, behavioral inhibition, selective attention, and cognitive flexibility). Feature importance scores were scaled from 0 to 100 to indicate the relative contribution of each variable to the model. The primary predictor is assigned a value of 100, meaning that a feature with a score of 50 has half the importance of the primary predictor in the final prediction. Predictors included cities, schools, intervention groups, self-reported quality of life questionnaire scores, daytime sleepiness, and food consumption (preprocessed using Principal Component Analysis with variable reduction, considering the first five components). All analyses were performed in R.

Results: Across all five machine learning models, school was the most important predictor of cognitive performance, ranking first in the EARTH, BART, C5.0, and Random Forest models (all = 100.0) and second in SVM (83.3), in which healthy food consumption ranked first (100.0). Unhealthy food consumption demonstrated high importance in EARTH (69.4), SVM(100.0), and Random Forest (83.5). Healthy food consumption was also highly relevant in Random Forest (84.3) and C5.0 (50.8). Other variables showed lower importance in the models.

Conclusion: Machine learning models consistently identified school context and healthy food consumption and unhealthy food, as the main contributors to cognitive performance.

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From Complexity to Clarity: A Structured Framework for Translating Large-scale Multidimensional Data into Child-appropriate Feedback Reports in the ReDiKid Study

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Purpose: Large-scale behavioral studies involving children generate extensive and heterogeneous datasets (e.g., questionnaires, accelerometry, anthropometric measures, motor tests). However, systematic approaches for reducing and translating such data into simple, age-appropriate, and child-understandable feedback remain limited. The purpose of this study was to develop and describe a structured framework that enabled the creation of an individual, comprehensible feedback report for child participants within the “Resilient Child in the Digital World” (ReDiKid) study.

Methods: The framework for developing feedback reports was created using pilot data from 309 children aged 9–11 years, including heterogeneous data from questionnaires, accelerometry, and physical fitness tests. Development followed six systematic steps: (1) selection of four domains and key indicators from the full dataset; (2) conversion of different data formats (e.g., minutes, scores, percentiles) into a common evaluation system; (3) transformation of results results onto a five-level visual rating scale; (4) development of a graphic and communication structure of the report emphasizing clarity and age appropriateness; (5) construction of a binary domain model enabling overall narrative feedback across domains; and (6) automation of report generation in R.

Results: The framework enabled systematic reduction of data derived from more than 20 research instruments into four coherent domains (resilience, digital behavior, movement behavior, health and lifestyle) and 12 key indicators, which were translated into simple and child-understandable feedback. Heterogeneous data types (e.g., minutes of physical activity, motor test performance, percentiles of questionnaire scores) were unified into a single five-level visual scale, allowing interpretation without reference to raw values. The binary domain model generated 16 distinct overall evaluation profiles, each associated with tailored, positively framed feedback and a corresponding visual avatar, transforming multidimensional data into a coherent and child-understandable overall message. The fully automated system generates individualized PDF reports and is prepared for the main data collection involving approximately 1,500 children.

Conclusion: The proposed framework provides a structured and scalable approach for translating complex multidimensional data into child-appropriate feedback. It offers a practical model for communicating research findings to children and can be extended to adapted feedback formats for parents.

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What is Needed to Increase Effectiveness and Reach of the NHS Healthy Start Scheme in England: Inclusive, Positive Framing and Appropriate Support to Apply

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Purpose: Healthy Start (HS) is a UK government food subsidy programme for low-income families that aims to increase consumption of healthy foods. HS is accessed by only ~63% eligible people. Previous research showed eligible families are not accessing HS because of difficulties signing up and misconceptions about the scheme. This study sought to identify: 1a) How HS could be worded or ‘reframed’ to be more inclusive and reach more families, and 2) How to provide the ‘helping hand’ that families need to sign-up to HS?

Methods: Semi-structured interviews were conducted online with stakeholders including families eligible for HS, health professionals, local government officials, and advocacy organisations across England. Purposive sampling was used to gather rich and contextual data against the research questions. Reflexive thematic analysis was applied and interview transcripts coded using NVivo software.

Results: Data from n=45 participants identified that HS could reach more families if words used to describe it consider the breadth of families’ cultural beliefs and values. Words that focus on personal empowerment, the health benefits of eating well, improvements to families’ economic agency, and positive parenting are likely to resonate more widely. Professionals could support families to sign-up by encouraging them to ‘Just give it a go’ rather than

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describing complex eligibility criteria. To highlight the importance of HS for families experiencing food insecurity to policymakers, using terms like justice and equity, adopting a lifecourse approach to nutrition, and aligning with policy goals are impactful approaches.

Families want and need a 'helping hand' to apply for HS, leading the process with support from trusted people in locations they consider 'safe spaces'. These spaces are not always health clinics/ formal settings, but informal community spaces where families spend time. Who offers the 'helping hand' is important and many families trust and learn most from parents like them, with similar life experiences.

Conclusion: This study highlights the importance of words used to describe food subsidy schemes to enable all eligible families to engage and benefit. Ensuring appropriate support to navigate the registration process from trusted people supports wider community empowerment among groups who may be missing out on essential services.

II-P-G.49

Accuracy of a Simple and Scalable Tool for Estimating Body Composition in Arab Adolescents

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Purpose: Accurate assessment of body fatness is important for behavioral nutrition and physical activity research, yet many methods are time- and resource-intensive and inaccurate. The Hudda et al equation, originally developed in a UK population of children and adolescents and thereafter externally validated in more than 20 childhood settings globally, accurately estimates fat mass (FM) using only weight, height, age, sex, and ethnicity. The equation has not yet been validated in Arab adolescents. We aimed to validate the equation accuracy in Arab adolescents, using total body water-measured fatness from deuterium dilution (DD) as a reference method.

Methods: Data were obtained from 240 adolescents (58% boys), age 14-15 years old from Jordan, Lebanon, and Syria. Accuracy was assessed by comparing predicted FM with DD-measured FM using R², calibration slope, calibration-in-the-large (CITL), root mean square error (RMSE), and Bland-Altman analysis.

Results: R², calibration slope, and CITL were 82% (CI: 78% to 86%), 1.00 (95% CI: 0.94 to 1.06), and 1.3kg (CI: 0.8 to 1.8kg), respectively, with RMSE of 4.1 kg. Bland-Altman analysis showed a mean bias of 1.3 kg (95% CI: 0.8 to 1.8kg), with wide limits of agreement of -6.4 to 9.0 kg.

Conclusion: The prediction equation showed modest accuracy, though country-specific recalibration may further improve its performance in the future. Our data suggest that predicting body composition from simple, easily collected, data is a promising approach for nutrition and physical activity research and public health surveillance. Nonetheless, our findings indicate that the prediction accuracy is currently more acceptable at the group level rather than the individual level.

II-P-G.50

Healthful vs. Unhealthful Plant-based Diets During Pregnancy: Nutritional Adequacy and Intake of Plant-based Analogs and Ultra-processed Foods

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Purpose: Plant-based diets (PBD), which could be beneficial for both the environment and health, should also ensure adequate nutrient intakes, especially during critical stages of life such as pregnancy. Ultra-processed foods (UPFs, NOVA4), including some plant-based animal products analogs, should be consumed moderately to prevent future adverse health effects both in pregnant women and offspring. Our aim was to test associations between adherence to healthful and unhealthful PBD and nutritional adequacy among pregnant women. We also examined non-UPFs

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(NOVA1), UPFs and plant-based analogs consumption.

Methods: This study included 3,785 women who declared a pregnancy during their follow-up in the French web-based NutriNet-Santé study. Daily food intakes were collected using repeated 24-h dietary records. Foods were categorised according to their level of processing using NOVA classification and, if applicable, in plant-based analogs groups. For each participant, we assessed their nutritional adequacy by computing Probability of Adequate Nutrient Intake score (PANDiet) adapted to updated recommendations for French pregnant women, and adherence to healthful and unhealthful PBD using healthful and unhealthful PBD indices (hPDI and uPDI).

Means of PANDiet score and UPFs, UnPFs, and analogs intakes were compared across hPDI and uPDI quartiles, adjusted for age and EI.

Results: Pregnant women with highest adherence to healthful PBD (4th hPDI quartile) had a slightly better nutritional adequacy ($\Delta_{Q4-Q1, PANDiet} = 2.3$, $p < 0.0001$) and slightly higher non-UPFs intakes ($\Delta_{Q4-Q1, non-UPFs} = 4.7\%$, $p < 0.0001$), compared to women with lowest adherence level (1st hPDI quartile). On the contrary, those with highest adherence level to unhealthful PBD had a lower nutritional adequacy and non-UPFs contribution (all $p < 0.001$). Regarding analogs, both 4th hPDI and uPDI quartiles had a higher plant-based beverages consumption (7.1% consumers with a mean intake of 96 mL/d, all $p < 0.001$).

Conclusion: Pregnant women who adhered the most to healthful plant-based diet had a better diet quality, considering nutritional adequacy and unprocessed foods contribution as quality indicators. A few of them consumed plant-based analogs, with moderate intake. Further epidemiological studies are needed to test a potential effect of a nutritionally-balanced PBD for both women and children during early life days.

II-P-G.51

Longitudinal Associations between Parent Child Technology Interference and Cognitive and Social Emotional Development in Early Childhood

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Purpose: Parent-child technology interference refers to technology (e.g., smartphone, TV) related interruptions to shared interactions and may undermine the responsive caregiving processes that support early executive function, language, and self-regulation development. However, evidence to date is largely cross-sectional. The purpose of this study is to examine longitudinal associations between parent-child technology interference and cognitive and social-emotional development across the preschool years.

Methods: Participants were 360 parents and their preschool-aged children (3.0, 3.5, or 4.0 years at baseline) recruited in Western Canada as part of the TECHnology and Development in Early Childhood (TECH) project. Participants were followed over 12 months with assessments at baseline, 6 months, and 12 months (October 2022 to November 2024). Frequency of daily parent-child technology interference was assessed at each wave using an adapted 6-item Technology Device Interference Scale covering common devices (score range 0 to 36). Child cognitive outcomes were assessed at each wave via virtual administered games, including response inhibition (Head Toes Knees Shoulders), working memory (forward and backward word span), self-control (Snack Delay), and expressive vocabulary (Early Years Toolbox). Social-emotional development was assessed by parent-reported self-regulation (Child Self Regulation and Social Behaviour Questionnaire) and behavioural strengths and difficulties (Strengths and Difficulties Questionnaire at 6 and 12 month follow-up). Longitudinal associations will be estimated using Linear Mixed Models with random intercepts for time (i.e., age centered). Technology interference will be treated as a time varying exposure. Models will be adjusted for children's sex, race/ethnicity, and non-parental care time as well as parental education, marital status, and stress.

Results: Analyses will estimate associations between parent-child technology interference and each developmental outcome over time, reporting fixed effect estimates with 95 percent confidence intervals. Model diagnostics will evaluate residual assumptions, influential observations, and multicollinearity. Effect sizes and model fit indices (marginal and conditional R^2 , information criteria) will be reported.

Conclusion: This study extends prior cross-sectional evidence by testing whether technology related interruptions in parent-child interactions are longitudinally associated with preschool cognitive and social-emotional development. Findings will inform guidance and intervention targets aimed at supporting responsive caregiving and healthy early development in increasingly digital family environments.

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II-P-G.52

More Streaming, More Energy Drinks: Links between Livestream Viewing and Beverage Intake in U.S. Adolescents

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Purpose: Livestreaming has become an increasingly common way to consume social media content, particularly for adolescents aged 13-17 years. Livestreaming involves the live creation of video content for social media. Two of the most marketed food products on livestreaming platforms are soda and energy drinks, both a major source of added sugars, caffeine, and other stimulatory products known to have detrimental effects on adolescent health. These products are often marketed to adolescents on these streaming platforms as “energy promoting” and “performance-enhancing.” Understanding how media engagement (livestreaming behavior) impacts beverage consumption patterns may help inform regulatory and counter-marketing strategies. Here, we examined associations between daily streaming time and beverage intake frequency among adolescents.

Methods: Adolescents aged 13–17 years (n = 1,471) were recruited nationwide through an online panel. Participants self-reported daily streaming time (0–2, 3–4, or ≥5 hours/day) and intake frequency of water, milk, soft drinks, and energy drinks (less than once/week, 2–6 times/week, once or more/day). Chi-square tests assessed associations between streaming category and beverage intake. Percentages reflect intake distribution within streaming groups.

Results: Streaming time was significantly associated with intake patterns for water, soft drinks, and energy drinks, but not for milk. Higher streaming time was associated with lower water consumption ($\chi^2 = 21.19$, $p < 0.01$), higher soft drink intake ($\chi^2 = 47.19$, $p < 0.01$), and higher energy drink consumption ($\chi^2 = 104.97$, $p < 0.01$). Milk consumption did not differ by streaming level ($\chi^2 = 7.31$, $p = 0.121$). High streamers (>5 hours/day) were more likely to consume energy drinks at least once daily (23.3%), compared to moderate (3-4 hours/day) (14.9%) and low (0-2 hours/day) streamers (9.1%).

Conclusion: Greater self-reported livestreaming viewing was associated with higher consumption of both energy drinks and soft drinks, and with lower water intake. The association between increased livestream use and energy drink consumption is consistent with the large amount of energy drink marketing found on livestreaming social media. Interventions aimed at reducing adolescent exposure to marketing of energy-dense beverages on digital media platforms may support healthier beverage choices.

II-P-G.53

Social Support, Autonomous Motivation, Self-efficacy, and Physical Activity among 10- to 14-Year-old Adolescents: A Cross-sectional Study

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Purpose: Globally, 81% of adolescents are physical inactive. In the U.S., only 24% of high school adolescents are meeting recommendations calling for 60 minutes of moderate-to vigorous physical activity (MVPA) daily. These dismal percentages underscore a need to examine relationships between various psychosocial factors and not only MVPA but also light physical activity (LPA), while understanding the influence of demographic, physiological, and activity-related characteristics. LPA warrants consideration in research with adolescents because it has been associated with improvements in cardiometabolic biomarkers and long-term physical activity (PA) participation. To contribute toward addressing this gap, two aims of this study were to: investigate relationships between psychosocial factors (autonomous motivation for PA, PA self-efficacy, social support for PA) and PA intensities (LPA and moderate [MPA], vigorous [VPA], and MVPA) among adolescents (ages 10-14) in the U.S.; and (2) examine the influence of demographic, physiological, and activity-related characteristics (age, sex, race/ethnicity, body mass index [BMI], annual family income, cardiorespiratory fitness [CRF; estimated maximal oxygen uptake: $\text{VO}_2 \text{ max}$], current sports or cheerleading team participation, and non-sport PA program participation) on various PA intensities.

Methods: This cross-sectional study involved a secondary analysis of data from a large-scale randomized controlled

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trial. In 2022-2024, adolescents completed demographic and psychosocial surveys and wore accelerometers to assess PA. Of 935 adolescents enrolled, 623 (66.6%) had valid accelerometer data (≥ 4 days). Structural equation modeling was used for analysis.

Results: MPA, VPA, and MVPA were positively associated with male sex, higher CRF, and sports or cheerleading team participation. Age and BMI z-score were negative predictors of MVPA and VPA. MPA was negatively associated with age, and light PA was negatively associated with annual family income. Social support for PA predicted both autonomous motivation for PA and PA self-efficacy. Indirect effects of social support on the various levels of PA intensity via autonomous motivation or PA self-efficacy were not significant.

Conclusion: Increasing social support for PA may enhance adolescents' autonomous motivation for PA and PA self-efficacy. However, indirect effects on the PA intensity levels were not statistically significant, underscoring the promise and limitations of psychosocial pathways and the need for continued research.

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I-P-H.01

Temporal Trends in Neighborhood Access to Daily Destinations across 12 Spanish Cities (2014–2024)

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Purpose: In a context in which public policies are investing in the promotion of creating more livable environments. The purpose of this study was to examine temporal trends in neighborhood access to daily destinations across multiple Spanish cities between 2014 and 2024. Specifically, we aimed to quantify how mean access to daily destinations index, and its components evolved over time within and between cities, identifying whether urban environments became more or less supportive of walking during this period.

Methods: We conducted a longitudinal ecological analysis of neighborhood access to daily destinations across 12 geographically diverse Spanish cities from 2014 to 2024. Access to daily destinations was quantified annually within 100 × 100 m grid cells following the Global Healthy and Sustainable City Indicators Software, an open science toolkit. A composite daily living index was calculated summing equal-weighted access scores on three objective indicators derived from geospatial data at the neighborhood level: healthy food market, a convenience store, and a public transport stop within 500 m.

To enable temporal and intercity comparisons, daily living index values were standardized as z-scores using the global mean and standard deviation of all observations across cities and years. For each city and year, we computed the mean daily living index and its corresponding 95% confidence interval (95% CI).

Results: Mean access to daily destinations increased progressively from −0.18 (95% CI: −0.33, −0.02) in 2014 to 0.20 (0.06, 0.33) in 2024, reflecting a steady improvement in local accessibility to essential amenities across Spanish cities. Gains were more pronounced in large metropolitan areas such as Barcelona, Málaga, and Sevilla, whereas smaller or less dense cities (e.g., León, Jaén) exhibited modest yet consistent growth. Among the components, access to public transport stops remained the highest and most stable contributor (increasing slightly from 0.80 to 0.83); convenience stores showed marked growth across nearly all cities (from 0.32 to 0.46); and healthy food markets persisted as the most limited and spatially unequal resource (from 0.33 to 0.53).

Conclusion: This study provides a standardized, spatially and temporally comparable framework to monitor changes in neighborhood access to daily destinations across Spanish cities over the past decade.

I-P-H.02

Five-year Evolution of the Overall Nutritional Quality of Local and Non-local Breads and Processed Meats Offered and Sold in the Province of Québec (Canada)

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Purpose: Assessing changes in the nutritional quality of the food supply is essential to understand how it evolves over time, to ultimately support its improvement. The lack of sales data is often reported as a limitation in food supply studies. This study aims to evaluate the five-year evolution of the overall nutritional quality of both local and non-local prepackaged foods in the province of Québec (Canada), by integrating food supply and food sales data.

Methods: Two food categories were studied using the Food Quality Observatory's database: sliced processed meats ($n_{2017-2018}=361$; $n_{2022}=487$) and sliced breads ($n_{2016-2017}=294$; $n_{2021}=340$). Local foods were defined as those produced and/or processed in Québec and those with at least one "Aliments du Québec" logo on the package. Overall nutritional quality was measured using the 2017 Nutri-Score (NS) nutrient profiling algorithm, in which a lower score reflects a better nutritional quality. Wilcoxon rank sum tests were used for unweighted comparisons (food supply) and rank regressions were used for sales-weighted comparisons.

Results: Unweighted results indicate that overall nutritional quality deteriorated over five years in the whole category of meats ($NS_{2017-2018}=12.6\pm 7.6$ vs. $NS_{2022}=13.8\pm 7.8$, $p=0.02$), in meats specifically produced and/or processed outside of

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Québec (12.2 ± 8.0 vs. 13.8 ± 8.2 , respectively, $p=0.04$), and in those without an “Aliments du Québec” logo (12.7 ± 7.7 vs. 14.1 ± 7.9 , $p=0.015$). The overall nutritional quality of breads remained similar over time ($NS_{2016-2017} = -0.9 \pm 3.3$ vs. $NS_{2021} = -0.4 \pm 3.5$, $p=0.06$), but deteriorated in breads without a logo (-0.7 ± 3.4 vs. 0.1 ± 3.5 , $p=0.015$). Conversely, sales-weighted results show that overall nutritional quality improved over time in both food categories as a whole (meats: 13.4 ± 5.9 vs. 12.1 ± 6.8 ; breads: 0.2 ± 3.0 vs. 0.1 ± 2.9 , both $p=0.02$), and in foods specifically produced and/or processed in Québec (meats: 13.7 ± 5.5 vs. 11.5 ± 6.4 ; breads: -0.1 ± 3.0 vs. -0.2 ± 2.8 , both $p=0.001$).

Conclusion: While the overall nutritional quality of some foods available on the market deteriorated over time, sales-weighted data revealed an overall improvement, particularly for foods locally produced and/or processed. Such contrasting results highlight the importance of taking consumer purchases into account in food environment assessments. Further research should explore other food categories.

I-P-H.03

Comparison of the Overall Nutritional Quality of Prepackaged Foods Available in Quebec, Canada, with and without Sugar Claims

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Purpose: Food products labelled as sugar-reduced or sugar-free may be appealing to consumers, but little is known about the overall nutritional quality of such products. This project aims to assess the overall nutritional quality of prepackaged foods offered in Quebec, Canada, according to the presence or absence of sugar claims, at two different time points.

Methods: Nutritional composition data were obtained from the Food Quality Observatory, located in Quebec City, Canada. Preliminary analyses were performed with yogurts and dairy desserts, collected in 2018 ($n=548$) and 2023 ($n=387$). Overall nutritional quality was determined using the Nutri-Score algorithm (NS; 2017 version). A lower NS score reflects a better nutritional quality. The presence of sugar claims was determined using on-package information, according to Health Canada’s regulations. Wilcoxon rank-sum tests were performed ($\alpha=0.05$).

Results: Yogurts and dairy desserts carrying any type of sugar claim had a lower NS score than products without claims in both data collections (2018: -1.36 ± 1.76 vs. 1.42 ± 3.26 , respectively, $p<0.0001$; 2023: -0.49 ± 1.55 vs. 1.36 ± 3.28 , $p<0.0001$). Similarly, products carrying the “no added sugars” claim had a lower NS score than products without such claim, again in both data collections (2018: -1.46 ± 1.18 vs. 1.29 ± 3.26 , respectively; 2023: -1.40 ± 1.57 vs. 1.32 ± 3.20 , both $p<0.0001$). In 2018 only, products specifically carrying the “lower in sugars” claim had lower NS score than products without that claim (-4.17 ± 0.98 vs. 1.10 ± 3.20 , respectively, $p<0.0001$).

Conclusion: These preliminary results suggest that sugar claims may be an indicator of a better overall nutritional quality in yogurts and dairy desserts, especially with the “no added sugars” and “lower in sugars” claims. Similar analyses in other widely consumed food categories prone to display sugar claims (e.g., granola bars, dairy and plant-based beverages, cookies) are warranted to assess whether similar findings emerge. This project will enable a comprehensive and rigorous assessment of the accuracy of sugar claims, in addition to the indirect effects of public health initiatives that encourage the reduction of sugar content in products.

I-P-H.04

From Policy to Practice: School Nutrition Directors’ Views on Emerging Added Sugar, Sodium, and Synthetic Dye School Meal Standards

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Purpose: Most U.S. children consume excess added sugar and sodium, while two-thirds of daily calories come from ultra-processed foods (UPF), which often contain high levels of added sugars and synthetic dyes — additives linked to neurobehavioral issues. These dietary patterns elevate chronic disease risk, particularly among low-income

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populations who rely on school meals for majority of their dietary intake. In response, the U.S. recently introduced the first-ever added sugar limit and strengthened sodium restrictions for school meals, with several states also implementing or considering UPF or synthetic dye restrictions. Understanding perspectives of Food Service Directors (FSDs) — who are central to policy implementation — is critical. This study explored FSDs' perceptions around implementing these new policies.

Methods: FSDs from South Carolina school districts representing the state's main regional areas were recruited. An online survey collected demographic information, followed by a 90-minute, in-person focus group. Focus group questions included perceived barriers and implications of national mandates on added sugar/sodium and the potential impact of a state-wide synthetic dye ban. Audio recordings were transcribed verbatim. Three independent coders conducted thematic analysis to identify emergent themes.

Results: FSDs (n=7; 100% female; 57% Black) had 18.6±11.9 years of experience in school nutrition. Districts used a combination of scratch cooking (85.7%) and convenience/heat-and-serve methods (100%). Four main themes emerged. *Financial strain:* FSDs expressed concerns about rising food and labor costs, coupled with stagnant reimbursement rates. They noted stricter meal standards could reduce palatability and thus participation in school meal programs, further worsening financial challenges. *Policy consistency:* FSDs emphasized the implementation of mandates should be applied uniformly at the national level. They also recommended mandates apply to all foods/beverages sold throughout the school day (e.g., competitive foods, fundraisers), not just those served by school food services. *Concerns about palatability:* FSDs worried stricter limits could negatively impact flavor and student participation in school meals. *Pride in meal quality:* FSDs expressed pride in the healthfulness of their current school meals, highlighting continuous improvements throughout recent years.

Conclusion: FSDs support equitable, nationwide standards and reimbursement rates that reflect true costs of food. Findings can inform strategies to optimize policy implementation and impact.

I-P-H.05

Navigating Physical Food Environments: Objective vs. Perceived Opportunities

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Purpose: Obesogenic environments, defined by easy access to energy-dense, nutrient-deficient foods, drive unhealthy dietary behaviour and rising obesity rates. Although structural interventions in the physical food environment occur gradually, digital context-sensitive strategies provide dynamic and personalised opportunities to support healthier food choices. However, their effectiveness depends on understanding and altering individuals' perceptions of their food environment. This study explored the perceived access of physical food environments by young adults and their influence on dietary habits, along with examining whether these perceptions mediate the impact of the objective environment. By integrating spatial, perceptual and behavioural data, this research aims to inform the design of personalised nutrition interventions.

Methods: In this cross-sectional study, 308 Dutch young adults (60% female; M age = 25.4 ± 3.5 years; M BMI = 24.1 ± 5.1 kg/m²) completed a self-administered Nutrition Environment Measures Survey-Perception (NEMS-P) to evaluate perceived access, availability, and accommodation of food stores and outlets, as well as realized access, quantified as visit frequency. Dietary intake was assessed using a validated Food Frequency Questionnaire (FFQ). Associations between perceived food environment characteristics and dietary intake were analysed using descriptive, correlational, and path analyses, adjusting for BMI and sociodemographic variables.

Results: Perceived availability and accommodation of the food environment significantly influenced dietary patterns, unlike perceived accessibility. Healthier food availability perceptions correlated with perceptions of store advertising and product placement as health-oriented ($\beta = 0.24$, $p < .001$). Perceiving outlets as healthier was associated with greater realized access and higher BMI ($\beta = 0.12$, $p = .03$), whereas less perceived healthfulness of outlets correlated with greater realized access to stores and increased intake of fruits and vegetables ($\beta = -0.17$, $p = .003$). Longer neighbourhood residency was associated with more favourable perceptions of the food environment, indicating that familiarity influences perceptions over time.

Conclusion: Perceptions of the physical food environment affect dietary behaviour beyond objective metrics and may not align with objective healthfulness. Digital context-aware interventions could target perceptual pathways by emphasising healthy options, recalibrating misperceptions, and employing environmental cues to promote healthier food choices. These insights aid in designing multi-level nutrition strategies, complementing longer-term structural efforts to reduce obesogenicity.

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I-P-H.06

Developing a Comprehensive Tool for Measuring the Quality of Meals in Public Healthcare Facilities: Insights from the Province of Quebec, Canada

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Purpose: The food offered to inpatients/residents in healthcare facilities is crucial to their health and well-being. Such institutions must uphold themselves to exemplary standards of quality and food policies. However, no comprehensive and standardized tool is available for assessing the quality of the food offered in healthcare facilities of Quebec, Canada. The purpose of this study was to develop such a tool and test its validity in public healthcare facilities.

Methods: Content was developed based on previous work and the scientific literature. Questions from existing tools were pooled and those measuring prespecified key domains were selected and adapted to the Quebec context. Then, content was submitted to a panel of stakeholders (e.g., government partners, foodservice managers) for the evaluation of face validity, using the DELPHI method. The tool was tested in healthcare facilities to compute confirmatory factor analysis and Cronbach's α . Multiple imputations were used to account for missing data.

Results: Content was developed in two parts: objective (P1, e.g., nutritional adequacy) and subjective (P2, i.e., inpatient/resident satisfaction) assessment. P2 was adapted to the facility's mission (short- or long-term care). Sixty-six questions (P1+P2) from existing tools were selected and adapted, when needed. These questions were submitted to stakeholders (n=23) in a two-round evaluation. Face-validated content consisted of two questionnaires (P1=37 questions, P2= 21 or 35 questions [short- vs. long-term care]). For further validation, participants from five diverse healthcare facilities were recruited. For P1, 5 foodservice managers completed an online questionnaire. For P2, 102 inpatients/residents completed a pen-and-paper questionnaire. Internal consistency was adequate ($\alpha=0.839$, SE=0.003). Factor loading was satisfactory ($\lambda>0.55$), except for the drinks component ($\lambda=0.376$), and correlation between latent factors ($\Phi=0.80$, $p<0.01$) suggested that constructs were related, but distinct.

Conclusion: A validated, comprehensive and context-specific tool to assess the quality of the food offered in healthcare facilities was developed in collaboration with its potential users. Next steps include a soft launch in selected facilities, followed by province-wide implementation. In the long term, this tool aims to drive continuous improvement of the food quality in healthcare facilities and serve as a key lever for public health advancement in Quebec, Canada.

I-P-H.07

Agreement of Health Canada's New Front-of-package Symbol with the Overall Nutritional Quality of Food Items Consumed in the PREDISE Study

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Purpose: A previous study by our group has shown that the Nutri-Score (NS), Health Star Rating System (HSR), and Nutrient-Rich Food Index 6.3 (NRF6.3), three nutrient profiling (NP) algorithms, were associated with diet quality and health indicators in a sample from the province of Quebec, Canada. The new Health Canada's front-of-package symbol (HC-FOPS), displayed on prepackaged foods high in saturated fat, sugar and/or sodium (mandatory January 2026), was also found to be associated with diet quality and health status in the same sample (unpublished results). Since little is known yet on how these various algorithms align, this study aimed to evaluate the alignment of HC-FOPS with other validated NP models in a French-Canadian sample.

Methods: Data from the cross-sectional study *PRÉdicteurs Individuels, Sociaux et Environnementaux* (PREDISE) were used. Participants (n=1019) from Quebec completed three web-based 24-h dietary recalls (R24W). A NP score was calculated for each item in the R24W, then an energy-weighted individual score was calculated for each participant, representing the mean score of each recall. For the NS and HSR, a lower score reflects a better nutritional quality, while with the NRF6.3, a higher score reflects a better nutritional quality. The individual score for HC-FOPS was based on the energy from healthier food items (i.e., without HC-FOPS). T-tests were used for comparisons, and agreement

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was assessed using weighted κ statistics and Pearson correlations.

Results: Participants consuming a higher proportion of daily energy from healthier food items (i.e., without HC-FOPS; median cut-off >75.6% of energy) had a better overall nutritional quality than participants consuming a lower proportion of energy from healthier items (NS=4.29±3.01 vs 6.58±2.85; HSR=5.27±2.06 vs 7.66±2.19; NRF6.3=16.52±7.18 vs 10.55±5.89, respectively; all $p<0.0001$). The HC-FOPS individual score showed a “fair” agreement with all three algorithms (NS weighted $\kappa=0.38$, 95% CI 0.34-0.42; HSR weighted $\kappa=0.27$, 0.23-0.31; NRF6.3 weighted $\kappa=0.32$, 0.28-0.37). The same trend was observed using Pearson correlations (NS=-0.55; HSR=-0.37; NRF6.3=0.46, all $p<0.0001$).

Conclusion: These results provide more insights regarding the alignment of the new HC-FOPS with other NP models validated in the Quebec context, therefore supporting its use to guide consumers towards healthier food choices.

I-P-H.09

Associations between the Price and the Overall Nutritional Quality of Ready-to-Eat Foods Offered in Quebec, Canada

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Purpose: In Canada, food prices rise at an alarming rate since 2022. Foods with a better nutritional quality are often perceived as more expensive by consumers, making it difficult to support healthier choices. This project aimed to assess the associations between the price and the overall nutritional quality of ready-to-eat foods offered in Quebec, Canada.

Methods: Preliminary analyses focused on the most recent nutritional composition and retail price data collected by the Food Quality Observatory for pasta sauces (2023; $n=348$ products). Overall nutritional quality was determined using the Nutri Score (NS) 2017 algorithm, in which a lower NS score reflects a better overall nutritional quality. Associations between prices (in Canadian dollars) and NS scores were determined using ranked-based regression ($\alpha = 0.05$).

Results: Preliminary analyses indicate that, within the main category of pasta sauces, there is no association between the price of products per 100 ml and their overall nutritional quality ($\beta=-0.84$, $p=0.55$). However, in sauces specifically made of cream and/or cheese, a lower price per 100 ml is associated with a better overall nutritional quality (i.e. lower NS score) ($\beta=1.02$, $p=0.0003$). Conversely, a higher price per 100 ml is associated with a better overall nutritional quality in the subcategories of tomato-based sauces, tomato and vegetable-based sauces, and sauces without any protein source ($\beta=-10.56$, $p<0.0001$; $\beta=-3.04$, $p=0.003$; $\beta=-6.05$, $p=0.0003$, respectively). When using price per 100 kcal, a higher price is associated with a better nutritional quality in the main category of pasta sauces ($\beta=-10.19$, $p<0.0001$). Similar associations are also observed in the specific subcategories of tomato-based sauces, rosée sauces, sauces made of cream and/or cheese, sauces containing animal proteins, and sauces without any protein source ($\beta=-8.16$, $p<0.0001$; $\beta=-1.29$, $p=0.001$; $\beta=-0.89$, $p=0.03$; $\beta=-3.11$, $p<0.0001$; $\beta=-6.32$, $p=0.0002$, respectively).

Conclusion: These preliminary results suggest that the association between the overall nutritional quality and the price of pasta sauces vary depending on the price metric used, as well as on the specific subcategory of sauces analyzed. Further assessments in this category and in other categories of ready-to-eat foods are warranted to ultimately help orienting consumers toward both healthier and cheaper choices.

I-P-H.10

Assessing the Dietary and Financial Effects of Double Up Food Bucks Participation: First-time vs. Repeat Users

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Purpose: In the United States, more than 44 million people live in food-insecure households, lacking consistent access to enough food for an active, healthy life. While the Supplemental Nutrition Assistance Program (SNAP) provides

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essential support to low-income families, many still face barriers to maintaining a nutritious diet, with food cost the most frequent challenge. The Double Up Food Bucks (DUFEB) program addresses this gap by doubling the value of SNAP benefits when used to purchase fresh fruits and vegetables (F&V). In Texas, DUFEB has expanded statewide, partnering with farmers' markets and local retailers to improve diet quality and food affordability. This presentation shares findings from the DUFEB 2025 evaluation in Texas, examining how participation length influences dietary habits by comparing first-time and repeat-users.

Methods: Intercept surveys were conducted at participating farmers' markets and grocery stores with clients who were enrolled in SNAP and used DUFEB at least one time. Surveys were completed online (self-administered) or over the phone by a trained data collector, and were available in English and Spanish. The survey included items related to DUFEB program participation duration (first time, 1-6 months, 7-12 months, over 1 year), fruit and vegetables consumption, fruit and vegetables purchases, financial stress, general health, food insecurity status and socio-demographics. Data analysis included summary statistics, Fischer Exact tests and Chi squares and regression models.

Results: The sample consisted of 213 individuals who were 79% female, 45.6% Hispanic, mean age of 38.7 years, and 85.4% food insecure. DUFEB users who were repeat users reported purchasing significantly greater amounts of vegetables ($p=0.04$) and fruit ($p=0.03$), greater variety of vegetables ($p\text{-value}=0.04$), higher levels of self-reported health ($=<.001$), and higher levels of financial stress ($p=0.04$).

Conclusion: Research has shown that the DUFEB program increases fresh F&V purchases and consumption. This study adds to the literature in that it shows that DUFEB users who were repeat-DUFEB users reported greater amounts of vegetable and fruit purchases, greater variety, and greater self-reported health status. Research to develop effective strategies to increase awareness of DUFEB (or similar financial assistance programs) and to increase DUFEB use at both farmers' markets and grocery stores is warranted.

I-P-H.11

Sugar-sweetened Beverage Intake before and after Implementation of Mexico's Front-of-Package Nutrition Warning Label Policy: Moderation by Socioeconomic Indicators among Adults in Mexico and the U.S

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Purpose: In 2020, Mexico implemented mandatory front-of-package warning labels (FoPWLs) for packaged foods containing excess calories, added sugars, saturated fat, trans fat, and/or sodium. FoPWLs have been hypothesized to reduce socioeconomic inequalities in nutrition label use. This study examined trends in sugar-sweetened beverage (SSB) intake among adults in Mexico and the U.S. from the pre- (2018-2019) to post- (2020-2023) policy periods and whether changes were moderated by four socioeconomic indicators.

Methods: Data were obtained through annual, cross-sectional, online surveys conducted by the International Food Policy Study from 2018-2023 with Mexican ($n=24,574$) and U.S. ($n=25,019$) adults. Prior-week SSB consumption was queried using the Beverage Frequency Questionnaire. Weighted regression models compared pre-to-post-policy trends between countries for any SSB consumption, SSB consumption frequency, and, among consumers, SSB volume consumed. Interactions examined whether trends varied by four socioeconomic indicators: education; income adequacy; food security; or health literacy.

Results: Any SSB consumption and SSB frequency increased over time in Mexico and the U.S. ($p<0.005$), with smaller increases in Mexico ($p<0.005$). Income adequacy moderated cross-country differences in any SSB consumption over time, such that smaller increases in any SSB consumption were observed in Mexico than the U.S. among adults who found it neither easy nor difficult, difficult, or very difficult to make ends meet ($p<0.02$). When assessing SSB frequency, all socioeconomic indicators moderated differences in trends across countries. Adults had smaller increases in SSB frequency in Mexico than the U.S. if they had low or high education levels (but not medium) or if they had very low or adequate (but not low) food security (all $p<0.0001$). All differences were small in magnitude. No other evidence of moderation was observed. SSB volume increased in both countries (both $p<0.004$); however, there was no difference between countries and no evidence of moderation.

Conclusion: Implementation of the Mexican FoPWL policy was associated with smaller increases in any SSB consumption and SSB consumption frequency among adults in Mexico than the U.S. Limited evidence was found for

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moderation of SSB trends by socioeconomic indicators between pre-to-post-policy implementation. The Mexican FoPWL policy appears to be mitigating – or at least not exacerbating – socioeconomic inequalities in adult SSB consumption.

I-P-H.12

Corruption and Exploitation in the Global Food System: A Focus on Forgotten Harms

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Purpose: Global food systems are failing to provide nutritious food for all and are associated with complex challenges such as poverty, non-communicable disease, and environmental degradation. Current calls for transformations around health, sustainability and equity do not yet emphasize key dynamics in global food systems including corruption or exploitation. To provide a comprehensive assessment of the forms and impacts of corruption and exploitation (C&E), this work conducts two scoping reviews to assess existing empirical literature and make recommendations to improve governance and policy.

Methods: Systematic scoping reviews were conducted following PRISMA-ScR guidelines. Key terms were searched in Scopus, PubMed, Web of Science, PsycInfo and Econlit in October 2021 and June 2025. Screeners applied selection criteria to screen articles at title-abstract and full-text levels. Data was extracted and thematically synthesized to describe C&E typologies, actors, impacts, and potential solutions. Sankey diagrams and narrative summaries were developed to summarize findings.

Results: Five types of corruption were identified in food systems: bureaucratic corruption, fraud, bribery, organized crime, and corporate lobbying. More powerful public and private actors tend to instigate corruption, while primary producers are worst-impacted. Corruption undermines food system governance and regulatory structures; threatens food security; and contributes to environmental degradation and decreased agricultural productivity.

Exploitation was found in two main modalities: abusive labour conditions and financial rent-seeking. Exploitation exists in all geographies—from OPEC to Global South states—and is inflicted by actors ranging from governments and multinational corporations to family businesses. Exploitative labour conditions are found in nearly all employment forms—whether formal or grey market, or in non-wage patrimonial systems—but financial exploitation is more common in patrimonial systems where recourse to formal banking systems is limited.

Solution-oriented literature was limited in both cases, though the essential role of strong governance, monitoring, and predictive modelling were consistently highlighted.

Conclusion: Equitable food systems are crucial pillars of human and planetary flourishing. To achieve them, policy actors must be bolstered with concrete understandings of the drivers, forms, and actors of food systems harms such as corruption and exploitation. Our analysis of the extant data marks a crucial step in this direction.

I-P-H.13

Differential Changes to Fruit & Vegetable Consumption by Neighborhood Food Environment Following Random Assignment to Enroll in a Healthy Food Voucher Program

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Purpose: Fruit and Vegetable (FV) consumption is low in the United States, particularly in neighborhoods with limited access to healthy food retailers. Healthy food voucher programs (HFVPs) seek to improve FV access by providing low-income households with monthly funds to purchase FVs. Previous work demonstrates that enrollment in Fresh Bucks (Seattle, Washington), an HFVP providing \$40/month for FVs, increased FV consumption. However, it is unclear if improvements were shared equitably across neighborhood food environments. We examined whether random assignment to 6-months of Fresh Bucks enrollment versus a waitlist resulted in differential participation impacts by neighborhood food environment.

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Methods: We examined 418 new Fresh Bucks applicants randomly assigned to program enrollment compared to 316 new applicants randomized to a waitlist. We additionally compared households with previous Fresh Bucks enrollment of >1 year who were randomized to either disenroll (498) or maintain enrollment (687). Participants completed a validated tool measuring FV consumption frequency in Oct 2021 (pre-enrollment) and again in Jul 2022 (post-enrollment). We leveraged random treatment assignment to identify program impacts; we estimated frequency of consuming FVs in the post-period by treatment group using a linear regression, with an interaction term between treatment group and each of four food environment variables (distance to nearest Fresh Bucks retailer; 1-mile buffer count of grocery store, convenience store, and limited-service restaurants). Models were mutually adjusted and controlled for household demographic variables.

Results: Demographic characteristics were balanced between treatment groups. Improvement in times/day consuming FVs following initial Fresh Bucks enrollment was largest among households with <2 grocery stores within 1-mile (1.23; 95% Confidence Interval (CI): 0.41, 2.04). New enrollees from households >1.5 miles from the nearest Fresh Bucks retailer demonstrated improvements in times/day consuming FVs (0.87; 95%CI: 0.20, 1.53) whereas those disenrolled reduced consumption (-0.94; 95%CI: -1.44, -0.44). For disenrolled households, access to fewer convenience stores and limited-service restaurants was associated with reduced consumption of FV.

Conclusion: FV consumption for new HFVP enrollees increased the most for those with lower access to healthy food retailers, with corresponding reductions in FV consumption for disenrolled households in similar retail environments. HFVPs may help reduce disparities associated with neighborhood food environments.

I-P-H.14

Economic Burden of Low Cardiorespiratory Fitness in France

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Purpose: The economic consequences of low cardiorespiratory fitness (CRF) have never been estimated in France. The primary objective of this study was to estimate this cost. The secondary objective was to assess the potential reduction in costs associated with a 10% decrease in the prevalence of low CRF.

Methods: A prevalence-based approach was used to quantify the direct (health care) costs of low CRF. Relative risks for developing non-communicable diseases (NCDs) and the prevalence of low CRF in France were identified through a literature review. These data were used to calculate the population attributable risk (PAR) for NCDs, with direct costs estimated using data from the French National Health Insurance system. Indirect costs (productivity losses due to premature mortality or morbidity) were assessed using a friction cost approach, assuming a friction period of 3 months. A Monte Carlo simulation was performed to account for uncertainty around the confidence intervals of the prevalence of low CRF and the RRs included in our estimates. The same methodology was applied to model the economic impact of a 10% reduction in the prevalence of low CRF.

Results: Among adults, 26.9% of men and 63.1% of women were identified as having low CRF. In 2024, direct costs of NCDs attributable to low CRF amounted to €1.993 billion for type 2 diabetes, €1.598 billion for heart failure, and €1.137 billion for dementia. The total direct costs attributable to low CRF were estimated at €11.584 billion, representing 5.6% of the annual expenditures of the French National Health Insurance in 2024. Indirect costs attributable to low CRF were estimated at €9.544 billion. A 10% absolute reduction in the prevalence of low CRF would save an estimated €3.945 billion annually (direct and indirect costs combined).

Conclusion: This study is the first to estimate the economic cost of low CRF in France. Low CRF represents a substantial economic burden in France. Given the strong association between physical activity and CRF, it is crucial to identify and implement programs and interventions aimed at improving CRF in the population, which could ultimately generate savings in healthcare and productivity costs.

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Promoting Physical Activity and Reducing Overweight among Adults: Environmental Influences - A Scoping Review of Reviews

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Purpose: Rising obesity rates are a growing public health challenge. Both the built and social environment can play a crucial role in promoting physical activity and reducing overweight in the long-term. Despite this recognition, there is still a lack of a recent, comprehensive overview of how the built and social environments jointly influence physical activity. This scoping review brings together the latest findings on environmental factors and interventions that promote physical activity and reduce obesity among adults.

Methods: A literature search was carried out across Scopus, PsycINFO, and Embase to find review articles published between 2018 and 2024. Reviews were included if they addressed at least one component of the built environment, with social environment factors considered when assessed alongside built features. The main outcomes examined were leisure-time physical activity, active travel, and weight status.

Results: Of the total of 1,634 review articles, 33 met the inclusion criteria. Of these, 25 focused on determinants and 8 on interventions. Built environment determinants such as walkability, street connectivity and access to destinations were consistently associated with higher levels of active travel. In contrast, leisure-time physical activity was influenced by built environment determinants such as proximity to public transit, aesthetics, and green spaces. A mix of determinants from those domains were associated with walking. The evidence on built environment factors and weight status was inconclusive. Only a few studies evaluated built environment interventions using natural experimental designs.

Conclusion: Various features of the built environment have been linked to increased leisure-time physical activity and active travel. However, current research does not provide enough evidence to establish a direct link between the built environment and weight status. Furthermore, the impact of interventions aimed at modifying the built environment is not yet well understood. Future studies should prioritise natural experiments, use both standardised and context-sensitive measures, and apply a systems approach that accounts for the interplay between different environmental factors.

I-P-H.16

Can Grocers Be Relied on to Voluntarily Improve their Online Food Labelling Practices?

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Purpose: This study assesses if major supermarkets in Australia have improved their online food labelling practices, two years after pledging to do so.

Methods: Information on individual product pages on the online stores of Australia's two largest grocery retailers was recorded using automated methods in February 2024. The proportion of pages displaying nutrition information panels (NIPs), ingredients lists, allergen declarations, country-of-origin information and Health Star Ratings (HSRs) was assessed, with prevalence compared between retailers and results from 2022.

Results: Data was collected for n=22,332 products. NIPs, ingredients lists and allergen declarations were available for around half of products (46.3-54.9%). Country-of-origin was commonly displayed (84.2%). HSRs were infrequently displayed (16.8%), and more likely displayed for high-scoring products. Compared with 2022, more products displayed NIPs (+6.1%), ingredients lists (+19.5%) and HSRs (+2.5%), while fewer showed country-of-origin information (-8.7%) and allergen declarations (-7.0%).

Conclusion: Major gaps in the provision of nutrition labels online by major Australian supermarkets continue. Labelling regulations must be updated to ensure shoppers can access important nutrition-related information online. Without it, shoppers are less able to select products that support short- and long-term health.

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Exploring Dutch Municipal Advertising Restrictions on Unhealthy and Unsustainable Products

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Purpose: This study examined the perspectives of policy officials affiliated with Dutch municipalities exploring advertisement bans on unhealthy and unsustainable products in public outdoor spaces.

Methods: In this qualitative study, Dutch municipal policy officials were interviewed in person or online via semi-structured interviews in Autumn 2024. Interviews covered the content of proposed bans, the municipality's policy phase, key stakeholders, barriers, facilitators, and policy goals. Interviews were audio-recorded and transcribed verbatim. Analysis was based on a directed content analysis.

Results: We interviewed 18 policy officials from 13 Dutch municipalities. They indicated that advertisement bans were often initiated by left-wing council members, driven by the combination of a momentum (e.g., commitment to a healthy and green future), a favourable political climate (e.g., demand for bans from local political parties), and a policy window (e.g., revising municipality advertisement policies). They indicated that the development, implementation and long-term viability of advertisement bans depended on policy consistency (e.g., establishing definitions of products to ban), managing the risks to policy implementation (e.g., financial losses following reduced advertisement revenue) and practical barriers (e.g., existing tenders). Some policy officials doubted the impact of bans on consumer behaviours, but speculated that their signaling effect could affect public support for similar policies.

Conclusion: Political will, momentum and an opening policy window allowed for the development and sometimes implementation of advertising bans. Future research should explore wider stakeholder support for these policies, how to effectively mitigate perceived risks associated with their implementation, and their long-term impact on consumer behaviours.

I-P-H.18

Generation Zzz: Perceived Barriers and Facilitators to Delayed School Start Times in Dutch and Flemish Secondary Schools

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Purpose: Sleep plays a vital role in adolescents' mental, cognitive, and physical health. Yet, many adolescents today experience insufficient and poor-quality sleep. A key contributor to this problem is the misalignment between adolescents' naturally delayed circadian rhythms and the early start times of secondary schools. Although delaying school start times has been shown to improve adolescents' sleep, implementation of this policy remains limited. This study therefore aims to explore the barriers and facilitators to implementing later school start times in Dutch and Flemish secondary schools.

Methods: Semi-structured interviews (n = 18) were held with key stakeholders (i.e. school leadership or student support staff) from secondary schools in Flanders and The Netherlands that either implemented later start times or that have considered such changes. The interview guide was based on the MIDI framework. Interviews were recorded, transcribed, and thematically coded in MaxQDA 24.8.0.

Results: Stakeholders identified both barriers and facilitators across the phases of adoption, preparation, implementation, and continuation of delayed school start times. Adoption was often hindered by logistical concerns, national teaching hours requirements, ingrained routines, and perceived scheduling conflicts, though supported by awareness of adolescent sleep needs and changes in educational visions. Preparation emphasized stakeholder communication, participatory planning, and adapting schedules and regulations. Implementation challenges included concerns about later end times, but benefits such as calmer school mornings, improved student alertness, and more meaningful interactions were frequently observed. Continuation was linked to alignment with broader educational visions, teacher and student satisfaction, and perceived health and performance benefits.

Conclusion: Successfully shifting school start times requires more than overcoming logistical barriers; it depends

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on strong internal leadership, alignment with pedagogical values, and a culture that allows for experimentation and adaptation. Open communication with staff and families plays a key role in building trust and support. At the same time, system-level actors, such as educational networks or government bodies, have a role to play in encouraging schools to take the first step. This includes recognizing local initiatives, providing space for peer exchange, and actively framing the measure as a credible response to adolescent health and learning needs.

I-P-H.19

Implementing Sustainability via Active Garden Education (SAGE) in Early Care and Education: Policy Alignment and Enforcement

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Purpose: Garden-based curriculum, such as Sustainability via Active Garden Education (SAGE), in early childcare and education (ECE) facilities can increase opportunities for outdoor time, physical activity, and healthy eating. Implementation success relies on curriculum alignment with facility policies and director support. This study examined the presence and enforcement of ECE facility policies about outdoor time, physical activity, and nutrition in facilities that had previously implemented SAGE.

Methods: Directors (N=15, 93.3% women) from SAGE ECE facilities completed an online checklist derived from Nutrition and Physical Activity Self-Assessment for Child Care (NAPSACC). Surveys included items assessing demographic and facility characteristics, ECE facility policies related to outdoor time, physical activity, and nutrition, and policy enforcement (verbal, written, within the ECE facility or to outside agencies). Policy topics included circumstances around their provision, teacher modeling, staff training, and family education. Survey data were analyzed descriptively to determine how they might affect implementation strategies to improve the delivery of SAGE.

Results: Most (93.3%) directors had completed at least some college, and all had worked in ECE settings for more than five years. ECE facilities had an average of 4.7 (SD=3.1, Mode=5) classrooms and 59 (SD=41.4) students. ECE directors reported fewer policies related to outdoor play time (M=4.3, SD=1.4 of a total of 6) and physical activity (M=6.3, SD=2.6 of a total of 9) than nutrition (M=7.4, SD=3.5 of a total of 12). All but one director reported verbal and/or written enforcement of policies within the ECE facility. There was little reported enforcement outside of ECE facilities. However, this was greater with nutrition, with one third (n=5) of ECE facilities citing written reporting of policy enforcement to outside agencies.

Conclusion: ECE institutional policies supporting child behaviors consistent with SAGE's goal of improving outdoor, active time and healthy eating were mixed. Only about two thirds of potential topics were included in ECE policies. Nutrition policies had stronger enforcement, with weaker enforcement for outdoor playtime and physical activity. Implementation strategies that strengthening policy enactment and enforcement, particularly for outdoor time and physical activities, may improve sustainability and support broader adoption of garden-based, active learning curricula in ECE settings.

I-P-H.20

Agroecology as Policy Lever for Shifting Dietary Behaviour: From Production Paradigm to Behavioural Nutrition Strategy

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Purpose: Agroecology, traditionally approached as an agricultural paradigm, is an underutilized lever in behavioural nutrition change. By influencing what is produced locally, how food is symbolically valued, how identity and culture are expressed through food, and how traditional foods become socially "legitimate", agroecology does not only

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change supply — it shifts behavioural environments. This includes the social normalization of seasonal diversity, the strengthening of food sovereignty as a behavioural reference frame, gender-mediated food roles, and the intergenerational transmission of knowledge. Beyond individual health benefits, agroecological transitions generate planetary co-benefits by reducing dependence on fossil-fuel-derived inputs, protecting biodiversity, maintaining soil fertility, and lowering the ecotoxic burden of pesticide-intensive food systems.

Methods: This presentation draws on the Utz K'aslemal project — a collaboration between Université de Montréal, the University of Wisconsin-Madison, TROCAIRE, the Network for Food Sovereignty in Guatemala (REDSAG), the University of San Carlos, and several local organizations mobilizing agroecology and food sovereignty with the objective of understanding and making visible the links between agroecology, food sovereignty, farmers' health and ecosystem health through a One Health lens. Among the objectives of the project, the support for advocacy is aligned with the exchange of knowledge and expertise across research, intervention, advocacy, communication activities...

In a series of workshops, we used multi-organization processes (problem-tree analysis, mapping of power, identification of SMART objectives, and the design of incidence and communication strategies) to understand farmer organizations' approaches for optimal advocacy efforts and to develop an advocacy plan aimed at decision makers at the organizational, municipal and national levels.

Results: The conversations revealed that agroecological transitions require attention to power, legitimacy, and the political economy of food. These processes highlight two blind spots for behavioural nutrition research: (1) many “determinants of choice” reside outside households — in policy architectures, in corporate control, in regulation of media narratives, and in resource allocation; and (2) without addressing these, behavioural interventions remain small in effect size because they are deployed *against* the environment, not *with* it.

Conclusion: Agroecology is a *behavioural infrastructure* — requiring political education, alliances with Indigenous authorities, strategic communication, municipal budget reforms, and targeted policy incidence — and not merely an agricultural technique.

I-P-H.21

Associations between Nine-year Exposure to Active-friendly Neighborhood Characteristics, Physical Activity and Sedentary Time: Analysis of the ORISCAV-LUX Study

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Purpose: Investigate the associations between long-term exposure to active living environments and objectively measured moderate-to-vigorous PA (MVPA), light PA (LPA) and sedentary time (ST).

Methods: This study is based on a subsample of the ORISCAV-LUX cohort study in Luxembourg (n=476). Exposure to an active living environment was assessed using the Active Living Environments (ALE) index, calculated from three sub-indicators, assessing availability and proximity to 1) amenities, 2) sports facilities, and 3) recreational green and blue spaces. Exposure was defined as average exposure between the two study waves (2007-2017) and change in tertile based exposure groups (decrease/no change/increase) over the nine-year study period. Outcome measures were accelerometer derived MVPA, LPA and ST at study wave 2 (2016-2017). Generalized linear models with negative binomial distribution and logarithmic link function were applied. Included covariates were: MET-min at study wave 1 (IPAQ-SF), age, sex, educational level, marital status, lifestyle preference for being active, neighborhood socioeconomic status, season of PA measurement, urbanization level, and relocation status. Multiple imputation (n=60) was performed to deal with missing IPAQ data, as complete case analysis would have resulted in a loss of 22% of the eligible study population. Moderation analyses were performed for sex, lifestyle preference, and relocation between study waves.

Results: Preliminary results show no significant results for average ALE exposure and tertile based ALE exposure change on MVPA, LPA and ST in unadjusted models. There was a significant interaction between average exposure to ALE and relocation status, indicating higher levels of MVPA for relocated participants with higher average exposure to ALE ($\exp(\beta)=0.18$, $p=0.02$). No significant interactions were present for sex and lifestyle preference.

Conclusion: Long-term exposure to active-friendly neighborhoods showed limited direct associations with PA or ST, but relocation to more active-friendly environments was linked to higher MVPA. This result remained after accounting for lifestyles preferences, thus potentially exacerbating inequalities linked to residential self-selection processes.

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I-P-H.22

Workplace Interventions to Increase Physical Activity among School Employees: A Systematic Review

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Purpose: The purpose of this systematic review is to examine the effect of worksite wellness programs on physical activity (PA) behavior among primary- and secondary-school employees. Little is known about the PA levels of teachers and staff, even though nearly 8.5 million US adults are employed in schools, and existing evidence focuses almost exclusively on students' PA levels rather than on school employees' PA. Further, schools are not commonly included locations in scientific studies on worksite wellness despite their prevalence across countries.

Methods: A systematic search was conducted across PubMed, MEDLINE, Cochrane, EMBASE, CINAHL, and PsycINFO up to 2025 to examine changes in PA in response to worksite interventions promoting PA among school teachers and staff. Studies were screened by at least two people at the title and abstract as well as full-text screening stages. Changes in PA (e.g., steps, minutes) and study characteristics were documented. Risk of bias was also assessed.

Results: Seventeen studies were included in the review. Interventions had a positive (58.8%) or mixed (23.5%) impact on PA. Most studies used a one-group pre-test with post-test design: 47.1%) and 29.4% used an RCT. Follow-up duration ranged from 6 weeks to 2 years. PA outcomes were measured by self-report (47.1%), pedometers (23.5%), or both (23.5%). Intervention content focused solely on PA in 52.9% of studies, whereas the other 47.1% studies incorporated PA into broader wellness or weight-loss programs. The lack of a control or comparison group and the absence of reliability assessments of PA measures were key factors in increasing the risk of bias in quasi-experimental designs.

Conclusion: Schools are powerful social systems that can provide many resources to increase employees' physical activity. Increases in worksite programming specifically for PA or health behaviors more broadly can be applied to schools. More research is needed on potential compensation effects on leisure-time activity when adding occupational activity among school employees. Renewed interest in occupational PA in light of the 24-hour activity cycle paradigm emphasizes the need to identify effective PA promotion strategies in this unique worksite context that exists across the globe.

I-P-H.24

What Are Adults' Preferred Park Features for Encouraging Park Visitation and Physical Activity?

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Purpose: Urban parks are important settings that can promote health across the lifespan by facilitating physical activity. Despite their availability and potential benefits, parks are not well attended by adults, and this may be due to current park designs failing to meet this age group's needs. Therefore, it is important to better understand what specific park features are most likely to entice adults to visit parks and engage in park-based physical activity. This research aimed to examine what park features are most influential on adults' choice of park to visit and be physically active and whether preferences differed by sex.

Methods: Participants (n=260, 44.8 ±12.8 years, 50% female) living in Melbourne and Sydney, Australia completed an online survey (year) with Adaptive Choice-Based Conjoint activities to identify the relative importance of various park characteristics for influencing adults' choice of park for visitation and physical activity in parks. Hierarchical Bayes (HB) estimation was performed to analyse the ACBC activities, which derived two scores: part-worth utilities and relative importances.

Results: The most valued park characteristic for both behaviours was feeling safe from undesirable people (visit:

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20.7%; 95%CI: 18.7, 22.7; activity: 21.5%; 95%CI=18.9, 24.1). The second most valued characteristic for park visitation (16.0%; 95%CI=14.5, 17.4) was good upkeep and third most preferred feature was a peaceful atmosphere (14.8%; 95%CI= 13.6, 15.9). The second and third most valued features for encouraging physical activity were walking/cycling paths (15.5%; 95%CI=13.8, 17.3) and toilets (13.7%, 95%CI=11.6, 15.9). A café was the fourth most valued feature for females but eighth for males, and birdlife was the sixth most preferred feature for males, while it was tenth for females. Part-worth utilities for the features indicated that the presence of park features was favoured over their absence, and higher order feature levels (e.g., many shady trees preferred over little-to-no shady trees) were preferred.

Conclusion: These findings provide valuable insights on which features to prioritise to optimise visitation and physical activity. This is critical for park planners to inform future (re)developments, especially since changes to parks are costly and long-lasting.

I-P-H.25

Social-ecological Factors Influencing Active Travel Behavior. Systematic Review of Longitudinal Studies

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Purpose: An active lifestyle has been shown to have positive effects on health. Active travel - such as walking or cycling in daily life - can significantly contribute to both individual health and planetary well-being. Despite these benefits, there is a limited understanding of how built and sociocultural environmental factors shape active travel. This review systematically examines the impact of these factors based on a social-ecological model.

Methods: A systematic literature search following PRISMA guidelines identified longitudinal studies that investigated environmental factors on active travel among adults (<https://osf.io/6vhm4>). Ten studies with a total of 35,437 participants met the inclusion criteria: longitudinal studies and/or review articles as study design, socio-cultural and/or built environment as environmental factors, individual active travel behavior as outcome, adult men and women from Western industrialized countries with urban infrastructure, English and/or German as publication language, and publication period 2013-2024. Titles, abstracts, and full texts were screened independently by two reviewers; discrepancies were resolved by consensus. Study quality was assessed with the EPHPP tool by two independent reviewers; disagreements were resolved by consensus.

Results: On average, the 10 studies are moderate in terms of study quality. The built environment was analyzed in all 10 studies and proved to be an important factor. Enhanced infrastructure, such as cycling paths, street lighting, public transport, and workplace facilities, was associated with increased active travel behavior, depending on usage and attitudes. Socio-cultural factors, such as social norms, were analyzed in only 2 studies. Both studies indicate that socio-cultural factors may influence active travel behavior; however, this effect appears to be moderated by gender, with a stronger effect in women.

Conclusion: While the built environment clearly influences active travel, evidence regarding sociocultural factors remains sparse and inconsistent, highlighting a substantial need for further research. Integrating both dimensions appears promising, as their interaction may foster sustainable behavioral change toward active travel.

I-P-H.26

Park Availability and Physical Inactivity and Obesity in South Carolina

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Purpose: Parks can play a crucial role in promoting community health, yet their access and benefits may differ by neighborhood disadvantage. This study examined associations between park availability and physical inactivity and obesity across all census tracts in South Carolina, including variations by social vulnerability.

Methods: For all census tracts in South Carolina (n=1089), the number of available parks was extracted from Google Maps utilizing the OutScraper Application Programming Interface and expressed as a value per 10,000 residents. For each tract, we also obtained the rates of no leisure time physical activity (no LTPA) and obesity from the CDC PLACES dataset, as well as the CDC social vulnerability index and population density. No LTPA was the percentage who

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reported not participating in any physical activities or exercise outside their regular jobs in the past month. Obesity was the percentage of adult respondents with a body mass index ≥ 30.0 kg/m² calculated from self-reported weight and height. Linear regression models were used to analyze the relationship between park availability and both health outcomes. We also included the moderation effect of social vulnerability and controlled for population density.

Results: For no LTPA, neither the main effect of park availability nor its interaction with social vulnerability was statistically significant. Likewise, park availability as a main effect was not significantly associated with obesity ($B=-0.029$, $p=0.057$). However, there was a significant interaction between park availability and social vulnerability in predicting obesity ($\beta=0.125$, $p=0.026$). Specifically, in tracts with low social vulnerability, greater park availability was associated with lower obesity prevalence ($\beta=-0.039$, $p=0.015$), but no significant effects were found in moderate ($B=-0.035$, $p=0.858$) or high ($B=0.032$, $p=0.311$) vulnerability tracts.

Conclusion: Park availability was generally not associated with better health outcomes across census tracts in South Carolina. While greater park access was associated with lower obesity rates in less vulnerable tracts, this benefit was not apparent in areas with higher social vulnerability. Additional data are needed about the detailed characteristics of parks to fully understand their impact on health, especially in more socially vulnerable areas where park features and quality may be lacking.

I-P-H.27

Ground Truth Validation of an Administrative Database of Exercise Facilities in Madrid: Accuracy in Identification and Classification

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Purpose: Validate through ground truthing the administrative database of the Madrid City Council used to identify exercise facilities and collect additional data to classify them for public health research.

Methods: Exercise facilities database was obtained from the Municipal Administrative Database. A proportional stratified sampling was applied based on area socioeconomic level (tertiles) and location relative to the city center. The sample size was estimated using the finite population correction formula for proportions (95% confidence, $p=0.5$, error=5%), yielding 298 randomly selected facilities. Corresponding census tracts were visited physically by a researcher, and 10% of the sample underwent inter-rater reliability by a second researcher. During the fieldwork the following data were collected for each facility found in the field using a custom-designed smartphone App: (1) Name of the facility, (2) Address, (3) GPS Coordinates, (4) Surface area, (5) Ownership (public/private), (6) Membership type, (7) Price, (8) Type of activities offered, (9) With/without pool, (10) Opening hours, (11) Supervised/unsupervised and (12) Type of target public. These indicators were chosen based on their impact on the effectiveness of the exercise programs and the dimensions of access commented in previous works. To assess validation, we estimate the number of (1) True positives, facilities located in the database and observed in ground truthing; (2) False positives, only identified in the database; and (3) False negatives, only observed in ground truthing. After that, the sensitivity, positive predictive value, and concordance measures were calculated to determine the accuracy of the administrative database of exercise facilities.

Results: The database yielded a total of 5,135 facilities. After applying the selection criteria for cleaning, the final sample was 1,594 exercise facilities. Descriptive statistics showed a median of 1 (IQR 1-2) exercise facilities per census section. Preliminary results showed that 66% of exercise facilities within the city center are in the highest SES areas.

Conclusion: This study presents a replicable and solid methodology for ground-truthing validation. We will discuss discrepancies about secondary database accuracy by type of exercise facility and areas with different socioeconomic status.

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I-P-H.28

(Co)Developing Active Mobility Policy in the Caribbean Region: Policy-oriented Physical Activity Research on the Dutch Caribbean Island of Bonaire

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Purpose: Global physical inactivity remains one of societies most complex problems, especially amongst vulnerable population groups and populations in the Global South. Non-communicable disease (NCD) rates vary from region to region, and data suggest that high NCD exist amongst members of Caribbean population groups. The Dutch Caribbean municipality of Bonaire is no different, with data suggesting that 60% of Bonaire residents experience overweight, obesity, and other (oftentimes preventable) health conditions. In January 2024, Urban Cycling Institute, supported by the Ministry of Health, Welfare and Sport of the Netherlands commenced a 4-year pragmatic research project aimed at enhancing physical activity (PA) and active mobility on the island of Bonaire.

Methods: The project is a 4-year mixed methods community based action research project and is currently in its third year. The final two years of the project, 2026 & 2027, will involve a series of community based workshops/consultations with local community groups, policymakers and practitioners to develop context specific PA and active mobility policy recommendations. Workshops held in Q1 2026 and will be structured by the World Health Organisation's Walking and Cycling Policy toolkit and Global Action Plan for Physical Activity. Repeat cross-sectional observations of physical activity behaviour in 6 locations and public perception surveys are gathered annually, with supplemental qualitative data gathered by semi-structured interviews and focus groups with stakeholder and community groups.

Results: Observation and public perception data collected to date suggest that socioeconomic inequities exist amongst those who purport their interest in active mobility and those who engage in active mobility behaviour. Repeat cross-sectional observation and survey data (2024-2026) and outcomes of the workshops in Q1 2026, including the policy action development processes, will be presented at the time of the conference.

Conclusion: The research presented here aims to reduce the research to practice gap by catalysing political action and commitment to incorporate walking and cycling policy on Bonaire, in turn lowering NCD burdens and reducing congestion amongst other societal co-benefits. More generally, this research contributes novel insights into the realities of PA and active mobility policy co-development in areas of the Global South, which are typically underrepresented in PA policy research.

I-P-H.29

Increasing Accessibility of Alcohol in Digital Food Environments: Characterising the Use of Online Food Delivery Services to Purchase Alcohol and Public Health Implications

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Purpose: Alcohol is a leading risk factor for death and disability in Canada. Jurisdictions worldwide have eased regulations on the sale and delivery of alcohol, including through online food delivery services (OFDS) such as *Uber Eats*. As alcohol is a carcinogenic substance, increasing its accessibility through OFDS may have public health implications. This study aimed to characterise the use of OFDS to purchase alcohol among Canadian adults and to examine the association between purchasing alcohol via OFDS and hazardous alcohol use, as well as heavy episodic drinking (HED).

Methods: Data are from an online cross-sectional survey conducted among adult alcohol consumers (18-64 years) in Canada in March-April 2023 (n=5,144). Measures assessed frequency of alcohol purchasing through OFDS, hazardous alcohol use (measured by the Alcohol Use Disorder Identification Test-Concise (AUDIT-C)) and HED ($\geq 4/5$ drinks for women/men on one occasion at least monthly in the past 12 months). A logistic regression model examined differences in the use of OFDS to purchase alcohol across sociodemographics. Two separate adjusted models explored the association between OFDS alcohol purchasing and 1) hazardous alcohol use; 2) heavy episodic drinking.

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Results: Purchasing alcohol through OFDS in the past year was associated with hazardous alcohol use (AOR=3.99,95%CI:3.32-4.79 [AUDIT-C score $\geq 3/4$]) and HED (AOR=3.90,95%CI:3.29-4.61). Overall, 16% of respondents had purchased alcohol from an OFDS at least once in the past year. The use of OFDS to purchase alcohol at least once in the past year was more likely among respondents identifying as men (AOR=1.75,95%CI:1.48-2.06) than women, among those with low perceived income (AOR= 1.89,95%CI:1.60-2.23) than those with high perceived income, among those with a child living at home (AOR=1.48,95%CI:1.24-1.77) compared to none and among racially minoritized groups (AOR=2.05,95%CI:1.73-2.43) compared to those identifying as White. Generation Z and Millennials were more likely to have used OFDS to purchase alcohol in the past year than all other generations (AOR>2.03 for all).

Conclusion: Using OFDS to purchase alcohol in Canada is relatively uncommon, but adults who do so are more likely to report hazardous and heavy episodic alcohol use. Findings suggest that restricting the accessibility of alcohol in digital food environments could improve public health.

I-P-H.30

Environmental and Psychosocial Contexts of Device-measured Physical Activity and Sedentary Behaviour in Semi-urban Nepal: A Multilevel Analysis

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Purpose: This study examines the relationship between environmental opportunities and psychosocial contexts, and device-measured physical activity and sedentary behaviour among adults in semi-urban Nepal.

Methods: We conducted a cross-sectional analysis using baseline data (March–August 2024) from the Community-Based Promotion of Physical Activity (COBIN-PA) trial in Pokhara Metropolitan City, Nepal. Physical activity and sedentary behaviour were assessed using wrist-worn accelerometers worn continuously for seven days. Environmental characteristics reflecting recreational or built opportunities (e.g. parks and walking paths) and productive or utilitarian opportunities (e.g. agriculture, domestic work, and walking for daily tasks), as well as psychosocial factors (perceived behavioural control and intention), were assessed using structured questionnaires. Multilevel linear mixed-effects models with random intercepts for clusters were employed to estimate the associations between daily moderate-to-vigorous physical activity (MVPA) and sedentary time. Interaction terms assessed whether perceived behavioural control modified environmental associations.

Results: We analysed data from 421 participants. Higher productive or utilitarian environmental opportunity scores were linked to about 10 additional minutes of daily MVPA per standard deviation increase. In contrast, scores for recreational or built environments showed weak or inconsistent associations with MVPA. Perceived behavioural control showed a positive association with MVPA, with each unit increase corresponding to roughly 30 additional minutes of MVPA per day. In contrast, intention was not associated with MVPA. There was no statistically significant interaction between the recreational environment and perceived behavioural control. Environmental and psychosocial factors showed largely no associations with sedentary time.

Conclusion: In semi-urban Nepal, utilitarian environmental opportunities and perceived behavioural control were more strongly and consistently associated with device-measured physical activity than psychosocial intention alone. Sedentary behaviour showed weaker, distinct associations. These results suggest the need for context-sensitive, multi-level strategies that prioritise everyday movement opportunities alongside individual-level interventions to promote active living in low- and middle-income countries.

I-P-H.31

Spatial Distribution of Syndemic Hazards in the Built, Food and Climate Environment across Deprivation Levels: Cross-city Comparison in Four African Cities

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Purpose: African cities are experiencing a rapidly increasing burden of non-communicable diseases (NCDs), driven by the co-occurrence of adverse built, food, and climatic environments. While deprivation is often assumed to align with greater exposure to these risks, little is known about how multiple NCD-relevant hazards cluster spatially within cities or whether deprivation gradients operate consistently across different urban contexts.

Methods: We conducted a cross-sectional, small-area analysis across four African cities: Cape Town and Soweto (South Africa), Lagos (Nigeria), and Yaoundé (Cameroon). Built and food environment hazards were assessed using in-person audits based on MAPS-Global and EPOCH instruments, while climatic hazards included surface urban heat island intensity, extreme rainfall frequency, and air pollution (PM_{2.5}/PM₁₀). Hazard domains were aggregated at the small-area level, z-standardised within each city, and combined to derive a syndemic hazard score. Small areas were classified by relative deprivation, and deprivation contrasts were calculated to characterise socioeconomic patterning.

Results: Syndemic hazard gradients varied markedly across cities. Cape Town and Soweto exhibited clear socioeconomic stratification, with higher syndemic hazards concentrated in high-deprivation areas. In contrast, Lagos showed a reversed gradient, driven by more adverse built and food environments in low-deprivation areas alongside higher climatic hazards in deprived areas. Yaoundé displayed weak and mixed deprivation patterns, with substantial overlap between groups. Domain-specific analyses revealed that climatic hazards followed expected deprivation gradients in all cities, while built and food environment hazards showed context-specific and divergent patterns that shaped the composite syndemic profiles.

Conclusion: The spatial clustering of syndemic hazards in African cities is highly context-specific and not uniformly aligned with deprivation. These findings challenge one-size-fits-all assumptions about deprivation vulnerability and highlight the need for urban health and climate policies that reflect city-specific configurations of risk. Integrated, multi-sectoral approaches addressing built, food, and climatic environments are essential for effective NCD prevention in rapidly urbanising African contexts.

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Revitalizing the US Youth Presidential Fitness Test: Is State Policy Infrastructure Ready to Support Schools?

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Purpose: Fitness testing provides reliable and valid information on present and future child health outcomes. However, for a nation-wide fitness testing program to be successful, it must be implemented within a well-supported and executed physical education (PE) infrastructure backed by policies supporting adequate PE instructional time, a trained PE teacher workforce, fitness testing data collection and reporting, and accountability and enforcement mechanisms. This study examined current state-level elementary school fitness testing policy infrastructure to assess readiness for wide-scale fitness testing outlined under the reestablished US Presidential Fitness Test.

Methods: We conducted a cross-sectional policy analysis including all 50 US states drawing data from the State of the States Policy Report. Cross-sectional state-level policy analysis examined: (1) Physical education instructional time, teacher qualification, standards; (2) fitness testing requirements, assessment instruments, reporting mandates; and (3) PE-specific policy oversight, enforcement. Scores were standardized (0-1 range) and averaged to create a composite fitness testing policy readiness index.

Results: The mean US composite state-level fitness testing policy readiness score for elementary schools is 0.57 (range: 0.36-0.75). All states explicitly identify health-related fitness within PE standards or curriculum framework, and nearly all (n=48 [96%]) require PE licensed instructors. Only five states (10%) mandate the recommended 150-minutes per week of elementary PE time and most (n=37 [74%]) require <60 weekly minutes. Twenty-four states (48%) have

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no requirements for fitness testing, while 11 (22%) recommend fitness testing and only three require it annually. Only six states (12%) mandate submission of fitness testing results to state agencies and only four (8%) require results be made publicly accessible. Most states ($n=34$ [68%]) assign local control to monitor PE and fitness testing compliance. Only 16 states (32%) require state oversight, but most ($n=11$ [22%]) lack enforcement consequences.

Conclusion: Although school-based PE fitness testing provides reliable and valid information on child health and clinical outcomes, US state-level policy infrastructures are not yet positioned to support standardized, large-scale fitness testing. For the Presidential Fitness Test to provide a meaningful lever for US youth public health promotion and surveillance, systematic policy reform and resulting school-level PE infrastructure changes are necessary.

I-P-H.34

Digital Chameleons of the Food Environment: An Exploratory Analysis of the Shapeshifting Nature of Dark Kitchens in Australia and their Regulatory Challenges

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Purpose: Dark kitchens are food service models that do not have a physical space for patrons and mostly sell through online food delivery services. Due to their low overhead costs and lack of customer facing premises, dark kitchens are transient systems with ability to open and close quickly and this is potentially facilitated by use of generative artificial intelligence (AI) for branding. This study aimed to characterise dark kitchens in Australia, assessing longevity of businesses, the nutritional quality of menu items; as well as identify and characterise use of AI in generation of menu content.

Methods: From an existing 2023 dataset of 16,158 food outlets on UberEats operating in New South Wales, Australia, dark kitchens were classified as outlets that had multiple brand names operating from one unique address. Additional information was web-scraped including the opening status of the outlet, menu item names, descriptions, price and images. If dark kitchens had appeared closed on UberEats, we searched their brand names on DoorDash, to obtain additional data. Data on dark kitchens were summarised by descriptive analyses key outcomes included 1) percentages of cuisines; 2) proportion of dark kitchens open by day and hour; and 3) frequency of menu items classified into food group categories. Menu item images were analysed assessing distinct features that appeared artificial or altered.

Results: In 2025, over a third of dark kitchen brands ($n = 98$, 33.1%) had temporarily or permanently closed since the initial dataset was web-scraped in 2023. We subsequently identified 197 unique dark kitchen brands still in operation. Over 70% of total menu items were comprised of unhealthy foods including fries, fried chicken and desserts. Additionally, nearly 60% ($n = 1939/3376$) of menu item images contained “enhanced image” or “image touchup” in their URLs, indicating enhancement or alteration of food images.

Conclusion: Dark kitchens are emerging as “kitchen chameleons” – with the ability to quickly change menu offerings and branding while primarily selling junk foods. Use of AI solutions to generate food images may also impact on consumer purchasing decisions. Adaptive monitoring is needed to inform and develop policy to minimise their potential risks to public health.

I-P-H.35

Two Decades of Food Consumption and Adherence to Dietary Guidelines among Belgian Adults: Evidence from Three National Surveys (2004–2023)

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Purpose: This study examined long-term trends in habitual food consumption and adherence to nationally defined food-based dietary guidelines (FBDG) among Belgian adults between 2004 and 2023, including sex and age differences. Innovation lies in the harmonised assessment of food-group-level intake across three nationally representative

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surveys using a single updated national FBDG framework, allowing consistent evaluation of changes in adherence over nearly two decades.

Methods: Data were obtained from three Belgian National Food Consumption Surveys conducted in 2004, 2014–15, and 2022–23, including representative samples of adults aged ≥ 18 years ($n=2,493$; $n=1,226$; $n=1,499$). Dietary intake was assessed using two non-consecutive 24-hour recalls (GloboDiet) complemented by a food propensity questionnaire. Habitual intake distributions were modelled using the SPADE two-part approach, accounting for consumption probability, amounts consumed, and never-consumers. Reported values represent modelled mean habitual intakes. Foods were classified according to the 2025 Belgian FBDG and adherence assessed using guideline-specific cut-offs. Analyses were stratified by sex and age group (18–39, 40–64, ≥ 65 years) and weighted for age, sex, socioeconomic status, and season.

Results: Between 2004 and 2022–23, vegetable intake increased from 131 to 172 g/day, and adherence to the ≥ 300 g/day recommendation rose from 1% to 7%. Water consumption increased from 647 to 985 ml/day, with the proportion consuming ≥ 1 L/day rising from 19% to 43%. Unprocessed red meat intake declined from 413 to 322 g/week, increasing adherence to the <300 g/week recommendation from 37% to 54%. Alcoholic beverage consumption declined from 210 to 126 g/day, while never-consumers increased from 10% to 17%. In contrast, adherence remained low or declined for wholegrain products (7% meeting ≥ 125 g/day in 2022–23), fruit (8% meeting ≥ 250 g/day), milk and milk products (11% meeting ≥ 250 g/day), and fish and shellfish (20% meeting ≥ 200 g/week). Younger adults showed poorer adherence across food groups.

Conclusion: Despite partial improvements, overall adherence to FBDG among Belgian adults remains low, with continuing age-related inequalities. Coordinated, targeted public health strategies are needed to improve dietary behaviours and reduce diet-related disease burden across the population.

I-P-H.36

Who Buys Local? Demographic Predictors and Perceived Barriers to Local Food Purchasing in a Regional Area of Australia

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Purpose: Local food systems are increasingly promoted for their potential to improve diet quality, strengthen community resilience, and support environmental sustainability. However, evidence remains limited regarding who participates in these systems and what factors influence engagement. This study addresses this gap through a mixed methods approach examining how consumers and retailers in the Illawarra Shoalhaven region of New South Wales perceive, access, and participate in local food systems.

Methods: An online cross-sectional survey of 666 adults assessed attitudes toward local food, perceptions of the local food environment, and experiences of food insecurity. Local food consumers were defined as those purchasing local foods from three or more sources. In-depth interviews were conducted with 14 local food retailers from the same region to explore sustainability practices, sourcing decisions, and constraints within local supply chains. Transcripts were analysed using inductive thematic analysis following Braun and Clarke's (2006) guidelines.

Results: Strong support for local food was evident, with more than half of both local ($n = 191$) and non-local ($n = 322$) consumer groups rating local food as "important" or "very important." Affordability, limited farmers' markets, and few community gardens emerged as common barriers, and demographic characteristics did not differentiate local from non-local consumers. Although most respondents perceived healthy food as available and accessible, fewer than 40% considered it affordable. Retailer perspectives aligned with consumer views, citing cost pressures, inconsistent supply, and supermarket competition as major challenges to sourcing and promoting local products. Retailers described varied interpretations of sustainability, spanning regenerative agriculture, reduced packaging, financial viability, and waste minimisation. While consumers valued freshness, quality, and community support, purchasing behaviours were shaped by price sensitivity and convenience.

Conclusion: This study demonstrates shared values between consumers and retailers regarding the benefits of local food but highlights substantial economic and logistical barriers limiting wider participation. Strengthening regional food systems will require coordinated policy actions that support small producers, improve affordability, expand retail infrastructure, and promote local food options within an environment dominated by supermarket influence. Findings highlight a gap between community aspirations for sustainable, localised food systems and the structural constraints shaping purchasing and sourcing behaviours.

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I-P-H.37

Do Perceptions of Neighbourhood Walkability Modify Associations between Objective Walkability and Accelerometer-measured Physical Activity?

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Purpose: Perceived and objective measures of neighbourhood walkability have been associated with physical activity (PA); however, these measures are only marginally correlated and do not always agree. Perceived walkability may be influenced by objective features of the built environment. Our study examined whether perceived neighbourhood walkability modifies the associations between objective walkability and accelerometer-measured PA, and whether this modification is consistent by sex and age groups (young: 18-40 years; middle-aged: 41-64 years).

Methods: We used nationally representative data from the Canadian Health Measures Survey, including 1,167 females and 1,233 males with accelerometer-measured daily minutes of moderate-to-vigorous PA (MVPA) and total daily steps. Perceived walkability was measured using a modified Physical Activity Neighbourhood Environment Scale (PANES), and objective walkability was derived from the Canadian Active Living Environments (Can-ALE) national dataset. Using generalized linear models, we estimated covariate-adjusted associations including a multiplicative interaction term between objective and perceived walkability to assess effect modification. Analyses were conducted in pooled samples and stratified by sex and age group.

Results: Objective walkability was associated with steps for young females ($\beta=150$; 95%CI: 15-284) and MVPA for middle-aged females only ($\beta=1.49$; 95%CI: 0.36-2.63). A significant objective-by-perceived interaction was only observed in males for both MVPA ($\beta=0.71$; 95%CI: 0.15-1.27) and steps ($\beta=120$; 95%CI: 38-203). Results stratified by age identified effect modification for only middle-aged males for both MVPA ($\beta=1.05$; 95%CI: 0.40-1.71) and steps ($\beta=133$; 95%CI: 26-241). Among middle-aged males, higher perceived walkability buffered against a negative association between increasing objective walkability and both daily MVPA and steps.

Conclusion: Perceived walkability modified associations between objective walkability and accelerometer-measured MVPA and steps among middle-aged males, but not among females or younger males. Suggesting that, for some groups, favourable perceptions may be important for objective walkability to promote PA. In contrast, objective walkability alone was positively associated with steps and MVPA among women. Overall, findings indicate that perceived and objective walkability should be considered in both PA promotion efforts and future research on built environment-PA relationships.

I-P-H.38

Independent and Joint Associations of Objective and Perceived Neighbourhood Walkability with Transportation and Recreational Physical Activity in Canada

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Purpose: Walkable neighbourhoods provide opportunities for physical activity (PA) through transportation (TPA) and recreation (RPA). Objectively measured and perceived neighbourhood walkability are independently associated with PA, yet there is limited evidence concerning their joint effects on TPA and RPA. Our study examined the independent and joint effects of objective and perceived walkability on weekly minutes of TPA and RPA in males and females, separately.

Methods: Using data from the Canadian Health Measures Survey (CHMS; n=3,995 adults; 48% female), including self-reported weekly minutes of TPA and RPA, perceived neighbourhood walkability, and sociodemographic characteristics. CHMS data were linked to objective walkability (Canadian Active Living Environments Index; Can-ALE) via participants' residential postal codes. We fit covariate-adjusted hurdle models for TPA and RPA (participation, and duration among participants), and derived unconditional population-average marginal effects. Models were estimated for pooled and sex-stratified samples. Models included objective and perceived walkability simultaneously, and then added an objective-by-perceived interaction term to determine whether perceived walkability modified associations of objective walkability with TPA and RPA.

Results: Among females, 46% participated in TPA (average=180 min/week) and 50% in RPA (average=188 min/week); among males, 41% participated in TPA (average=183 min/week) and 50% in RPA (average=240 min/week). Objective

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walkability was positively associated with TPA (pooled $\beta=9.39$; 95%CI: 0.61-11.18; males $\beta=7.75$; 95%CI: 5.42-10.08; females $\beta=11.60$; 95%CI: 8.88-14.31). Perceived walkability was also positively associated with TPA in the pooled and male-only samples (pooled $\beta=5.53$; 95%CI: 1.55-9.50; male $\beta=6.00$; 95%CI: 0.31-11.68). Among males, perceived walkability was positively associated with RPA ($\beta=8.13$; 95%CI: 0.61-15.66). Interaction effects for perceived and objective walkability suggest a synergistic association for TPA but an antagonistic association for RPA among males. No interactions were observed for females.

Conclusion: Objective walkability was positively associated with TPA in both sexes. Perceived walkability showed additional associations in males and interacted with objective walkability, with patterns differing for TPA versus RPA. Promoting PA may benefit from combining built environment changes with strategies to promote neighbourhood perceptions.

I-P-H.39

Do Perceptions Reflect Reality? Associations between Objective Food Environments and Perceived Healthy Food Availability in Australia

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Purpose: Perceptions of local food environments influence dietary behaviours. Yet, little is known about how closely these perceptions reflect objectively mapped food environments in regional Australia. This study examined the association between spatially derived indicators of healthy food outlet availability and community perceptions in the Illawarra-Shoalhaven region of New South Wales.

Methods: Objective food environment measures were constructed from a regional mapping dataset by identifying and classifying food outlets and calculating suburb-level indicators of healthy and unhealthy outlet availability, including supermarket presence, unhealthy-to-healthy/less healthy outlet ratios, Relative Healthy Food Availability (RHFA), and Relative Fast-Food Availability (RFFA), with continuous metrics categorised into tertiles. Perceptions of the food environment were obtained from 666 participants in a cross-sectional survey. Perceived availability of healthy food outlets was assessed using five Likert-scale items (1 = strongly agree to 5 = strongly disagree) covering access to healthy food stores, restaurants/café, community gardens, farmers' markets, and fast-food outlets (reverse coded). Items were averaged to create a composite score (higher score = poorer perceived availability). Associations were examined using multivariable linear regression.

Results: Over half of respondents (54.1%) disagreed or strongly disagreed that their neighbourhood had enough healthy food outlets; only 4.2% felt positively about availability. After adjustment for covariates, supermarket presence was associated with better perceived healthy food availability (adjusted $\beta = -0.27$; 95% CI: -0.41 to -0.14). Higher ratios of unhealthy to healthy/less healthy outlets were associated with poorer perceptions (high: $\beta = 0.27$; 95% CI: 0.1-0.44; medium: $\beta = 0.20$; 95% CI: 0.04-0.35). High RFFA was associated with poorer perceptions ($\beta = 0.20$; 95% CI: 0.02, 0.38). In contrast, both high and medium RHFA were associated with better perceived availability (high: $\beta = -0.24$; 95% CI: -0.43, -0.05; medium: $\beta = -0.26$; 95% CI: -0.41, -0.10)

Conclusion: This study demonstrates that perceived availability of healthy food outlets aligns with objectively measured food environments, highlighting the role of local retail structure in shaping experiences of food access in regional Australia. Strategies that increase healthy outlet availability and reduce fast-food concentration may help address regional inequities in food access.

I-P-H.40

Evaluating Municipal-level Food Environment Policies in Zabrze, Poland: Expert Assessment and Community-derived Policy Options. An Insight into FOODPATH Project Results

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Purpose: This study aimed to assess municipal policies shaping the local food environment in Zabrze, Poland, and to co-create and prioritise actions to improve access to healthy diet, with a focus on structural rather than individual-level interventions.

Methods: Using an adapted Food Environment Policy Index (Food-EPI) we organized 2 workshop sessions for food policy experts and wider community representatives. The experts evaluated the current level of implementation of 54 good-practice indicators grouped in 11 domains including local food production, food promotion, provisioning, retail, food waste, social food support, leadership, governance, financing, monitoring and “Health in All Policies”. Each indicator was scored on a Likert scale reflecting implementation level and impact on socio-economic inequalities. Based on these results, representatives of local communities proposed 14 municipal actions (e.g. strengthening local producers, improving public food provisioning, water access, redistribution, NGO integration and governance). Experts then rated each action for importance, feasibility and equity on 1–14 scales; mean and median scores and rank-based classifications were calculated for each dimension.

Results: Food environment policies in Zabrze were generally assessed as weak to moderate compared to international good practice, with particularly low implementation in retail regulation, food marketing, comprehensive monitoring and dedicated food-governance structures, and relatively stronger performance in public food provisioning, access to free drinking water, and coordinated social food support. Among the 14 actions, those scoring highest across importance, feasibility and equity included: sustainable public food provisioning (increasing the share of local, health-promoting food and short supply chains in municipal institutions), systematic partnerships with NGOs within the food security system, structured municipal coordination of food initiatives, and comprehensive monitoring of local food environments and food waste. Actions targeting education and communication, seniors’ support, and financial mechanisms also scored positively but ranked lower on feasibility or equity.

Conclusion: A structured Food-EPI assessment combined with community co-creation and expert prioritisation yielded a focused, equity-sensitive municipal food policy agenda for Zabrze. Prioritised actions emphasise governance, sustainable public procurement, NGO partnerships and monitoring, illustrating how mid-sized Polish cities can translate food environment diagnostics into a concrete portfolio of policy interventions to advance healthier and more equitable diets.

I-P-H.41

A Scoping Review on the Influence of Food Industry Practices on Equitable Access to Healthy Food Environments

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Purpose: Individuals in socio-economically vulnerable circumstances are disproportionately exposed to unhealthy food and beverages due to their greater accessibility, availability, and visibility. Since the Lancet series on the *Commercial Determinants of Health* (CDoH), research has increasingly explored the corporate influences on public health and inequities. This heightened attention prompted a comprehensive scoping review, as part of the Era4Health FoodPath project, to summarize the literature examining how company practices shape equitable access to healthy food environments.

Methods: Four databases - Scopus, MEDLINE, Web of Science, and Embase - were systematically searched for peer-reviewed English-language studies. *ASReview* and *Rayyan* software were used for screening. Eligible studies addressed intersections between the food environment, equity, and the CDoH. The review covered studies published between 2000, following the introduction of the *Angelo framework*, and 2024. The *INFORMAS Food-EPI* framework helped structure food environment policy domains, while studies on tobacco and alcohol industries were excluded. The results were analysed according to mechanisms of inequity and food environment characteristics.

Results: A total of 320 studies met the inclusion criteria. The majority (80%) of the studies were conducted in the USA, Canada, Brazil, Australia, and the UK. The types of popular food outlets and their healthiness differed per country or location. Of the 320 studies, 79% concluded that company practices (partially) disadvantaged socio-economically vulnerable groups. Among studies reporting (partial) inequality-increasing effects, 35% of the studies attributed this to unhealthy outlet exposure and 20% to unhealthy options. This was mostly studied from the perspective of what is sold inside or around a certain location or neighbourhood (88%) and without zooming in on a specific commodity (80%). Only 18% of the studies focussed on children or adolescents, in which there was a general consensus that there was a social gradient related to the exposure to fast food and fast food marketing.

Conclusion: For a more comprehensive understanding of the food environment and the cultural or geographical differences, a diversification of studied countries, as well as food domains is necessary. This review emphasizes that

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company practices have been widely connected to inequalities. It underscored that CDoH must be considered in policy development.

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Physical Activity Policy, Research, and Evaluation Network (PAPREN) Rural Hub: Collaboration across Research and Practice

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Purpose: Rural U.S. communities face well-documented challenges in implementing and sustaining physical activity promotion efforts, including geographic dispersion, travel distance, and fewer environmental supports. The Physical Activity Policy, Research, and Evaluation Network (originally PAPRN: 2004-2014, PAPRN+: 2014-2019, PAPREN: 2019-present) is a national collaboration funded by the Centers for Disease Control and Prevention (CDC) that advances physical activity through policy and environmental approaches. The Rural Hub (formerly called the Rural Active Living Workgroup) meets monthly to share research, practice experiences, funding opportunities, and policy developments. Member-guided subgroups meet between sessions to produce tools, briefs, data resources, and scientific products (e.g., manuscripts, presentations). The purpose of this abstract is to share a scalable model for ongoing research–practice collaboration.

Methods: Research and practice impacts were collected through multiple data sources, including tracking spreadsheets updated during meetings, meeting minutes, responses to update request emails, Google Scholar searches, and brief participant surveys. Data sources were collated and descriptive statistics were used to examine impacts by process (e.g., number of subgroups) and outcomes (e.g., publication, practice-focused presentations).

Results: The overall workgroup/hub and interest-focused subgroups have partnered across all CDC-funding cycles to address rural needs and evidence gaps, disseminating findings through international and national conferences, practice-focused presentations, and scientific publications. Ten interest-focused subgroups have been formed since 2023 around topics including rural physical activity patterns, youth sports, food security and active transportation, extreme weather and physical activity, and community- and policy-level physical activity promotion. Full details about the number of papers, presentations, and outlets for these products, and how this collaboration has been supported across the years will be presented in this poster.

Conclusion: The history of the Rural Active Living Workgroup / Rural Hub illustrates a scalable model for sustained research–practice collaboration focused on rural physical activity environments. Ongoing engagement helps generate innovative ideas, identify research gaps, and support cross-sector translation. Investing in structured practitioner–researcher networks can accelerate rural research-to-practice translation and better align evidence with implementation.

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Customer, Owner, and Staff Perspectives on Nutrition Labeling in Hispanic Restaurants: A Qualitative Study

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Purpose: Menu labeling policies help consumers make informed food choices. However, limited research is focused on independently owned establishments that make up a substantial portion of the Hispanic food landscape in the United States. These small businesses often lack the financial resources needed to implement menu-labeling practices. This study conducted a qualitative interview among customers, owners, and staff in independently owned Mexican restaurants in East-Central Texas. By examining multiple stakeholder perspectives, the study aimed to provide context-specific insights to inform the future development of bilingual, digital menu labeling strategies.

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Methods: Thirty-four participants aged 19-79 years participated in semi-structured interviews conducted in English or Spanish. The interview guide was informed by Theory of Planned Behavior and Social Cognitive Theory. Data analysis followed a deductive and inductive thematic approach, in which theoretical constructs served as sensitizing concepts. Data was analyzed using Dedoose software.

Results: Thematic analysis of customer interviews identified five major categories: (1) Contextual Meaning of Healthy Eating, (2) Engagement with Nutrition Information, (3) Desired Types and Formats of Information, (4) Reactions to Digital Menus, and (5) Language Preferences. Customers described Mexican restaurant dining as an indulgence. While most customers did not seek out calories or nutrient values, younger adults and individuals with fitness goals expressed some interest. Participants preferred simple and optional formats. Views on digital menus were mixed, with many preferring paper menus. Digital formats were recommended for translation or supplemental information. Bilingual materials were widely endorsed. The themes that emerged from staff and owners included: (1) Perceived Customer Interest, (2) Concerns About Customer Reactions, (3) Staff Knowledge and Confidence, (4) Operational Challenges, (5) Format Preferences, and (6) Language Accessibility. Staff and owners perceived low customer demand, worried that calorie information might deter diners, reported low confidence in answering nutrition questions, and described challenges in generating accurate information.

Conclusion: Customers' preferences for unobtrusive nutrition information, combined with staff concerns about feasibility and customer reactions, indicate that menu-labeling strategies must balance transparency with the preservation of the desired dining atmosphere. Future studies should examine how culturally tailored labeling interventions affect ordering behavior and customer satisfaction in independent ethnic restaurants.

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Operationalising the Food Environment as an Environmental Value: A Transdisciplinary Case Study in Amsterdam

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Purpose: Unhealthy food environments are a major driver of overweight, obesity, and diet-related non-communicable diseases. While fiscal, marketing, and labeling policies on (un)healthy food have received increasing attention, the potential of urban planning law to regulate food outlet distribution based on health criteria remains underexplored. Many municipalities currently lack clear instruments to restrict unhealthy food outlets on health grounds, including the Netherlands. This study examined in a real-world case in the Netherlands the legal, empirical, and operational foundations needed to develop a regulatory instrument to support healthier community food environments.

Methods: We conducted a transdisciplinary case study in Amsterdam (2020–2026) involving legal scholars, public health and nutrition scientists, and municipal policymakers. The study was structured around three research questions. First, a doctrinal analysis assessed the legal conditions under which the food environment could be integrated as a planning criterion within Dutch urban planning law. Second, we investigated whether these conditions were met by conducting a rapid literature review and a quantitative validation study of a neighborhood food environment score. Third, we translated the legal and empirical insights into a concept regulatory instrument and decision-making framework for municipal use.

Results: Preliminary results are provided. The legal analysis suggests that Dutch urban planning and municipal law, particularly the new Dutch Environmental and Planning Law, provides a potential blueprint for municipalities to create a framework for regulating food outlet distribution, if health impacts can be translated to spatially relevant measurements. The literature review suggests that in legal terms there is evidence that unhealthy food environments cause serious public health harm, justifying preventive action under the precautionary principle. Primary results of the validation study suggest that the food environment can be operationalised as an environmental value through a neighborhood food environment score.

Conclusion: This study suggests the scope conditions for how legal and empirical evidence can be integrated into an urban planning framework to make it possible to regulatory instrument to support municipalities in creating healthier food environments. Future research should evaluate its feasibility, acceptability, and effectiveness in pilots and real-world municipal practice.

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Healthy Active Learning Improves inschool Physical Activity and Strengthens Healthy Food Environments in Aotearoa New Zealand Primary Schools

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Purpose: We evaluated Healthy Active Learning, a 5-year joint government initiative (Sport NZ, Health NZ, Ministry of Education) to improve children's wellbeing through healthy eating, drinking, and quality PA in ~900 schools throughout NZ.

Methods: A mixedmethods, timeseries evaluation (baseline data collection 1 (DC1): 2020–21; mid-term (DC2): 2022–23; post-intervention (DC3): 2024–25) combined quantitative and qualitative data from ~55 primary schools (students aged 5–13 years) throughout NZ. Data collection included student surveys (PA, motivation, engagement), teacher/leader and parent surveys, food policy/practice audits, and wristworn accelerometry (ActiGraph xGT3x). DC3 sample sizes were for: student PA n=4,868, motivation n=4,162, engagement n=3,836; teacher n=1,086; school leader n=319; parent n=2,279; food policy/practice n=140 schools; and accelerometry n=502. Analyses used regression tree and linear mixed models with stratification by age, gender, ethnicity, urbanicity, and school equity index.

Results: Inschool activity increased at DC3 ($p<0.05$): +4% steps/h, -4% sedentary time, +2% MVPA min/h; outofschool (-5% steps, +3% sedentary, -13% MVPA and weekend (-8% steps, +3% sedentary, -17% MVPA) activity declined. Active transport remained <50% in urban areas; during breaks, 75.2% of boys and 66% of girls were active. Access to quality and inclusive PA opportunities improved (leaders reporting opportunities that meet needs: 73%→85%; teachers: 67%→83%), with rural advantages in facilities/access; enjoyment of PE remained high (94%), but motivation indicators showed a decline in feeling encouraged (77%→68%) and gender gaps persisted (girls less likely than boys to feel good at/included in PE). Schools with a written healthy food policy increased (72%→84%); “water and plain milk only” policies were widely embedded and policy development was led primarily by school leadership (91%). Student involvement in promoting healthy food environments rose (39%→52%).

Conclusion: Healthy Active Learning has strengthened healthy food environments and increased inschool PA while outofschool and weekend PA declined; sustaining gains will require continued crossagency support to extend opportunities beyond the school day and to address persistent gender and equity gaps.

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Evaluating the Impact of a Culturally Tailored Produce Prescription Program among Pregnant Individuals in Low-income and Low-access Communities

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Purpose: This study tests whether a culturally tailored Produce Prescription Program (PPR) during pregnancy increases fruit and vegetable intake and improves maternal-infant outcomes. We hypothesize that participation will increase intake from baseline to follow-up and that greater dietary improvements will be associated with lower risk of gestational diabetes, pre-eclampsia, and preterm birth, and healthier birth weights. This study is innovative in linking a healthcare-based food access intervention to both dietary behavior change and clinical outcomes during pregnancy, an understudied focus in PPR research.

Methods: We will conduct a community-engaged, longitudinal pre/post evaluation of a culturally tailored PPR among pregnant participants (anticipated N = 200) receiving care at a Federally Qualified Health Center. Fruit and vegetable intake will be assessed at baseline and follow-up using a validated dietary screener. Clinical outcomes, including preterm birth and infant birthweight, will be abstracted from clinical records, along with patient-reported diagnoses (e.g., gestational diabetes mellitus, pre-eclampsia). Mixed effects linear regression will estimate within-person changes in intake over time. Multivariable logistic regression will examine associations between dietary change and binary outcomes, and linear regression will assess associations with continuous outcomes. Models will adjust for

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maternal age, parity, pre-pregnancy BMI, race/ethnicity, and socioeconomic indicators. Adjusted effect estimates (β coefficients and odds ratios) with 95% confidence intervals will be reported. Sensitivity analyses will examine robustness to missing data and variation in program exposure.

Results: Preliminary data from 76 pregnant patients indicate substantial need: 29% reported household food insecurity, 7% met daily fruit recommendations, and 5% met daily vegetable recommendations at baseline. Data collection for the full cohort is ongoing. Based on prior PPR evaluations using comparable screeners, we anticipate mean increases of approximately 0.8–1.0 times/day in combined fruit and vegetable intake from baseline to follow-up. Power calculations indicate >80% power to detect moderate within-person dietary changes and clinically meaningful differences in birth outcomes ($\alpha=0.05$).

Conclusion: Findings will provide evidence on how healthcare-based food access interventions support dietary behavior change during pregnancy and inform strategies to address nutrition-related maternal health disparities in racially/ethnically diverse, low-income populations.

I-P-H.47

Evaluation of the Effects of a Multi-strategic Intervention for Promoting Bicycle Mobility and Health in the Context of City Development in Duesseldorf: A Natural Experiment

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Purpose: As part of its “Mobility plan D,” the City of Duesseldorf is implementing multiple measures to promote a modal shift from car use towards active mobility. This natural experiment investigates the effects of this multistrategic intervention (i.e., continuous expansion of traffic-calmed cycling routes, mobility sharing stations, media activities) on cycling behavior and related health outcomes. The study aims to: (a) evaluate the impact of the multistrategic bicycle infrastructure intervention on infrastructure use; (b) identify determinants of cycling behavior across different sociospatial contexts; (c) assess exposure to trafficrelated air pollutants on trafficcalmed versus conventional cycling routes; and (d) examine health effects of cycling on trafficcalmed versus conventional routes.

Methods: To address aims (a) and (b), cycling volumes are measured with two automatic bicycle counters along the intervention route crossing two districts with different levels of sociospatial deprivation, and with 16 control counter stations distributed across the city of Duesseldorf. The initial baseline measurement took place in the entire month of June in 2025, 12-, and 24-months follow-ups are foreseen in 2026 and 2027. Determinants of cycling behavior are assessed using an online survey at baseline (starting in June 2026) and 12month followup in both intervention districts. Focus groups and interviews are conducted in the more socioeconomically disadvantaged district. To address aims (c) and (d), concentrations of trafficrelated air pollutants are measured via mobile monitoring on trafficcalmed versus conventional cycling routes. Additionally, health outcomes (e.g., blood pressure, arterial stiffness, pulmonary function) are assessed before and after cycling among participants riding along both route types. The first measurement wave took place in 2025 with data collected from 43 participants.

Results: This submission presents the study design. Data collection and analysis are ongoing and results are therefore not yet available.

Conclusion: This study provides insights into cycling infrastructure use and determinants of cycling in Duesseldorf, and generates evidence on the relevance of trafficcalmed cycling routes for health outcomes in different urban populations.

H. POLICIES AND ENVIRONMENTS

I-P-H.48

Young People's Use of Convenience Stores: What Influences Purchasing Behaviours and How can Policy be Developed to Support Health in This Setting?

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Purpose: One third of young people (YP) in the UK are considered overweight or obese before they start secondary school. Adolescence is an important life stage when people begin making independent food choices. Convenience stores, which are conveniently located near schools, are an environment where YP begin to make these decisions. Small businesses such as independent convenience stores are excluded from the policy that bans the prominent placement of high-fat, high-salt, and high-sugar foods and drinks, a core staple of convenience store sales. This study aimed to understand how young people use independent convenience stores and their purchasing behaviours within them.

Methods: A multiphase qualitative design was used, comprising of nine focus groups (n=43 YP aged 11-16) and a mystery shopper task (n=8 YP aged 16-18). Focus group participants were purposively sampled from two secondary schools, one rural and one urban in Hampshire, England. Mystery shoppers visited convenience stores identified near participating schools with the task of purchasing a "healthy snack". Mystery shoppers then completed a survey reflecting on their experiences. Data from both phases were analysed using inductive thematic analysis. YP worked with researchers to finalise themes and co-create an infographic.

Results: YP visited the convenience stores on their school commute and used stores as "third spaces" for socialising with friends. Purchases centred on low-cost "treats" and energy drinks: healthy options were rarely chosen as convenience stores were visited specifically to buy treats and age-restricted items. Students commented that there were fewer healthier food items and these were "hidden" in the stores compared to less healthy items, which were at the front of the store. Students suggested that clear, healthy displays, prominent positioning, fresher, more appealing products, providing healthier alternatives to treats, and competitive pricing could all support healthier purchases.

Conclusion: Current placement strategies and product availability in independent convenience store environments do not nudge YP to healthy food and drink choices. This study supports the ongoing evaluation of Government legislation and the need for public health initiatives to assist independent convenience stores and those that supply them to make changes to support their local community.

II-P-H.01

Comprehensive Planning for Whom?: An Intersectional Analysis of Stakeholder Perspectives

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Purpose: Urban planning, a structural determinant of health, shapes the conditions influencing access to essential resources. Comprehensive plans—policy frameworks guiding priorities in land use, transportation, housing, economic development, and increasingly, food access—serve as critical levers that determine who benefits from these systems. Advancing equity, therefore, requires examining how planning processes define problems, prioritize actions, and reflect community interests. This study explores how planning stakeholders conceptualize inequities, prioritize policies, and navigate the drivers and barriers to advancing equity in comprehensive plans.

Methods: This study, part of the Structural Opportunities to Rebuild Equitable Environments (StOREE) Study, examined how structural racism and historical planning decisions shape current food environments and obesity disparities in six U.S. jurisdictions: Baltimore, MD; Chicago, IL; Forsyth, NC; Los Angeles, CA; Minneapolis, MN; and New

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York City, NY. We conducted a thematic analysis of 41 semi-structured interviews with planners, community members, and other stakeholders involved in comprehensive plan development, using inductive and deductive codes, guided by the Intersectionality-Based Policy Analysis Framework.

Results: Planners conceptualized equity as a mostly spatial phenomenon, recognizing overlapping disparities in health and social determinants. In contrast, community partners and other stakeholders viewed inequities as complex problems requiring holistic solutions. Some planners acknowledged impacts of past inequitable policies (e.g., redlining) on present-day issues (e.g., housing affordability) yet often described being constrained in advancing equity goals by a dependency on market-based development, lack of political will, and the absence of actionable policy or implementation mechanisms. While housing and transportation inequities were prioritized in plans as direct land use issues, food-related goals and proposed actions received less attention and connections to land use were more limited (e.g., urban agriculture). However, when planners engaged intentionally with historically excluded communities using democratized consensus-building strategies, issues like limited food access emerged as a central planning concern and catalyst for explicit equity commitments.

Conclusion: Findings indicate the need to move beyond spatial framings of equity and more fully integrate food-related inequities into comprehensive plans. Embedding implementation plans can help translate equity goals into action, while centering community leadership in the planning process can provide a pathway to address issues most meaningful to affected communities.

II-P-H.02

Sustainable Transport in Glasgow City Region: A Photo-elicitation Study of the Facilitators and Barriers to Sustainable and Active Travel

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Purpose: The Clyde Metro project aims to connect Glasgow City Region's communities through a fully integrated public transport system over the next 30 years. To promote sustainability and improve health, integrating public transport with active travel (cycling, wheeling, walking) is key. However, to address transport, health, and social inequalities, more needs to be known about how communities experience travel, especially those facing access barriers. This research aims to explore and identify ways to support adults who may face access barriers to using sustainable and active travel in the Glasgow City Region.

Methods: Photo-elicitation and traditional interviews (in person and online) were conducted with adults who face barriers to public transport (e.g. older adults, those with a health conditions or illnesses, parents of young children etc.). Eligible participants were asked to complete a screening questionnaire and purposively sampled to recruit across a range of barriers, geographic areas and transport modes. Participants were provided with the option to receive a digital camera to take photos of their daily travel which were then used as prompts in the interview. Interviews were audio-recorded, transcribed and analysed thematically.

Results: Participants (N=22) were recruited from across five council areas and many participants faced intersecting barriers to sustainable transport use, including chronic health issues, frailty and the cost of travel. Walking was the most common mode to access transport, but poor pavement conditions and insufficient lighting were key barriers. Barriers to cycling included poor cycling infrastructure (e.g. inappropriate bike lane designs, lack of bike parking) and limited access to bike-sharing stations. Participants supported better integration of walking and cycling with public transport, including safe routes and signage to stops and stations.

Conclusion: This project offers insights into integrating active and sustainable travel to promote physical activity and enhance connectivity across Glasgow City Region. By sharing the findings with key stakeholders, this study has the potential to inform the development of sustainable transport solutions that could make a lasting impact on the health and wellbeing of residents across Glasgow.

II-P-H.03

Trends in the Community Eligibility Provision Participation Over a Decade: An Analysis of Eligible Schools in the United States

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Purpose: School meal programs in the United States are typically funded using a three-tiered structure (free, reduced-price, and paid) based on student's household income. Implemented in 2014, the Community Eligibility Provision (CEP) is a federal reimbursement program offering low-income schools the ability to serve free meals to all enrolled students without the need for individual student applications. CEP participation has been associated with increased access to and participation in school meals which are often the healthiest meals students consume each day. However, not all eligible schools participate in CEP. Policy changes in recent years have expanded schools' eligibility to enroll in CEP. This study aimed to examine the trends in school CEP participation from 2014 through 2024 and identify differences in adoption rates across school characteristics.

Methods: This descriptive study used national school data from the National Center for Education Statistics for school-level characteristics and the Food Research and Action Center database for CEP eligibility and participation data. A fuzzy matching algorithm and large-language-model-based approach were used to match the two datasets. The percentage of schools participating in CEP was examined by urbanicity, school type, and school-level.

Results: Based on descriptive analysis, we found an overall increase in participation among eligible schools from 42.4% in 2014 to 84.3% in 2024. Urban areas had higher overall participation at both time points (53.9% in 2014 to 89.6% in 2024), compared to rural areas (39.2% in 2014 to 79.6% in 2024). In 2014, compared to public schools, a greater proportion of charter schools participated in CEP (40.2% vs 51.5%), but these differences disappeared by 2024 when a similar proportion (about 84%) of charter and public schools participated in CEP. Participation in CEP increased across all school levels (elementary, middle, and high) to a similar extent over time. Mixed model analyses will be conducted to determine differences in school CEP participation based on school characteristics controlling for other covariates.

Conclusion: Understanding trends of CEP adoption over time has important implications for school nutrition programs in the United States to identify potential strategies to increase school meal participation and access to healthy school meals for students.

II-P-H.04

Mapping and Understanding Physical Activity Policies in Poland and Lithuania: Lessons from National Evidence Documents Development Process

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Purpose: The primary purpose of this study is to describe and compare the processes of developing and validating national evidence documents in Poland and Lithuania as part of the implementation of the Physical Activity Environment Policy Index (PA-EPI). The research addresses the following key questions: How feasible is the validation process in different governance contexts, and what factors facilitate or hinder effective engagement of policy makers across sectors? By examining two contrasting administrative systems, the study aims to generate insights into intersectoral collaboration and the applicability of the PA-EPI in Central and Eastern Europe.

Methods: This qualitative comparative study adopts a case study approach focusing on the development and validation of national evidence documents in both countries. Data were generated through document analysis and structured feedback from policy makers collected via validation questionnaires and written comments. The data were analyzed thematically to identify key patterns related to stakeholder engagement, intersectoral collaboration, and governance context. The analysis enabled a cross-country comparison of enablers and barriers in the PA-EPI validation process, highlighting both shared challenges and country-specific approaches to implementing physical activity (PA) policies.

Results: In both countries, efforts were made to attract a diverse and representative group of policy makers. In Lithuania, ministries and municipalities (central and local level) were officially invited to delegate representatives. In Poland, policy makers were invited mainly through professional networks resulting in a smaller but highly engaged group providing qualitative feedback. Main remarks concerned the clarity of evidence, intersectoral coordination, and the need to link national actions to measurable PA outcomes. Although benchmarking against international best practice is still ongoing, the findings highlight strong stakeholder commitment and confirm the feasibility of the validation process in both governance contexts.

Conclusion: The study demonstrates that the PA-EPI provides a feasible and structured framework for engaging policy makers in evaluating national physical activity policies. Both Poland and Lithuania successfully built cross-sector coalitions that enhanced the credibility and comprehensiveness of the validation process. Comparative insights from these two contexts offer valuable lessons for other Central and Eastern European countries aiming to strengthen evidence-informed and equity-oriented approaches to physical activity policy development.

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II-P-H.05

Associations between Length of Residence, Sense of Community, and Health Behaviors in a Master-planned Community: Insights from Harris County, Texas

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Purpose: Master-planned communities (MPCs) are intentionally designed developments that integrate housing, retail, and recreational spaces, creating opportunities for targeted health-promotion. However, most research on MPCs has focused on comparisons with conventional neighborhoods, offering limited insight into how length and quality of residence within these communities may influence health behaviors. This study describes demographic and behavioral characteristics of adults residing in a large MPC in the United States and examines associations between length of residence, sense of community, and health behaviors.

Methods: Adults residing in an MPC in Harris County, Texas completed online surveys between May-October 2025. Validated self-report scales were included: Brief Sense of Community Scale, International Physical Activity Questionnaire (IPAQ-SF), Mediterranean Eating Pattern for Americans (MEPA-16), People and Nature Survey, and Perceived Stress Scale. Sociodemographic characteristics and self-rated health were also reported. We ran two multivariate general linear models to examine associations for (1) length of residence and (2) sense of community with physical activity (log-transformed), diet, nature contact, and stress, adjusting for sociodemographic covariates.

Results: Respondents (n=128; mean age=39.2±10.1 years; 61.9% female) were racially and ethnically diverse and highly educated. Average length of residence was 2.8±2.1 years. Most reported moderate levels of sense of community (M=29.4±6.7), perceived stress (57% moderate), and diet quality (MEPA-16=8.6±2.0). Median moderate-to-vigorous physical activity (MVPA) was 1,550 MET-min/week (IQR=2,055). In the first model, longer length of residence was significantly associated with greater perceived stress (p=.039) but not physical activity, diet, or nature contact. Among covariates, older age was associated with lower stress (p=.013), whereas having more children was associated with higher stress (p=.037). In the second model, greater sense of community was significantly associated with lower perceived stress (p=.010), but not physical activity, diet, or nature contact. Among covariates, age was negatively associated with physical activity (p=.037), and number of children was positively associated with perceived stress (p=.007).

Conclusion: Findings suggest that community connectedness may play a more influential role in shaping wellbeing than length of residence in this context. Future longitudinal research is needed to clarify these relationships and guide the design of scalable MPC models that sustain health promotion over time.

II-P-H.06

From Policy to Practice: Quantitative Evaluation of a School Meal Reform

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Purpose: Childhood overweight and obesity are major risk factors for both physical and mental health conditions. Studies have shown an increased risk of diet-related diseases such as diabetes, as well as mental health disorders including depression and anxiety. Excess weight acquired during childhood often persists into adulthood. Children from families with low socioeconomic status are particularly affected. Systematic reviews indicate that parent-focused behavioral interventions have limited effectiveness when environmental conditions do not support healthy choices. In contrast, setting-based approaches are considered more promising.

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With the beginning of the 2025/26 school year, the City of Rostock (Germany) implemented a shift in lunch catering across all public schools to a municipal provider (“Mittagsmatrosen”) with the aim of providing regional, healthy, and sustainable meals. This intervention will be scientifically evaluated to assess its impact on dietary behavior, weight development, and health equity.

Methods: We conduct quantitative surveys among students, parents, and teachers to assess eating habits, participation in school meals, and subjective evaluations. In addition, anthropometric data (height, weight) are collected, and meal plans and portion sizes are analyzed. Comparative analyses before and after the introduction of the “Mittagsmatrosen” will be used—where feasible—to identify changes in acceptance, participation rates, and health-related parameters.

Results: Preliminary findings presented at the conference will focus on participation in school meals following the shift to regional and healthy options, the differential effects on children from various socioeconomic backgrounds, and the nutritional composition of meals. The study will also provide projections regarding the intervention’s impact on dietary behavior and weight development.

Conclusion: The evaluation of the “Mittagsmatrosen” initiative offers an opportunity to establish Rostock as a model region for health-promoting school nutrition. The project is expected not only to contribute to the prevention of overweight and obesity but also to enhance physical and mental health as well as academic performance. Evidence-based policy recommendations for other municipalities can be derived. The results will be critical for ensuring the sustainability of the initiative and for reducing health inequalities among children and adolescents.

II-P-H.07

Evaluating Israel’s Front-of-package Labelling Policy: A National Nutritional Profile of the Retail Food Environment

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Purpose: Front-of-package labelling (FOPL) is a core nutrition-policy tool to improve population diets by steering consumers toward healthier products and motivating industry reformulation. Israel’s 2020 dual-label system—mandatory red nutrient warnings and voluntary green endorsement labels—is unique internationally but has not been systematically assessed at the market level. This study evaluated the nutritional profile, labelling prevalence, and price patterns of foods sold in Israel’s retail environment two years after policy implementation.

Methods: A cross-sectional analysis was conducted on 7,884 products from two major supermarket chains representing ≈ 45 % of national grocery sales. Product data were scraped from online catalogues (Nov 2022), classified into 15 food groups, and coded for FOPL status, nutrient composition, and price. Nutrient and price densities were analyzed using Kruskal–Wallis/Wilcoxon tests with Dunn’s post-hoc corrections. Analyses compared labelled vs unlabelled items, warning-type combinations, and food-group differences.

Results: Overall, 45 % of products carried at least one red warning label (sugar 24 %, saturated fat 23.8 %, sodium 16.5 %), as compared to 52% unlabelled products; only 3.4 % displayed voluntary green labels despite 12.2 % eligibility. Snack foods dominated the market (26.6 %) and were heavily labelled (70 %). Processed meats (93.9 %) and breakfast cereals/bars (65.7 %) showed particularly high warning prevalence. Nearly one-quarter (23.5 %) of unlabelled packaged foods had sodium levels within 5 % of the regulatory threshold—especially meat, sauces, and frozen meals—indicating strategic reformulation near cutoff values. Labeled products were more energy-dense and costlier per 100 g but cheaper per 1,000 kcal; notably, sugar-labelled snacks were 33 % cheaper per 100 g than unlabelled counterparts, underscoring affordability of less-healthy options.

Conclusion: Israel’s pioneering dual-FOPL policy has reshaped the retail food environment but reveals limited green-label uptake and widespread borderline sodium reformulation. Strengthening nutrient thresholds, monitoring compliance, and integrating fiscal or incentive measures could enhance policy impact and health equity. These findings provide the first objective baseline for national FOPL monitoring and contribute to global evidence on how labelling regulations influence food environments, equity, and consumer choice.

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II-P-H.09

Resting Heart Rate for Global Health Surveillance? Insights from WHO STEPS and South Asia Biobank

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Purpose: Resting heart rate (RHR) is a proxy for cardiorespiratory fitness, associated with cardiovascular disease (CVD) risk and mortality. Fitness is largely understudied in the global context, especially in non-Western populations. This study integrates the WHO-STEPS surveys with the South Asia Biobank (SAB) to answer the question of how RHR varies by person, place and time.

Methods: This cross-sectional study analysed data from WHO-STEPS (76 countries, n=326,560 adults) and SAB (4 South Asian countries, n=201,197). We describe RHR across age, sex, BMI, physical activity and other behaviours. Association analyses used generalized linear mixed models, clustered for country (WHO) or centre (SAB). Longitudinal trends were estimated from repeat cross-sectional surveys in 19 WHO countries.

Results: In WHO-STEPS, median RHR was 74bpm in men and 76bpm in women; in SAB, it was 70bpm in men and 79bpm in women. In WHO-STEPS, RHR in men was positively associated with age (65+: 1.019 [95% CI: 1.007, 1.030] vs. 25-44), obesity (1.059 [1.049, 1.070]), and inversely associated with meeting PA guidelines (0.987 [0.981, 0.993]); in women RHR was inversely associated with age (65+: 0.982 [0.971, 0.994]) and meeting PA guidelines (0.988 [0.983, 0.994]), and positively associated with underweight (1.013 [1.006, 1.020]) and obesity (1.013 [1.006, 1.020]). Relative to the Sub-Saharan Africa region, RHR was higher in Middle-East North Africa (men: 1.038 [1.029, 1.047], women: 1.019 [1.012, 1.026]) and South and South-East Asia (men: 1.053 [1.045, 1.061], women: 1.019 [1.012, 1.026]). Country-level longitudinal trends were modest only in men (-0.40 bpm/year). In SAB, associations with age, BMI group, and physical activity status were similar; in addition, RHR was higher in people with pre-existing metabolic disease (men: 1.038 [1.036, 1.041], women: 1.026 [1.024, 1.028]) and in June-August (men: 1.013 [1.009, 1.016], women: 1.008 [1.005, 1.010]).

Conclusion: RHR displays different associations with age in men and women but is universally higher in obese and non-active individuals. RHR appear stable year-on-year, potentially even declining slightly in men. In hot and humid climates, RHR appears to be higher in the most humid time of the year. Findings support incorporating RHR into routine health surveillance, with implications for reducing global CVD burden.

II-P-H.10

Nutritional Portrait of Processed Foods Prior to the Implementation of a Mandatory Front-of-Pack Nutrition Label in Canada

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Purpose: Starting January 1st 2026, Health Canada requires a nutrition symbol to be displayed on the front-of-pack of processed foods high in saturated fat, sugars, and/or sodium. To appropriately monitor changes in the quality of food products over time, it is first necessary to establish an overview prior to the implementation of this new regulation. In this study, the Food Quality Observatory aimed to determine the theoretical proportion of products that would carry the symbol before the regulation is implemented.

Methods: Nutritional information was gathered from the packaging of products in 15 processed food categories available in food stores in the province of Québec (Canada) in 2021-2025. Ready-to-eat breakfast cereals, sliced breads, luncheon meats, ready-to-serve soups, pizzas, granola bars, frozen meals, pasta sauces, yogurts and dairy desserts, sausages, cookies, crackers, salty snacks, processed cheeses as well as milk and plant-based drinks were analyzed.

Results: A total of 5844 products were collected, of which 60% would carry the symbol for at least one of the three nutrients of concern, 23% would carry it for two nutrients, and 0.4% for the three nutrients. Sodium was the nutrient with the largest proportion of products (38%) which would carry the symbol. Pizzas (99%), luncheon meats (96%) and sausages (89%) were the food categories for which the symbol for sodium would most often appear. The symbol

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for saturated fat would be displayed on 32% of products. Pizzas (76%) and sausages (76%) were the categories that would most often carry the symbol for saturated fat. As for sugars, 14% of products would have to display the symbol, with cookies (58%) and granola bars (28%) being the categories that carried it most often.

Conclusion: This portrait provides an overview of the nutritional quality of food products prior to the implementation of the Health Canada regulation. It shows that 60% of the products studied have high levels of nutrients known to have adverse effects on health. This study generates important baseline data to monitor the nutritional quality of the food supply. Public health measures aimed at improving the food supply's quality must be prioritized.

II-P-H.12

Elevated Obesity Rates in UK Truck Drivers: Insights from a Socio-economically Matched Population Analysis

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Purpose: Truck drivers face distinct occupational barriers to maintaining healthy lifestyles, including prolonged sitting, poor dietary options, restricted activity, and shift work, which may contribute to an elevated risk of obesity. Yet no studies have directly compared obesity prevalence or risk in this occupational group to a sample of the general UK population. This study aimed to compare obesity prevalence and risk between truck drivers and a matched sample from the Health Survey for England (HSfE), adjusting for socio-demographic factors, to inform targeted interventions and policies. We hypothesised that there would be a higher prevalence and relative risk of obesity in truck drivers.

Methods: The present study used UK male truck driver data (n=625) from existing research, including baseline data from the SHIFT UK randomised controlled trial and academic survey data. A combination of researcher-collected and self-reported BMI data were used to calculate the prevalence of overweight and obesity in drivers, self-reported BMIs were corrected for consistency with HSfE methods. Overweight and obesity prevalence and relative risks were compared between drivers and male participants from the 2019 HSfE (n=485), matched by age and socio-economic group (based on occupational category using the UK's National Statistics Socio-economic Classification system). Analyses were conducted using Pearson's chi-squared tests and multinomial logistic regression, stratified by age.

Results: Truck drivers were significantly more likely to have obesity in comparison to the HSfE sample (51.5% vs 34.0%, $p<0.001$), with a particularly large difference present in the 25-34 age group (45.8% vs 22.0%, $p<0.001$). Furthermore, truck drivers had a ~2.5 and ~4-fold increased risk of overweight and obesity, respectively, compared to the HSfE sample.

Conclusion: These results demonstrate that obesity prevalence and risk is greater in UK (English) truck drivers than in comparable men from the HSfE. This may relate to the occupational constraints that impact diet, physical activity, and sedentary behaviour. The high obesity prevalence in younger drivers is a particular concern as prolonged exposure to unhealthy working environments may exacerbate health risks. These findings highlight an urgent need for more robust approaches (including policy changes) to tackle obesity and improve health outcomes in this occupational group.

II-P-H.13

The Food Label Information and Price (FLIP) Database: Leveraging Big Data and AI to Advance Global Food Policy Research and Monitoring

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Purpose: Developed in 2010 at the University of Toronto, the Food Label Information and Price (FLIP) database is an innovative, scalable, and internationally deployable branded food composition database designed to support nutrition research, food policy evaluation, and noncommunicable disease (NCD) prevention. FLIP enables countries to assess and monitor the nutritional quality of their food supply and evaluate the impacts of food policies such as nutrient reformulation targets, front-of-pack labelling, and children's marketing restrictions. This abstract presents FLIP's latest methodological advances in artificial intelligence (AI) and big-data analytics, highlighting its international reach, policy applications, and opportunities for global expansion.

Methods: FLIP integrates web-scraping and in-store data collection from major grocery retailers, capturing

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approximately 230,000 branded food products in Canada and 74,000 products across 12 countries in Latin America (LAC), Africa, and Asia. Data are processed through a secure, cloud-based platform that employs optical character recognition, natural language processing, and machine learning algorithms to automate food categorization, nutrient profiling (e.g., FSAANZ, WHO, PAHO systems), and NOVA food processing classification. Manual validation complements automated quality control to maintain high accuracy and consistency across datasets. The FLIP framework's adaptable architecture supports linkages with dietary intake surveys, consumer mobile applications, and complementary data sources, enabling advanced nutrition research and evidence-based health policy development for NCD prevention.

Results: FLIP-Canada's automated processing achieves high accuracy in classifying products by category, nutrient profiling, and processing level, thereby reducing the cost and time traditionally required for manual coding. FLIP-LAC's repeated data collection cycles demonstrate the system's ability to monitor policy-relevant changes in sodium and trans fat content, and to evaluate compliance with PAHO and WHO nutrient targets. Ongoing collaborations demonstrate successful integration into national monitoring and food environment research.

Conclusion: FLIP represents a state-of-the-art methodological innovation in the use of AI and big data for food policy and nutrition surveillance. Its adaptability across contexts positions it as a critical tool for evidence-based policymaking worldwide. Future directions include expanding global data-sharing partnerships and refining algorithms for multilingual and cross-market analyses.

II-P-H.14

,Adverse Effects' of Health Promotion Regulations: The Case of Judgmental Food Product Labelling

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Purpose: Health promotion regulations are designed to influence public behavior and improve health outcomes. Despite their valuable positive impact on individuals and society, prior research suggest that they may also generate unintended and unexpected negative effects. The purpose of this presentation is to describe findings on the adverse effects of the judgmental food product labelling regulation (front-of-package green and red labels) implemented in Israel since January 2020. Identifying these effects enables a better understanding of cases in which the reform may be ineffective or even harmful.

Methods: A cross-sectional descriptive study using an online self-report questionnaire. Data were collected from 3,292 Israeli Jewish and Arab adults. The questionnaire addressed purchasing and consumption habits, perceptions of the food product labelling, and its impact.

Data were analyzed by subgroup (Jewish non-Orthodox, Jewish Orthodox, and Arab) using descriptive statistics, correlation coefficients, and comparison of proportions. Cronbach's alpha was calculated for the complex variables built from several items. Linear regression was applied to describe the relationships between the dependent and independent variables.

Results: Survey results revealed five major adverse effects:

1. Confusion about recommended foods due to misunderstanding of labels and their absence on certain products (62.7% of respondents);
2. Negative eating behaviors suggestive of disordered eating patterns (20%);
3. Negative emotions or aversion regarding the red-labeled products, associated with the stop-sign symbolism of the red color (14.5%);
4. Reduced purchasing of green-labeled products due to a misconception that they are more expensive (10.8%);
5. Disregard for labels due to lack of confidence in their scientific validity (5.5%).

These adverse effects were consistent among the sub-populations, with differences in magnitude linked to socio-demographic parameters.

Conclusion: Our results provide an evidential foundation to the previously unexplored adverse effects of the food labelling regulation in Israel. The negative effects appear to stem primarily from knowledge and comprehension gaps. Actions such as proactive education regarding the rationale for the regulation, the professional definitions according to which the labels were determined, the meaning of each label, and the meaning of their absence, may enhance the regulation's effectiveness, particularly when tailored to the characteristics of specific population groups.

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II-P-H.15

Creation of a Neighborhood ACEs Index to Explore the Association between Parental Adverse Childhood Experiences and Children's Obesity

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Purpose: Research suggests that parents' adverse childhood experiences (ACEs) may increase their child's risk for obesity. However neighborhood environment's role in this association has not been explored – overlooking a key level of ecology relevant to obesity risk. Thus, the purpose of this study was to create a Neighborhood ACEs Index that capture the association between parent ACEs exposure and neighborhood characteristics, to be leveraged in a future study examining associations between parent ACEs, neighborhood characteristics, and children's obesity.

Methods: Research suggests that parents' adverse childhood experiences (ACEs) may increase their child's risk for obesity. However neighborhood environment's role in this association has not been explored – overlooking a key level of ecology relevant to obesity risk. Thus, the purpose of this study was to create a Neighborhood ACEs Index that capture the association between parent ACEs exposure and neighborhood characteristics, to be leveraged in a future study examining associations between parent ACEs, neighborhood characteristics, and children's obesity.

Results: The sample included N=1242 parents; N=237 experienced >3 ACEs. Most parents identified as (91%) female and either White (69%) or Black (31%), with an average age of 33±8 years. Every one unit increase in Neighborhood ACEs Index was associated with 1.15 times greater odds of high parent ACEs (95% CI: 1.05, 1.30). Neighborhood-level health risk factors such as less healthy food environment, worse supermarket access, more neighborhood poverty, and more crime demonstrated strong associations with parent ACEs (e.g., were in the upper 50%tile of index weights).

Conclusion: Children whose parents have a history of high ACEs live in neighborhoods with more health and obesity risk factors. This suggests neighborhood environment should be explored as a contextual factor when intervening to address intergenerational ACEs-obesity associations.

II-P-H.17

Food Pantries and their Role Addressing Food Insecurity across Five Post-secondary Campuses Serving Minoritized Students in the United States: A Mixed-methods Study

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Purpose: Food insecurity is highly prevalent among post-secondary students in the United States (U.S.), particularly among students of minoritized backgrounds. Post-secondary institutions can play an important role in addressing food insecurity, and many have established campus food pantries to serve their students. The purpose of this study was to assess campus food pantries' accessibility and food offerings as well as students' perceptions about these pantries in five U.S. post-secondary institutions serving primarily minoritized students across three U.S. states.

Methods: Food pantries in each campus (total n=5) were assessed twice between Fall 2024-Spring 2025 with an adapted version of the Healthy Food Pantry Assessment Tool, including 8 domains: Accessibility, Fruits and Vegetables, Protein, Eggs and Dairy, Grains, Beverages, Snacks, and Specialty Foods. A scoring protocol was developed to reflect pantry accessibility (e.g., opening days/hours, frequency students can use) and food offerings' availability, variety, and nutritional value, with a maximum possible total score of 85. Scores obtained from the two measurements within each campus were averaged. In addition, in-depth interviews were conducted with students in each campus (total n=34) to assess students' perceptions of their campus food pantries on similar domains as those captured in the

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quantitative assessment. Thematic analysis of the interviews is ongoing.

Results: Food pantry scores ranged from 27 to 46 (out of 85 max) across the five campuses. Highest scores across campuses were obtained in the Accessibility (range 6.5 to 10, out of 16 max) and Grains (range 1.3 to 7.5, out of 9 max) domains, while the lowest scores were obtained in the Eggs and Dairy domain (range 2 to 2.8 out of 9 max). All food pantries offered at least one food item in each of the food categories (*availability* sub-domain), with substantial variability in the *variety* and *nutritional value* sub-domain scores. Qualitative results obtained from in-depth interviews' thematic analyses will be integrated with the quantitative results.

Conclusion: Food pantries are an important tool to address food insecurity among post-secondary students. Our quantitative results suggest that campus food pantries' food offerings could be improved, particularly in terms of variety and nutritional value.

II-P-H.18

Assessment and Benchmarking of the Food Industry'S Voluntary Commitments and Practices for Addressing Malnutrition in South Africa

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Purpose: South Africa faces high prevalences of both under- and overnutrition. An important driver of this so-called double burden of malnutrition are food environments dominated by the supply and marketing of unhealthy foods. The food industry plays a major role in shaping food environments and diets through its commercial actions. The aim of this work was to identify areas where food and beverage manufacturers, supermarkets and quick-service restaurants operating in South Africa demonstrate leadership in promoting healthier food environments and offer opportunities for improvement, particularly with regard to addressing and preventing all forms of malnutrition.

Methods: We applied the BIA-Obesity tool (Business Impact Assessment on Obesity and Population-level Nutrition) developed by INFORMAS, a global network of public-interest organizations and researchers. First, we adapted the tool to the South African context by removing non-applicable indicators and by adding an additional, seventh domain on the double burden of malnutrition. Publicly available policies, statements, and guidelines of included companies were collected between February 2024 and June 2025 and verified and/or supplemented by company representatives through direct feedback on the assessment sheet and/or semi-structured interviews. Company commitments and practices were then assessed against industry and public health benchmarks, and according to their comprehensiveness, specificity, and transparency. Scores were weighted to produce an overall score out of 100, and tailored recommendations were developed for each company.

Results: We selected 29 companies for inclusion in the assessment, based on market share (Euromonitor, 2022): 15 food and non-alcoholic beverage manufacturers, 4 supermarket chains and 10 quick-service restaurant chains. Overall, companies showed strengths in the domains of corporate strategy, disclosure of relationships with external organizations, and addressing the double burden of malnutrition. Potential for substantial improvement was identified in the areas of product formulation, nutrition labelling, promotion practices, as well as product pricing, availability and positioning.

Conclusion: Addressing the double burden of malnutrition in South Africa requires a multifaceted approach, where the active engagement of the food industry in shaping healthy food environments is essential. The assessed companies should prioritize implementing the identified recommendations to enhance their contribution to reducing under- and overnutrition in South Africa.

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II-P-H.19

Designing Mandatory Sodium Reduction Targets in a Small Economy: Lessons from Uruguay

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Purpose: Food reformulation is widely recognized as a cost-effective strategy to reduce sodium consumption and improve public health. Although mandatory sodium targets are among the most effective approaches to enhance compliance, they may also have trade implications, particularly for small open economies dependent on food imports. This presentation highlights lessons from the design of mandatory sodium reduction targets in Uruguay, a small South American country. Specifically, the study aimed to (i) assess the sodium content of national and imported food products available in the Uruguayan market, (ii) evaluate their compliance with regional sodium reduction benchmarks, and (iii) estimate the potential public health and trade impacts of alternative policy scenarios.

Methods: Sodium content information was extracted from food labels of 4,719 packaged products collected in nine supermarkets across Uruguay in 2022. Products were classified as national or imported and compared against the 2021 Pan American Health Organization (PAHO) sodium targets. Additionally, modelling analyses estimated potential reductions in sodium intake among Uruguayan children under different implementation scenarios, ranging from full adoption of PAHO targets to more selective, trade-sensitive approaches.

Results: Results showed that Uruguay is lagging behind regional sodium reduction benchmarks in most product categories. Meeting PAHO targets would require sodium reductions exceeding the 15% perceptibility threshold for salty taste in a large proportion of products, potentially affecting consumer acceptance. Although sodium levels did not differ consistently between national and imported items, 56.4% of imported products would be non-compliant if PAHO targets were applied as mandatory limits. Modelling indicated that full implementation of the targets could reduce sodium intake among children by an average of 166 mg/day (24.7% of sodium intake from processed and ultra-processed products), while a selective, trade-sensitive approach would yield a smaller reduction of 68 mg/day (10.1%).

Conclusion: These findings underscore both the public health benefits and trade challenges of implementing sodium reduction policies in Uruguay. Tailoring regional benchmarks to national market conditions and prioritizing the food categories that contribute most to sodium intake could improve policy feasibility and ensure meaningful population-level reductions in sodium consumption.

II-P-H.23

Examining Park Quality and Features in Relation to Physical Activity in Low-income Neighborhood Parks

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Purpose: While urban parks may promote physical activity (PA), park quality and features may play an important role in shaping active behaviors. In this study, we developed a Park Quality Index (PQI) derived from the Community Park Audit Tool (CPAT) and examined the association between park quality, park features, and changes in PA levels among park users following park renovations.

Methods: Data was collected as part of the Physical Activity and Redesigned Community Spaces (PARCS) study, a longitudinal study evaluating citywide park renovations in low-income New York City neighborhoods. A total of 54 parks were included, with 33 renovated intervention sites and 21 control sites in sociodemographically-matched neighborhoods. Park quality was assessed across four domains: activity area, infrastructure, safety concerns, and aesthetics. The overall PQI was calculated as the sum of the normalized scores with equal weights (0.25) assigned to each category. PA was measured using the System for Observing Play and Recreation in Communities (SOPARC), where trained researchers recorded the number of individuals engaging in sitting, standing, walking, or vigorous activity during park scans before and one year after renovations were completed (between 2016 and 2022). Changes

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in PA over time were dichotomized as either an increase or no change/decrease.

Results: PQI varied across study parks (range: 24.4-95.8), where intervention parks showed significantly higher PQI than controls, indicating better quality [mean (SD) intervention: 66.1 (16.3), control: 51.4 (15.3), $p=0.001$]. Among the intervention sites, a higher activity score was observed in parks with increased vigorous activity. Both the presence of an open/green space and the space being in good condition were associated with an increase in sitting and vigorous activity. Lighting was also associated with increased sitting and vigorous activity, but parks with moderate lighting (25–75% lit) showed the largest increase. Intervention parks with artistic features showed a marginal increase in vigorous activity.

Conclusion: CPAT-derived PQI effectively captured renovation-driven improvements in park environments and was associated with increased PA. Enhanced park quality, especially in open/green space, encouraged active use. These findings emphasize the importance of targeted park investments to promote park-based PA in low-income urban communities.

II-P-H.24

Neighborhood Park Improvements as a Necessary Precondition for the Association between Park Use Duration and Adult Physical Activity

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Purpose: Inadequate physical activity (PA) elevates chronic disease risk in low-income urban populations. Neighborhood parks may support PA, but effects likely depend on park quality and individual use patterns. This study examined whether citywide park renovations under NYC's Community Parks Initiative were associated with changes in adult PA in low-income neighborhoods and whether associations between park use and PA changes differed for residents near renovated versus control parks.

Methods: A quasiexperimental prospective cohort study (2016-2022) was conducted in neighborhoods surrounding 31 renovated and 21 matched control parks. Participants included 344 adults living ≤ 0.3 miles of a park (186 intervention, 158 control). Outcomes were accelerometry-based PA measures collected pre and postrenovation: vector magnitude per minute (VMPM) and minutes/day of sedentary, light, and moderate-to-vigorous PA. Surveys assessed self-reported typical frequency and duration of park visits. Linear mixed-effects difference-in-difference models estimated associations between renovations and changes in PA (post-pre); interaction models examined associations of park use with PA changes in intervention vs. control groups.

Results: Changes in PA were not significantly different between intervention and control groups. However, in the intervention group, each additional 60 minutes spent at a study park on weekdays was associated with 18.0 more minutes of light activity/day (95% CI 4.7, 31.3), and each additional 60 minutes spent at the study park on weekend days corresponded to 19.0 more minutes of light activity/day (95% CI 8.1, 29.9) and a 54.1-unit increase in VMPM/day (95% CI 7.5, 100.7). Intervention participants who reported visiting their study park ≥ 30 minutes on a weekend day experienced a 140.0-unit greater increase in VMPM (95% CI 52.7, 227.2) and a 61.1-minute larger decrease in sedentary time (95% CI -108.8, -13.3) compared to those with shorter visit durations. No associations between park use duration and changes in PA were observed in the control group.

Conclusion: Park renovations alone were not associated with increased PA, but longer duration of visits at renovated—but not control—parks were associated with increased total PA volume, increased light activity, and decreased sedentary time. High-quality park environments may be a necessary pre-condition to the benefits of park use on adult PA.

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II-P-H.25

Contributions of Park-based Activities to Overall Physical Activity among Renovated Park Users in Low-income Neighborhoods: Variations by Race/Ethnicity and Sex

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Purpose: Urban parks may promote physical activity (PA); however, little is known about whether renovated urban parks contribute to overall PA similarly across diverse sociodemographic groups. In this cross-sectional study, we examined associations between park-based activities and overall PA among adults living near recently renovated parks in low-income New York City (NYC) neighborhoods, with particular attention to differences by race/ethnicity and sex.

Methods: A total of 1,336 adult survey respondents who reported past-month use of a renovated park within 0.5 miles of their residence were included. Surveys captured usual participation in activities at the renovated park (i.e., walking, exercising, taking children to the playground/park, relaxing, socializing, volunteering) and self-reported PA level during visits. The outcome, overall past-week PA, was measured in metabolic equivalent of task (MET)-minutes using the International Physical Activity Questionnaire and log-transformed prior to analysis. Linear regression models estimated associations of park-based activities and park-based PA levels with log(MET-minutes) of overall PA in the full sample and stratified by race/ethnicity and sex.

Results: In the full sample, park-based activities explained 5.4% of the variability in overall PA of past-month renovated park users; self-reported park-based PA level explained 5.2% of the variability. Compared to past-month park users who did not engage in these activities, those who reported exercising at the study park had 47% higher overall PA and those who reported walking had 33% higher overall PA, while those who reported volunteering had 26% lower overall PA, after confounder adjustment. Activities at renovated parks explained more variability in overall PA among males (6.3%) compared with females (5.1%), and among minority groups (Latino/as = 6.5%, Blacks = 6.8%, other race/ethnicity = 11.2%) compared with Whites (4.3%).

Conclusion: Among adults with past-month renovated park use in low-income NYC neighborhoods, park-based activities explained a significant proportion of the variability in overall PA, with stronger contributions among minorities and males. These findings highlight the importance of considering sociodemographic differences when assessing the role of renovated urban parks in promoting PA and suggest that investments in high-quality green spaces may be particularly impactful for minority groups facing disproportionate barriers to PA.

II-P-H.26

A Natural Experiment Assessing the Impact of Protected Bike Lanes Near Schools on Walking and Biking in Phoenix, AZ, USA

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Purpose: Active transportation to school (ATS) provides physical activity and supports individual and environmental health; yet only ~10% of U.S. youth walk/bike to school. Infrastructure improvements like protected bike lanes can promote ATS ; however, few experimental studies have examined changes in youth travel behavior. In this natural experiment, we hypothesized that an innovative city-driven road renovation replacing two car lanes with protected bike lanes would increase walking/biking and perceived safety.

Methods: This natural experiment objectively measured walking/biking at seven intersections near two public elementary schools in Phoenix, AZ (U.S.), adjacent to a bike lane renovation, and parent-reported school travel and safety perceptions (N=1792021; 892024). Changes in travel behavior were compared to 28 area schools with no infrastructure modifications. Objective walking/biking were measured by observational counts over four days, one hour before and after school start/end, and parent reports were assessed by survey1 in September one year prior (2021) and after (2024) the bike lane installation. Average counts of walkers/bikers over all days and intersections and changes over time were assessed using Poisson generalized linear models. Changes in survey-reported ATS,

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defined as walking/biking 1+ day/week, and safety perceptions were assessed using chi-square tests and Wilcoxon signed-rank tests, respectively, among the whole sample and those living within 0.5 miles.

Results: The average number of bicyclists crossing intersections at the intervention site during the school commute increased 750%, from 2-17. The average number of pedestrians increased 57%, from 42-66. No statistically significant differences in parent-reported walking/biking to (15.9%2021 and 15.5%2024) or from (13.5%2021 and 12.1%2024) school were found, including by distance. Rates of walking/biking among comparison schools were lower and did not change significantly over time (7.0%2021 and 7.8%2024). Parents' desire for children to walk/bike decreased; however, perceptions of school encouragement and children having fun increased. Parents reported increases in lack of crossing guards, too much violence/crime, and weather preventing walking/biking.

Conclusion: Protected bike lanes increased walking/biking near schools; however, parent safety concerns persisted. This underscores the importance of coupling infrastructure improvements with family- and community-based strategies to address safety perceptions and foster supportive environments.

II-P-H.27

Stressful Life Events after a Natural Disaster, Housing Instability, & Nutrition Insecurity among Residents of New Orleans, LA

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Purpose: Natural disasters (e.g., hurricane, tornado, flash flood) can be mentally, physically, and financially devastating for individuals and families. This study aimed to examine associations between prior experiences of stressful life events after a natural disaster and recent reporting of housing instability and nutrition insecurity among residents of a disaster-prone city – New Orleans, LA, USA.

Methods: We analyzed preliminary data from an ongoing evaluation of post-disaster food aid in New Orleans. As of February 2026, 199 residents (mean age: 52.4; 70.8% female; 69.9% Black; 30.6% ≥ college degree) have completed our comprehensive cross-sectional survey. Each respondent self-reported their demographics and completed 1-item screening questions for housing instability (prior 3 months) and nutrition insecurity (prior 12 months). In addition, they completed an 11-item screener for stressful life events after a natural disaster, such as property loss, job loss, inability to obtain safe food & water, inability to obtain personal items (e.g., medication, diapers), physical injury/illness, loss of a friend/family member, and witnessing a major crime. We ran multivariable logistic regression models to determine if the total number of stressful life events was associated with odds of screening positive for housing instability and nutrition insecurity.

Results: Approximately 38.1% and 53.3% of respondents screened positive for housing instability and nutrition insecurity, respectively. Mean number of stressful life events reported was 2.93 (±2.6), with 42.7% of respondents reporting ≥3 events. After adjusting for age, sex, race/ethnicity, and education, total number of events (AOR: 1.29; 95% CI: 1.13-1.48) and reporting ≥3 events (AOR: 2.73; 95% CI: 1.42-5.36) were associated with higher odds of housing instability. Total number of events (AOR: 1.11; 95% CI: 0.98-1.25) and reporting ≥3 events (AOR: 1.81; 95% CI: 0.95-3.45) were marginally associated with nutrition insecurity. We will finalize these analyses after data collection concludes.

Conclusion: Reporting stressful life events after a natural disaster is associated with housing instability and marginally associated with nutrition insecurity among New Orleans residents. This underscores the impact natural disasters can have on stability and nutritional well-being.

II-P-H.28

Socio-economic, Educational, Gender, and Age Disparities in Overweight in Colombia

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Purpose: This study aimed to estimate how socioeconomic strata, educational level, gender, age, and other social determinants of health are associated with overweight in Colombian adults. Using the most recent National Survey of the Nutritional Situation (ENSIN 2015), it addresses a key evidence gap by jointly examining individual and household characteristics, as well as regional and urban-rural differences, to identify population groups at higher risk.

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Methods: A cross-sectional, descriptive study was conducted using secondary data from a nationally representative, multistage, stratified household survey. The analytical sample included 73,659 adults aged 18–64 years with valid anthropometric data, excluding pregnant women, individuals with implausible measurements, and underweight adults. Overweight was defined as BMI ≥ 25 kg/m² (overweight and obesity) versus BMI < 25 kg/m². Independent variables covered sociodemographic and household characteristics. Survey-weighted descriptive analyses, chi-square tests, and multivariate logistic regression models were performed. The final model was selected using the BIC and results are reported as odds ratios with 95% CI.

Results: The prevalence of overweight was 57.86% (38.72% overweight, 19.14% obesity). The probability of being overweight increased steadily with age, reaching an OR ≈ 4.2 among adults aged 58–64 years compared with those aged 18–22 years. Women had higher odds of overweight than men (OR 1.27). Compared with Bogota, residing in Orinoquia–Amazonia (OR 1.74), Pacific (OR 1.57), Atlantic (OR 1.49), Central (OR 1.29), and Eastern (OR 1.27) regions was associated with higher odds of overweight. Rural residence was associated with lower odds (OR 0.90) compared with urban areas. Higher wealth quartiles were positively associated with overweight, while being single (OR 0.59) or divorced (OR 0.76) was associated with lower odds compared with being married.

Conclusion: Overweight in Colombia shows marked age, gender, socioeconomic, marital, and territorial disparities, suggesting a clear social stratification of nutritional risk. These findings underscore the need for differentiated prevention and control strategies that account for regional context, urban–rural setting, and social determinants, and that guide the design of targeted interventions and public policies to reduce overweight and its health and economic consequences.

II-P-H.29

Measuring Differences in Built Environment for Physical Activity Promotion: A Scoping Review of Methods

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Purpose: Although the built environment (BE) is recognized as an important determinant of physical activity, longitudinal evidence on how BE changes influence uptake and maintenance remains limited, partly due to inconsistent measurement approaches. We conducted a scoping review of the peer-reviewed public health literature to synthesize methods used to measure and operationalize BE change; relevance to physical activity was a primary consideration.

Methods: Guided by a librarian, Medline, Embase and Scopus were searched (1967–2025) using salient keywords (e.g. *neighbourhood, improvement, longitudinal*). Inclusion criteria were longitudinal studies, and minimally one reported health outcome. Studies of ambient environmental exposures, food environments, subjective methods, and highly specific natural experiments were excluded. A total of 1958 studies were screened; 50 underwent full-text review. Extracted data included study characteristics, exposure definitions and indicators, spatial framing, change operationalization, analytic methods, validation and sensitivity analyses, and key findings on BE change. A descriptive synthesis was conducted, including tabulation of study features and narrative comparison of exposure and change measurement approaches.

Results: Sixteen studies were included, 15 of which were from high-income countries. Studies included between 2 and 5 exposure measurement time points. Exposures included elements of walkability (10/16), parks and green space (8/16), and recreational facilities (4/16) defined within residential spatial buffers ranging from 400m to 1600m. Methods for calculating change varied widely. Many studies subtracted the scores at follow-up from baseline, while some studies weighted change categories, and others created composite scores based on upward or downward mobility across defined change categories. Street-level walkability improvements were modestly associated with physical activity, while increases in park area and upgrades to recreational features generally showed null associations. Subgroup analyses suggested greater benefits for urban residents, and lower socioeconomic groups. Few studies reported validation of exposure measures or conducted sensitivity analyses testing alternative spatial scales or change definitions.

Conclusion: These findings provide an initial descriptive synthesis of how BE change has been operationalized in health studies and applied to physical activity. Ongoing analyses assessing methodological strengths and limitations will be presented, with the goal of informing future environmental interventions to support physical activity and equitable urban development.

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Moving in Nature Matters: Associations between Outdoor Physical Activities and Pro-environmental Behaviours

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Purpose: Studies have shown that being active outdoors is not only associated with improved health and wellbeing but also with engagement in pro-environmental behaviours. However, it is unclear whether these co-benefits apply to outdoor physical activities undertaken in natural versus built environments. This study examined associations between outdoor physical activities undertaken in natural versus built environments and people's engagement in pro-environmental behaviours.

Methods: In 2025, a cross-sectional study using an anonymous online survey was conducted among 376 Australian adults recruited via community organisations and social media. Participants self-reported their sociodemographic characteristics, outdoor physical activities undertaken in natural environments (e.g., forest, beach, wetlands) and built environments (e.g., residential neighbourhood, downtown city areas), as well as their engagement in pro-environmental behaviours (e.g., active transport, picking up litter outdoors, recycling, reusing shopping bags, using solar, being vegetarian). Multiple linear regression was conducted to analyse associations between outdoor physical activities undertaken in natural versus built environments (i.e., predictors) and engagement in pro-environmental behaviours (i.e., outcomes). The analyses were adjusted for confounding factors (i.e., age, gender, ethnicity, education, residential remoteness, employment status, and income).

Results: Participants' mean age was 44 years, and most of them were female (66%), Caucasian (88%), lived in a major city (63%), and had a higher education (69%). Engagement in outdoor physical activities in natural environments significantly predicted engagement in more pro-environmental behaviours ($B = 0.53$, $p < .001$, 95% CI [0.32, 0.75]). In contrast, participation in outdoor physical activities in built environments was not associated with engagement in pro-environmental behaviours ($B = 0.27$, $p = .090$, 95% CI [-0.04, 0.58]).

Conclusion: The findings suggest that promoting outdoor physical activities in natural environments may positively impact people's environmental stewardship. Hence, promoting outdoor physical activities in nature may be a promising strategy to improve human and planetary health.

II-P-H.31

Physical Activity Differences Between Telework and Office Work in Combat Support Service Administrative Personnel

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Purpose: Telework has become a permanent feature of modern work arrangements, yet its impact on physical activity (PA) remains incompletely understood. This study examined differences in accelerometer-measured PA between telework and office days using a within-person design, with particular attention to commuting contributions and diurnal patterns.

Methods: Seventy-four military office workers (64 hybrid workers, 10 office-only workers; mean age 39.2±8.4 years; 58.1% male) wore wrist-worn ActiGraph GT9X accelerometers across three measurement periods, spread over a period of three months. During each measurement period, the office workers wore the ActiGraph GT9X continuously for 14 days while recording work location daily. Raw acceleration data were processed to derive the Euclidean Norm Minus One (ENMO) metric. Linear mixed-effects models compared daily PA outcomes between telework and office days in hybrid workers, with secondary analyses excluding commuting time and restricting observation windows to core working hours (07:00–15:45).

Results: Hybrid workers exhibited substantially lower PA on telework days than office days (mean ENMO: 29.8 vs. 35.2

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mg; difference: -5.4 mg, 95% CI: -6.8, -4.0; Cohen's $d=0.62$). Light-intensity PA showed the largest deficit (-42.4 min/day, 95% CI: -51.2, -33.6; $d=0.84$). Excluding commuting reduced the ENMO difference by 48.1% (to -2.8 mg) and the light PA difference by 51.7% (to -20.5 min/day). During work hours only (07:00–15:45, commuting excluded), telework remained associated with lower ENMO (-2.1 mg, 95% CI: -3.3, -0.9) and light PA (-18.3 min/day, 95% CI: -25.8, -10.8).

Conclusion: Telework is associated with reduced daily PA, driven primarily by eliminated commuting and secondarily by lower workplace-based light-intensity activity. Hybrid work policies should consider strategies to compensate for commuting-related activity loss.

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Public Support for UK Advertising Restrictions for Less Healthy Foods on Television and Online Prior to Implementation: Cross-sectional Analysis of the International Food Policy Study

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Purpose: In January 2026, the UK government implemented restrictions on advertising unhealthy foods on TV between 5:30-9:00pm and online at all times. We examined public support for the advertising restrictions prior to implementation and differences in support across sociodemographics.

Methods: Data were from the 2024 International Food Policy Study, an annual cross-sectional web-based survey conducted among adults in five countries including the UK. Respondents ($n=3,929$) were asked whether they support, are neutral or oppose a ban on advertising unhealthy foods: 1. Online; 2. On TV before 9pm. Descriptive statistics examined the weighted percentages of respondents who supported, were neutral or opposed the advertising restrictions. Weighted multinomial logistic regression models (one for each policy) examined whether policy support differed across sociodemographics.

Results: Half of respondents supported the online restrictions, 37% were neutral and 14% were opposed. For the TV restrictions, 56% supported, 31% were neutral and 12% opposed. Women were more likely than men to support than oppose the online (RRR=1.31, 95%CI: 1.06-1.61) and TV (RRR=1.44, 95%CI: 1.15-1.81) restrictions. Older respondents (vs 18-29 years) were more likely to support than oppose the online (e.g., 60+ years: RRR=4.97, 95%CI: 3.56-6.95) and TV restrictions (e.g., 60+ years: RRR=6.54, 95%CI: 4.57-9.35). Those aged 60+ (vs 18-29 years) were also more likely to be neutral than oppose the online (RRR=1.51, 95%CI: 1.09-2.11) and TV restrictions (RRR=1.55, 95%CI: 1.07-2.25). Respondents with high educational attainment (vs low) were more likely to support than oppose the online (RRR=1.34, 95%CI: 1.03-1.73) and TV restrictions (RRR=1.61, 95%CI: 1.23-2.12). Those with medium educational attainment (vs low) were more likely to support (RRR=1.45, 95%CI: 1.08-1.96) than oppose the TV restrictions.

Conclusion: Few respondents opposed advertising restrictions on unhealthy foods in the UK, suggesting public opposition was not a barrier to policy implementation. Sociodemographic differences could inform targeted messaging to increase support in less supportive groups.

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Upstream Challenges, Downstream Governance. How Dutch Municipalities Navigate Upstream Drivers of Unhealthy Food Environments

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Purpose: Unhealthy food environments are a key driver of non-communicable diseases such as obesity and type 2 diabetes. A highly concentrated food sector, corporate lobbying power, and profit-driven food production systematically shape unhealthy food environments. This study investigates how Dutch municipalities participating in the City Deal Network deal with these upstream influences in their attempts to improve local food environments. Public health's tradition of focusing on individual behavior change and local government's primary focus on social care, leaves municipalities ill-positioned to address food environments in relation to macro-economic food systems. Torfing's governance framework, which distinguishes Classic Public Administration (CPA), New Public Management

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(NPM), and New Public Governance (NPG), provides the analytical lens to examine how municipalities navigate this position. The unique intersection of macro-economic food system dynamics and local governance around food environments make a valuable contribution to our understanding of food policy governance.

Methods: We analyzed policy documents from 10 municipalities participating in the City Deal Network, including health policies, food strategies, coalition agreements, and council motions. Using a hybrid coding approach. Torfing's framework provided an initial deductive coding scheme, which was supplemented inductively with empirical patterns that extended beyond its categories. These codes revealed overarching themes about how municipalities used different governance models to address food environments.

Results: Preliminary findings suggest four themes. Municipalities operated with limited formal policy space, and their CPA output predominantly reflected authority and regulatory instruments municipalities sought and not yet processed. NPG was the dominant form of operation where collaborative networks were also used to pursue outcomes not typically associated with NPG logic. Across all governance dimensions, accountability was directed mostly upward toward legal and scientific authority.

Conclusion: Many municipalities realized that addressing food environments required more authority and legal instruments to oppose adverse influences of the food sector. In the absence of binding measures, municipalities collectively lobbied for more authority and engaged in network building, while also resorting to individual behavior change as an alternative output. This study underscores that aligning municipal responsibilities with proportional authority is a prerequisite for effective food environment governance.

II-P-H.34

Beyond the Plate: Diet Quality and Ultra-processed Food Consumption in Belgium

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Purpose: Ultra-processed foods (UPFs) dominate modern diets and are associated with poor diet quality and adverse health outcomes. Using recent nationally representative data, this study quantified UPF intake in Belgium and examined variation population subgroup, eating context, food group and overall diet quality.

Methods: Data from 2,789 individuals aged ≥ 3 years participating in the 2022–2023 Belgian National Food Consumption Survey were analyzed. Two non-consecutive 24-hour dietary recalls were collected using GloboDiet®. Foods were classified according to NOVA. UPF intake was expressed as percentage of total daily energy intake. Survey-weighted univariable analyses examined associations with sociodemographic and anthropometric indicators. Contextual patterns were explored by eating occasions and places of consumption and purchase. Associations with total energy intake and diet quality (Diet Quality Index) were estimated using survey-weighted multivariable linear regression.

Results: UPFs contributed 41.2% (95% CI: 40.4–42.0) of total daily energy intake (745 kcal/day). Intake declined with age and was highest among adolescents (52.1%) and individuals with lower educational attainment. Age, education, and region were independently associated with UPF intake, whereas sex and BMI were not. Most UPF-derived energy was consumed at home; although out-of-home meals were more UPF-dense. Higher UPF intake was associated with higher total energy intake (10% increase = +42 kcal/day), lower diet quality (1% increase = –0.16 DQI-I points), and lower fiber intake (10% increase = –0.66 g/day).

Meat and meat substitutes were the largest contributors to UPF energy (19.9%), followed by sugar and confectionery (16.2%), cakes and biscuits (15.0%), dairy products (12.3%), and non-alcoholic drinks (7.0%). Processed meat consumption accounted for nearly all (94.5%) of UPF-derived meat energy.

Conclusion: UPFs contribute substantially to energy intake in Belgium and are associated with higher energy intake and poorer diet quality. Adolescents represent a key-target group. Out-of-home eating and convenience-oriented purchase are key drivers. Major sources include processed meats, confectionery, cakes and biscuits, and sugar-sweetened beverages. These findings support targeted public health strategies such as front-of-pack labeling, taxes on sugar-sweetened beverages, portion guidance for processed meats and warning labels to guide consumers toward healthier choices.

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Awareness of the Term 'Ultra-processed Food': A Multi-country Study

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Purpose: The increasing prevalence of ultra-processed foods (UPFs) in food environments, along with rising consumption, is concerning given their association with an increased risk of several non-communicable diseases. Yet little is known about public awareness of UPFs and efforts to reduce their consumption. This study aimed to examine differences in awareness of the term 'ultra-processed food' across countries and sociodemographic groups and to assess whether awareness is associated with efforts to reduce UPF consumption.

Methods: Cross-sectional data from the 2023 International Food Policy Study were analyzed for adults (n=22,762) residing in Australia, Belgium, Canada, Mexico, the United Kingdom (UK), and the United States (US). Participants were asked about their awareness of the term 'ultra-processed food' and their efforts to reduce UPF consumption. Weighted and adjusted logistic regression analyses examined differences across countries and sociodemographic groups and associations between awareness and efforts to reduce consumption.

Results: Participants in Mexico had the highest awareness of the term 'ultra-processed food' (73.7%), followed by those in the UK (65.2%), the US (51.0%), Canada (48.8%), Belgium (46.5%), and Australia (45.1%). Awareness of the term was higher among participants with higher education in all countries, among ethnic majorities in Canada and the UK, and among younger participants in Australia and the US. Efforts to consume less UPF ranged from 51.2% in the US to 64.0% in Mexico and were greater among females and older adults (all countries) and those with higher education (all except in Mexico). Participants who reported being aware of UPF were 2.2 times more likely to make efforts to reduce their UPF consumption (AOR: 2.21, 99% CI: 2.03-2.41, p<0.001).

Conclusion: Differences in UPF awareness between countries may reflect different food environments, media environments and policy approaches to regulating UPF consumption. These results suggest that strategies to increase UPF awareness may lead to modestly greater efforts to reduce intake. To achieve meaningful population-level impact, including across all sociodemographic subgroups, complementary environmental and policy interventions are likely required.

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Neighbourhood Built-environment Typologies, Physical Activity, and Health-related Fitness by Immigrant Status in Canada

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Purpose: Immigrants are an equity-deserving population whose physical activity (PA) and health often differ from non-immigrants, with differences varying by time since arrival. Few studies, however, have assessed how associations between built environment (BE) and PA and health-related fitness compare by immigrant status. This study explored associations between neighbourhood BE typologies derived using cluster analysis and PA and fitness by immigrant status (Canadian-born, recent immigrants <10 years, established immigrants ≥10 years).

Methods: We conducted a cross-sectional analysis of multiple cycles of the Canadian Health Measures Survey linked to objective measures of walkability (Canadian Active Living Environments [Can-ALE]) and greenness (Normalized Difference Vegetation Index [NDVI]). Accelerometer-measured daily moderate-to-vigorous PA (MVPA) minutes and steps were available for 4674 adults, and VO₂max and grip strength for 3500 adults. Using k-medians clustering of dwelling density, intersection density, points of interest, and greenness, we derived neighbourhood typologies for

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~820,000 urban postal codes, yielding three types: high-walkability/low-greenness (HW-LG), moderate-walkability/moderate-greenness (MW-MG), and low-walkability/high-greenness (LW-HG). Survey-weighted linear regression models estimated covariate-adjusted associations of neighbourhood type and immigrant status with PA and fitness outcomes, including interaction terms.

Results: Relative to HW-LG neighbourhoods, residents of MW-MG and LW-HG neighbourhoods accumulated 7.2 (95%CI: -11.9, -2.4) and 9.8 (95%CI: -14.8, -4.8) fewer minutes of daily MVPA, with no effect modification by immigrant status. For steps, neighbourhood main effects were null, but immigrant status modified neighbourhood differences: the MW-MG vs HW-LG difference was ~1,960 steps/day larger in recent immigrants than in Canadian-born. Immigrant status also modified neighbourhood-VO₂max associations; among Canadian-born, VO₂max was lower in MW-MG (-1.11 mL·kg⁻¹·min⁻¹, 95%CI: -2.09, -0.14) and LW-HG (-1.72 mL·kg⁻¹·min⁻¹, 95%CI: -2.53, -0.90) relative to HW-LG neighbourhoods, with no associations evident among immigrants.

Conclusion: Walkability and greenness matter for MVPA for everyone, but steps and VO₂max vary by immigrant status, suggesting both population- and place-based strategies may be needed.

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U.S. Elementary School Recess: State Patterns and Disparities in Access and Withholding

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Purpose: National public health organizations consistently identify daily school recess as a critical contributor to children's physical activity (PA), social and emotional development, and readiness to learn. Despite the recommended 20-minutes of daily scheduled school recess, provision and withholding practices remain inconsistently documented at the state level. This study quantifies daily scheduled daily recess minutes and recess withholding practices in U.S. elementary schools (grades K-6) to understand state-level variation in recess access and implementation.

Methods: The U.S. Physical Education and Physical Activity Policy Data Analysis questionnaire was sent electronically to public elementary physical education (PE) teachers across the 50 U.S. states and District of Columbia (2022-23; 2023-24). Of those who received the survey, 4,294 consented to participate (11.1% response rate), and 3,306 completed the questionnaire (77.0% completion rate). Scheduled daily recess minutes were calculated from PE teacher-reported frequency and duration of distinct recess periods. A composite recess policy score was constructed based on provision of ≥20 minutes of scheduled daily recess and whether recess was withheld (0=< 20-minutes and withholding; 1=<20-minutes, no withholding; 2=≥20 minutes and withholding; 3=≥20-minutes, no withholding). School-level data were aggregated to the state level to calculate mean scores and SDs. Geographic variation was visualized using a state-level gradient map.

Results: Mean daily scheduled recess minutes ranged from 0.0-minutes in Delaware to 27.6-minutes in North Carolina with substantial variability across states. All but seven states (Washington DC, MS, NC, TN, TX, VA, WV) averaged less than 20-minutes per day. The national mean composite recess policy score was 1.22 (SD=1.11). State-level mean scores ranged from 0.00 in Delaware to 2.72 in North Carolina. Geographic variation in mean recess policy scores was observed across the nation, with higher scores in the Southeast and Mid-Atlantic, and lower scores in the Mountain West and Upper Midwest.

Conclusion: Findings demonstrate substantial variability in recess access and withholding practices across U.S. elementary schools. Results reflect implemented practices rather than regulatory policy alone, and highlight the importance of measuring school-level practices directly when characterizing children's access to school-based PA opportunities.

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Factors Associated with Physical Activity in Young People Exposed to Drought Conditions

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Purpose: The occurrence of natural disasters, including drought, can impact the practice of Physical Activity (PA) among adolescents, as these events often affect housing conditions, cause economic losses, increase epidemiological risk they tend to change people's lifestyles and the engagement with PA. Therefore, this study aims to identify the factors associated with Moderate-to-Vigorous Physical Activity (MVPA) during leisure time among youth exposed to drought in Pernambuco, a state in the Northeast region of Brazil, affected by drought events between 2020 and 2022.

Methods: A cross-sectional epidemiological study was conducted using secondary data (Digital Atlas of Disasters in Brazil) and primary data (adapted version of the GSHS applied selected public schools (14 to 17 years old). Poisson regression models, with robust variance, were applied to model the PA level, measured through MVPA. A analysis protocol was defined were variables from four dimensions (socioeconomic; school-related; lifestyle/health; and behavioral) were sequentially included in the models.

Results: Data from 1,969 students were analyzed. Being male (OR 1.95; 1.94; 1.78, and 1.27), being employed (OR 1.30; 1.33; 1.28, and 1.14), and regular fruit consumption (OR 1.31 and 1.23) were significantly associated with MVPA in all models in which they were included. The final model identified that enjoying PA and active leisure activities increased the probability of meeting the recommendations (OR 1.77 and 1.39, respectively); however, commuting to school by bicycle or on foot, or demonstrating low interest in being active, was negatively associated with MVPA.

Conclusion: Among adolescents exposed to drought, socioeconomic, behavioral, and personal interest factors increased the probability of meeting MVPA recommendations, while commuting on foot or by bicycle was inversely associated. These findings indicate that interventions to promote MVPA should consider the interaction between sociodemographic, contextual, and behavioral and attitudinal aspects in drought contexts. More consistent evidence will be obtained in future studies with more robust methodological designs and comparisons between different regions and periods.

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How Did the COVID-19 Pandemic Impact Intakes of Sodium, Saturated Fats, and Free Sugars in Québec, Canada? Preliminary Findings from the NutriQuébec Project

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Purpose: The COVID-19 pandemic led to multiple disruptions, resulting in small acute changes in lifestyle habits, including diet. However, longer term changes remain mostly undocumented. The purpose of this study was to examine changes in intakes of sodium, saturated fats (SFA), and free sugars between the pre-pandemic, pandemic, and post-pandemic periods among adults in Québec, Canada.

Methods: Data from the longitudinal NutriQuébec project were used. Periods were defined as pre-pandemic (06-19-2019 to 03-13-2020), pandemic (03-13-2020 to 03-12-2022), and post-pandemic (03-13-2022 to 03-12-2024). Dietary intakes were derived from multiple web-based, 24-hr dietary recalls across periods (n=1 to 12 per respondent in total). The distributions of usual intakes for sodium (mg), SFA (%E), and free sugars (%E) were estimated using the National Cancer Institute's multivariate Markov Chain Monte Carlo method with models stratified by sex. Sex-specific data were combined to observe differences between periods using regression models adjusted for age. Statistical weights were used to ensure population representativeness for age, sex, and region (metropolitan area of census or not).

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Results: Data from 3327 adults were analyzed. Sodium ($\beta=-60.2$, 95%CI: -375.1, 254.8) and SFA ($\beta=-0.71$, 95%CI: -1.44, 0.02) intakes tended to be lower during the pandemic period compared with the pre-pandemic period, whereas free sugars intakes tended to be higher ($\beta=0.44$, 95%CI: -0.75, 1.63). When comparing the pandemic and post-pandemic periods, sodium intakes tended to further decrease compared with the pandemic period ($\beta=-80.8$, 95%CI: -527.7, 366.0), whereas intakes in SFA ($\beta=0.40$, 95%CI: -0.57, 1.32) and free sugars ($\beta=1.06$, 95%CI: -1.72, 3.83) tended to increase. As such, the trajectory of intakes across periods was constantly and modestly downward for sodium, constantly upward for free sugars, and U-shaped for SFA. None of the observed changes reached statistical significance.

Conclusion: These preliminary findings from the NutriQuébec project revealed no clear change in the intake of nutrients of public health concern from the pre-pandemic to the pandemic and post-pandemic periods in Québec, Canada. Additional analyses are required to replicate and extend these findings.

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National Policies Targeting Sedentary Behavior in South America

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Purpose: To analyze policy documents specifically focused on reducing sedentary behavior in South America.

Methods: In this qualitative cross-sectional study, we obtained and analyzed the content of national sedentary behavior policies in South America. Searches were conducted on the official websites of the 12 South American countries using the terms „physical activity“ and „sedentary behavior/sedentarism“ in Portuguese, English, and Spanish. This information was supplemented by data from the Physical Activity Policy Inventory of the GoPA!. Eligibility criteria included current national-level documents linked to the health sector and specifically focused on reducing sedentary behavior. The evaluation utilized the Comprehensive Analysis of Policy on Physical Activity (CAPP) tool. Variables included policy type and scope of analysis, the latter encompassing availability and content (target audience and objective). Data extraction and analysis were performed independently by two researchers, with discrepancies resolved by a third reviewer. Finally, the results were analyzed descriptively based on the established categories.

Results: A total of 99 documents were identified, but only 3 met the stipulated eligibility criteria. In Argentina, the documents found were the „National Program to Fight Sedentarism,“ which aims to reduce the prevalence of sedentary behavior in the general population, and the „National Law to Fight Sedentarism,“ which aims to promote health through physical activity. In Brazil, however, the „Guide on the Use of Digital Devices“ was found, which intends to provide evidence-based guidance and recommendations on the healthy and balanced use of digital devices among the young population (children and adolescents). These facts illustrate that although official documents mention sedentary behavior, each addresses the topic in a different way, reflecting a lack of clarity regarding what the term actually means, which ultimately makes it difficult to understand its real impact on daily health.

Conclusion: There is a clear scarcity of policy documents specifically aimed at reducing sedentary behavior within the South American context. Furthermore, a certain confusion remains regarding its definition, which may hinder the understanding of its real impact on health outcomes, as well as the discussion and decision-making process concerning public policy proposals.

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Social Support for Physical Activity across Population-density Contexts: Associations with Recreational Physical Activity among Portuguese Adults

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Purpose: Recreational physical activity (RPA) often depends on the social environments in which people live. Social support has consistently been linked with physical activity, but less is known about how different forms of support

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operate across environments with different population densities. Drawing on a socio-ecological perspective, this study examined associations between several types of social support and RPA among Portuguese adults and explored whether these relationships differed between lower- and higher-density contexts.

Methods: Data were drawn from a cross-sectional survey of Portuguese adults aged 18–64 years ($N = 916$). RPA was assessed using the recreational domain of the Global Physical Activity Questionnaire. Perceived support for physical activity was measured using the Physical Activity Social Support Scale, which captures emotional, informational, validation, companionship, and instrumental support. Population density was used to distinguish lower- and higher-density environments. Analyses included correlations and multiple regression models, including all support dimensions alongside age, sex, socioeconomic status, and population density. Additional interaction models tested whether population density moderated associations between support and RPA. Robust (HC3) standard errors were used throughout.

Results: Participants living in lower-density contexts reported higher levels of RPA than those in higher-density contexts ($M = 7.79$ vs 6.27 ; $p = .05$). All forms of social support were positively related to RPA ($r = .26-.46$), with informational ($r = .46$) and companionship support ($r = .39$) showing the strongest correlations. In adjusted regression models ($R^2 = .257$), informational support ($\beta = .307$, 95% CI [.229, .384]) and companionship support ($\beta = .175$, 95% CI [.089, .262]) remained significantly associated with RPA, while population density showed a small negative association ($\beta = -.096$, 95% CI [-.157, -.034]). Interaction terms between support and density were not statistically significant (all $p > .29$). Stratified models, however, indicated that emotional support was additionally associated with RPA in lower-density contexts ($\beta = .141$, 95% CI [.040, .242]).

Conclusion: Informational and companionship support showed the most consistent associations with recreational physical activity. Although population density did not significantly moderate these relationships, patterns across environments suggest that social support mechanisms may operate somewhat differently across contexts.

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I-P-I.01

The Cost and Affordability of Recommended Healthy Diets Compared to Current Dietary Intakes around the World: A Systematic Review and Meta-analysis

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Purpose: This study consolidated research from around the world that compared the costs of healthy eating to typical diets to observe and quantify the difference in the cost and affordability of healthy and typical diets.

Methods: Following PRISMA 2020 guidelines, Medline, Web of Science, and Embase were searched for relevant articles published between 01 January 2015 and 22 August 2025. Included studies measured the costs of healthy and current diets within a region. Healthy diets were defined as government-developed food-based or clinical dietary guidelines. Studies were excluded if they compared costs across regions or priced diets for unhealthy individuals. Study characteristics, diet definitions and cost estimation method, household income, food basket contents, and diet cost were extracted from included articles by two independent reviewers. Meta-analyses will include pooling cost and affordability of diets at the country level using inverse-variance weighting, and a random-effects model will account for heterogeneity in the cost and affordability estimates across regions. Subgroup analyses will be performed by country income level as classified by the World Bank and the costing method of diets. Heterogeneity will be assessed using the I² statistic.

Results: Of the 1,760 studies screened, 23 studies from 18 countries met the inclusion criteria. Healthy diets were more expensive than current diets in 9 countries, whereas the opposite was observed in 4 countries, and 5 countries had mixed results or no substantial differences. Healthy diets tended to cost less than current diets in middle-income countries (2 out of 6 countries), while high-income countries showed the opposite trend (healthy diets cost more in 5 out of 9 countries). Diet cost calculations using market prices generally indicated that healthy diets were cheaper, whereas secondary data sources such as national expenditure surveys tended to show healthy diets as more expensive.

Conclusion: Although healthy diets were generally more expensive than current diets, the foods included in “healthy diets” affected the magnitude and direction of the cost differences. The findings underscore the need for regionally-specific economic policies that make nutritious foods more affordable to reduce financial barriers to adhering to healthy diets and promote nutrition equity around the world.

I-P-I.03

Socioeconomic Deprivation Overrides Built Environment: A Bayesian Spatial Analysis of Food Environments, Physical Activity Infrastructure, and Social Context on Chronic Disease Patterns in Mexico City

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Purpose: To examine how the nutritional healthfulness of formal and informal food environments influences neighborhood-level risks of chronic disease and multimorbidity in Tlalpan, Mexico City; and (2) to assess the extent to which sociodemographic, physical activity infrastructure, and environmental factors mediate these associations across local urban contexts.

Methods: We conducted an ecological study using clinical records from 15,676 adults residing in 177 neighborhoods of Tlalpan, Mexico City. Utilizes multi-source data, including clinical records, official economic directories, satellite imagery, and validated field surveys (Street Food and Beverage Tool). Bayesian spatial models (Besag-York-Mollié 2 specification) were fitted under Poisson and Negative Binomial assumptions, with model selection based on DIC and WAIC. Relative risks (RR) were estimated for individual NCDs and multimorbidity in relation to build food environment indicator: healthy food outlets, unhealthy food outlets, healthy street food, and unhealthy street food, physical and environmental environment indicators: enhanced vegetation index, green areas, the sports and cultural facilities, and private gyms. Finally, socioeconomic environment indicator.

Results: The Poisson model with covariates yielded the best fit. The Social Development Index exhibited a strong,

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protective association against all chronic, from 31 to 51% reduced risk. Paradoxically, greater distance to healthy food outlets (RR range: 1.29–1.46) and proximity to private gyms (RR range: 1.24–1.35) were associated with increased disease risk. Spatial analysis revealed that disease and multimorbidity concentrated in the southern, peri-urban, and socioeconomically disadvantaged areas.

Conclusion: Our findings challenge the notion that the mere presence of health-promoting resources such as green areas, recreational spaces, and public sports facilities is a sufficient indicator of the health of the population in segregated cities. Socioeconomic deprivation is the main determinant of spatial inequalities in chronic diseases in Mexico City. Public health interventions should be spatially targeted and focus on both improving food environments and reducing socioeconomic inequalities.

I-P-I.04

Equity-focused Individual Participant Data Meta-analyses of Randomised Controlled Trials: A Review of Current Practices

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Purpose: Individual Participant Data Meta-Analyses (IPD-MAs) offer opportunities to assess differential intervention effects across socio-demographic groups, enabling more targeted and equitable health recommendations. Yet, to date no guidance exists on how to best use IPD-MA for health-equity related research. This study aims to examine how IPD-MAs with a health equity focus have been conducted, including which equity-related variables they assessed and how they incorporated socio-demographics.

Methods: We conducted a systematic search of medical databases from inception until February 2024 for all IPD-MAs of randomised controlled trials (RCTs). We assessed, which of these have a health-equity focus, defined as examining differences in health outcomes or access to healthcare across socio-demographic groups, as aligned with PROGRESS-Plus. We are extracting their study characteristics, equity-related variables, and methods used to assess equity. Screening and data extraction is conducted in duplicate using Covidence.

Results: We identified 284 IPD-MAs of RCTs. Of those, 40 (14.08%) were classified as having a health equity focus. Early findings suggest studies vary in their focus, including variables such as income, education, race/ethnicity, and geographical location. Data extraction is ongoing; however, initial findings suggest high variability in how equity is defined and assessed along with challenges in harmonising equity-related variables. We identified several IPD-MAs that assessed nutrition, physical activity, or sedentary outcomes in conjunction with health equity.

Preliminary extraction of included studies showed that socio-demographic variables such as income, education, race/ethnicity, and geography were inconsistently defined and harmonised. Subgroup analyses and stratified modelling methods were commonly used for equity related variables.

Conclusion: This study highlights the emerging but inconsistent use of equity-focused approaches in IPD-MAs, including in the fields of diet, nutrition and activity. This underscores the need for standardisation in reporting and analysis across these behavioural domains. Preliminary insights indicate real-world applications in obesity prevention, lifestyle modification, exercise, and device-facilitated activity. Findings will inform methodological guidance to foster more inclusive evidence synthesis and better-targeted public health recommendations and practice.

I-P-I.05

Quadruple Burden of Young Child Malnutrition in the Children's Healthy Living Program, US Affiliated Pacific

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Purpose: To examine the quadruple burden of malnutrition in children of the US affiliated Pacific (USAP) region.

Methods: 3480 children from the USAP region (Hawai'i, Alaska, Guam, Commonwealth of the Northern Mariana Islands, American Samoa, the Republic of Palau, the Republic of the Marshall Islands, and the Federated States of Micronesia, FSM). Jurisdictions were categorized according to the World Bank income categories of lower middle

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income (FSM), upper middle income (American Samoa, Palau, RMI), and high income (Hawai'i, Alaska, Guam, CNMI). Prevalence of population indicators of malnutrition were evaluated – 1) obesity, 2) stunting 3) dietary micronutrient inadequacy, and 4) dietary micronutrient excess. Micronutrients of regional and global importance were examined (vitamin A, vitamin D, vitamin E, niacin, folate, calcium, sodium iron, and zinc). Prevalence of composite (of all studied nutrients) dietary micronutrient inadequacy and excess was also evaluated.

Results: Across the region, there was at least 5% of each type of malnutrition. Mean prevalence of stunting was 6.6%; varying from American Samoa at 1.0% to a high in the Marshall Islands of 26.8%; and of obesity was 13.6%, ranging from a low in the Marshall Islands of 0% to a high in American Samoa of 25.4%. Composite prevalence of (any of the 6 studied) micronutrient inadequacies was 98.1%, driven by dietary Vitamin D inadequacy (96.0%). Composite prevalence of micronutrient excess was 96.2%, driven by sodium excess (92.4%). Among jurisdictions, Kosrae state, FSM, had the highest prevalence of any micronutrient inadequacy at 100%, for Vitamin D. American Samoa had the lowest composite prevalence at 91.6%, again driven by vitamin D. Among all jurisdictions, composite prevalence of micronutrient excess ranged from a low of 77.1% in Chuuk, FSM, to a high in American Samoa of 99%, both mostly driven by excess sodium at 97.8%. Some jurisdictions had a similar prevalence of composite micronutrient inadequacy and excess (eg. Palau, 98.2% and 92%, respectively).

Conclusion: Dietary micronutrient inadequacy and excess are the most prevalent forms of malnutrition. Upper middle-income jurisdictions had the heaviest quadruple burden of malnutrition. Nutrition promotion should focus on healthy diets, especially in regions undergoing a nutrition transition.

I-P-I.06

“The Guilt Just Sits Heavily in my Heart”: Parents’ Experiences of Feeding a Child with Avid Appetite in the Context of Food Insecurity

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Purpose: The number of families living with food insecurity, the limited or uncertain access to an adequate and stable source of food, has been on a steady rise in the UK. Food insecurity is particularly prevalent in young children with avid appetite profiles, characterised by high food responsiveness, emotional eating and enjoyment of food alongside low satiety responsiveness. Families facing food insecurity often report making difficult choices that lead them to opt for cheaper, energy-dense foods, leaving children in this population more vulnerable to developing obesity or overweight. Furthermore, higher adiposity is associated with both food insecurity and avid appetite. This study aimed to explore caregivers’ experiences of feeding children with avid appetites within food-insecure households, to understand parents’ perceptions of their child’s appetite, how their appetite influences feeding, and to identify the challenges around feeding for these families.

Methods: Ten semi-structured interviews were conducted online with parents of children aged 5-9 years who reported their child had a high interest in food and who were experiencing financial difficulties. Data were analysed using reflexive thematic analysis.

Results: Four core themes were identified. ‘Children’s Avid Appetites: Persistent and Unpredictable’ captures descriptions of children’s heightened and unpredictable appetites. ‘Feeding in the Context of Scarcity: Trade-offs, Control and Survival’ outlines how parents balanced avid appetites with limited resources. ‘Feeding as Emotional Work: Stress, Guilt and Mental Load’ illustrates how the cognitive and emotional labour of feeding is intensified when managing a stronger appetite under scarcity. Finally, ‘Support and Barriers: Making Feeding Easier’ outlines support services parents used to make feeding easier, as well as suggestions for other forms of support that could be helpful for others in their position.

Conclusion: This novel investigation highlights that food insecurity and appetite traits cannot be understood in isolation but that they intersect in ways that shape both children’s eating behaviours and parents’ emotional wellbeing. This information will help tailor interventions targeting parental feeding practices as a method to support healthy child eating behaviour, ensuring a wide reach and avoiding the exacerbation of health inequalities.

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I-P-I.07

Barriers and Facilitators of Extracurricular Physical Activity among School-aged Children in Mexico

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Purpose: Limited evidence exists on the opportunities for children in low- and middle-income countries to engage in extracurricular physical activity. This study aims to explore the main perceived barriers and facilitators influencing extracurricular physical activity among school-aged children in Mexico, taking into account the perspectives of children, teachers, head teachers, and parents.

Methods: A multi-method cross-sectional study was conducted, grounded in the qualitative part by a phenomenological approach. It included six focus groups among children aged 9–12 years, six focus groups with parents, ten individual interviews with parents, twelve interviews with teachers, and six with head teachers across Campeche, Morelos, and the State of Mexico, Mexico. Data were analysed using inductive thematic analysis supported by NVivo software, and categorical data were examined through descriptive statistics.

Results: The study findings were organized into three main themes: (1) how children use their time outside school, (2) the places they have access to, and (3) the social environment surrounding out-of-school physical activity. Results indicate that children in Mexico tend to spend their free time engaging in screen-based activities, working, doing household chores, or participating in unstructured physical activity primarily at home, rather than playing sports or being active outdoors. Key facilitators identified included family support, enjoyment of physical activity, availability of programs and facilities, time, living in housing complexes with open common areas, and favorable weather. Nearly 70% engaged in physical activity, however, none of the children reported having been offered extracurricular activities by the school. Fewer than 30% of children participated in extracurricular physical activities within their neighborhoods. More children walked than cycled to and from school. Additionally, those living in urban areas spent approximately three times more time at home compared to children living in coastal areas.

Conclusion: Extracurricular physical activity is not provided by schools for Mexican children; therefore, they rely on their families to participate in structured extracurricular physical activities. The school and neighborhood environments present challenges in providing opportunities for physical activity outside the school day. Policies aimed at promoting children's health and well-being should include school-based extracurricular physical activity programs that support children's health and safety.

I-P-I.08

Community Structures That Facilitate or Hinder Obesity Prevention: A Photovoice Study in Urban and Rural Areas of Low Socioeconomic Status

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Purpose: Structures within local environments create both opportunities and barriers for healthy living and obesity prevention. Within the *Improve Equity (IM-EQ)* project, we compared how residents and stakeholders in a metropolitan city and a small rural community with low socioeconomic position (SEP) identify, value, and access local environmental features that either support or hinder a physically active lifestyle and healthy diet.

Methods: Two Photovoice studies were conducted using the same protocol. Stakeholders and citizens from the city districts with low-SEP (Wrocław Nadodrze, Wrocław Olbin, Poland; N = 22) and N = 18 participants from low-SEP rural area (Miejska Gorka, Poland) were enrolled. They photographed local structures and provided short narratives specifying location, type, contribution to health, users, access, and need. Descriptive and thematic analyses were used, and district maps visualized spatial distributions.

Results: Across both locations, physical spaces and social connectedness dominated as structures facilitating obesity prevention. In the urban setting, 55 photographs were obtained: 26 physical spaces/landscapes, 19 services/institutions, 6 community groups/associations, 2 cultural/social events, and 2 elements of the local economy. In the

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rural setting, 52 photographs were produced: 25 physical spaces/landscapes, 12 community groups/associations, 7 services/institutions, 4 individuals (e.g., local leaders/sports animators), 2 cultural/social events, and 2 economy-related items. Similarities included the high value assigned to public green areas and trusted local leaders as key enablers of community participation. Differences emerged in perceived barriers: urban participants emphasized spatial inequities and access barriers between neighborhoods, while rural participants highlighted reliance on informal support networks, fewer institutional options, and transport limitations. The maps of facilitating structures in both sites revealed clustering near schools, parks, and civic hubs, with “asset deserts” in peripheral areas.

Conclusion: Photovoice was perceived by the stakeholders as supporting reflection on community resources and agency in local planning. The comparison shows shared foundations (green space, social ties) but context-specific barriers (infrastructure gaps in rural areas vs. within-city inequities in urban districts). These insights can inform context-sensitive, equity-oriented strategies for obesity prevention and health promotion across low-SEP communities.

I-P-I.09

Food Expenditure, Consumption and Sociodemographic Characteristics of Households According to their Affordability of a Healthy Food Basket in Uruguay, a High-income Latin American Country

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Purpose: Evidence on the relationship between economic disparities in access to healthy foods and food consumption patterns is still scarce. In this context, the present study aimed to analyze households' food expenditure, consumption and sociodemographic characteristics according to their capacity to acquire a Healthy Food Basket (HFB) in Uruguay, a high-income Latin American country.

Methods: The database from the National Survey on Household Expenditure and Income (2016-2017) was used (n=6889). The HFB was constructed based on linear programming for a representative individual of the population, considering their nutritional needs, their food consumption patterns and the recommendations from the national dietary guidelines. It is composed of 69 unprocessed, minimally processed and processed foods and beverages. Households were grouped according to quintiles of income share needed to acquire the basket. For each household group, their monthly per capita expenditure and daily per capita consumption of food groups were estimated, as well as their main sociodemographic characteristics. Welch's ANOVA and Pearson's Chi-square tests were conducted to analyze mean and proportion differences, respectively. A significance level of 5% was used. Analyses were performed using R software.

Results: The income share needed to acquire the HFB (mean=26.5%, median=19.6%) differed among household quintiles ($p<0.05$). Lower capacity to access the basket, i.e., greater income share needed to acquire it, was associated with lower average expenditure on foods and beverages ($p<0.05$), and lower expenditure and consumption of fruits, vegetables, fish, meat, eggs, and ultra-processed foods ($p<0.05$). Despite the average expenditure on cereals being not statistically different among quintiles, their consumption was higher among households with lower affordability of the basket ($p<0.05$). Rates of poverty, unemployment, participation in social protection programs and children or adolescent members were higher among households with lower affordability of the basket ($p<0.05$).

Conclusion: Difficulties in economic access to healthy foods in the country hinder the accomplishment of the right to food and well-being. Households with lower capacity to purchase the basket displayed poorer dietary patterns and greater socioeconomic deprivations, highlighting associations between affordability of healthy foods, socioeconomic inequalities, and health-related behaviors.

I-P-I.10

Differences in Domain-specific 24-hour Compositional Physical Behaviors across Occupational Groups

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Purpose: Physical behaviors (physical activity, sedentary behavior and sleep) are linked to health and together comprise the 24-hour day. The 24-h physical behavior compositions of working-aged adults might vary due to occupations. Previous research has mainly focused on whole 24-h periods, and less on domain-specific qualities of physical behaviors. We aimed to examine if working-aged adults' compositional 24-h physical behaviors differ among white-and blue-collar groups in work and leisure domains, when occupational skill level is also considered.

Methods: The study population consisted of 2805 adults from the NFBC1966 46-year follow-up study. The participants wore an accelerometer on hip for 14 days. Accelerometry data on waking physical behaviors (light physical activity, moderate-to-vigorous physical activity, and sedentary behaviors) was combined with self-reported diary data on time in bed and work durations. Participants' occupational status was retrieved from national registries in accordance with ISCO-08 and classified into white-and blue-collars and further by occupational skill demands (high vs. low). Means of time spent on physical behaviors during workdays (including working hours and leisure time separately) and non-workdays were calculated for all participants and scaled to 24-h, followed by geometric mean-, log-ratio- and bootstrapped 95% confidence interval calculations for each group. These values were then reported relative to the low-skill blue-collar group to compare the 24-h physical behavior compositions between occupational groups during both workdays and non-workdays.

Results: 24-h physical behaviors differ substantially within occupational groups. The most profound group differences occur during workdays, as high-skill white-collar workers spend the least time in moderate-to-vigorous physical behaviors (log ratio -0.81, 95% CI: -0.86, -0.76) and most time sedentary (log ratio 0.37, 95% CI: 0.33, 0.41) during working hours. During leisure time, high-skill white-collar workers spend the most time in moderate-to-vigorous physical behaviors (log ratio 0.26, 95% CI: 0.18, 0.34). The only significant difference between the groups during non-workdays was observed in high-skill white-collar workers time spent on more moderate-to-vigorous physical behaviors (log ratio 0.15, 95% CI: 0.07, 0.22).

Conclusion: Our findings indicate that 24-h physical behaviors of working-aged adults during workdays are significantly affected by their occupations. Physical activity recommendations for working-aged adults should acknowledge occupational physical demands.

I-P-I.11

Socioeconomic Inequalities in Ever Breastfeeding among U.S. Children Aged 0–6 Years: NHANES 2017–2023

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Purpose: Breastfeeding is a key determinant of infant and early childhood health, yet persistent socioeconomic and racial disparities may limit its benefits for vulnerable populations. This study examined the association between socioeconomic status (SES) and ever breastfeeding among U.S. children aged 0–6 years using recent nationally representative data.

Methods: We combined data from the 2017–2020 pre-pandemic and 2021–2023 continuous cycles of the National Health and Nutrition Examination Survey (NHANES). The analytic sample included 2835 children aged 0–6 years with valid breastfeeding and SES data. Ever breastfeeding (yes/no) was assessed. SES was measured using the family poverty-income ratio and categorized as low (<1.3), middle (1.3–3.5), and high (≥3.5). Survey-weighted descriptive statistics and multivariable logistic regression were conducted using the NHANES complex design (strata, PSU, and combined 6-year interview weights). Models adjusted for child age, sex, race/ethnicity, and birth weight.

Results: An estimated 81.3% (95% CI: 78.9;83.7) of U.S. children aged 0–6 years had ever been breastfed, while 18.7% (95% CI: 16.3;21.1) had never been breastfed. Ever breastfeeding increased markedly with SES: 69.6% (95% CI: 65.4;73.8) in low-SES, 81.7% (95% CI: 78.2;85.2) in middle-SES, and 90.0% (95% CI: 87.2;92.8) in high-SES households. In adjusted models, higher SES was strongly associated with breastfeeding; a higher poverty-to-income ratio was associated with 46% higher odds of ever breastfeeding (aOR = 1.46, 95% CI: 1.34;1.59). Older child age was associated with slightly lower odds of ever breastfeeding (aOR = 0.87, 95% CI: 0.78–;.98). Non-Hispanic Black children had significantly lower odds compared with Mexican American and White children, while no significant differences were observed by child sex or birth weight.

Conclusion: Socioeconomic status is a strong predictor of breastfeeding initiation among U.S. children, with substantial gaps between low- and high-income households and race. Persistent socioeconomic and racial inequities highlight the need for targeted, equity-focused breastfeeding support policies and programs to reach low-income and historically marginalized families. Addressing these disparities through culturally responsive and income sensitive interventions is crucial for advancing breastfeeding equity in the U.S.

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I-P-I.12

Participatory Health Assets Mapping as the First Step in Equitable Obesity Prevention Policies: Insights from Rural and Urban Municipalities with Low Socioeconomic Position

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Purpose: This study aimed to develop and pilot-test a protocol for local asset mapping exercise: an engaging, empowering, and context-sensitive participatory process for identifying and quantifying social and environmental health assets that support healthy living in communities with low socioeconomic position (SEP). The process involves stakeholders and citizens investigating together their local community needs. In particular, they researched what the assets are and where they are located, who benefits from these assets, how accessible they are, and how well they respond to local needs.

Methods: A participatory design was applied to develop a protocol and achieve the aims of the study. Two workshops and research-related tasks between the workshops were conducted.

In low-SEP communities in one rural and one urban community. In both locations, residents, healthcare and education specialists and practitioners, and local government representatives were recruited (N = 20 in urban and N= 18 in rural location). Three main activities were implemented:

- World Café (Workshop 1): Participants co-created shared definitions of health-related concepts to build a common understanding of “health” and “well-being.”
- Conscious Community Walk (drift; research activity): Participants identified and recorded health-promoting resources such as people, organizations, institutions, public spaces, cultural activities, and economic elements.
- Collaborative Mapping (Workshop 2): Each identified asset was classified into predefined categories and quantified. Numerical data (counts and frequencies of assets by type and location) were summarized. A geographic map with respective structures was developed and retained in a local community center.

Results: A total of 61 health assets were identified and rated as most important for the local community. In urban location, 20 key assets were mapped, predominantly institutional and service-based structures (e.g., schools, NGOs, sports centers, and cultural centers). In rural location, 41 assets were identified, mainly environmental and social (e.g., green spaces, local leaders, neighborhood networks). Post-workshops evaluations indicated that the process was perceived as inspirational and empowering.

Conclusion: The combination of participatory engagement with quantitative mapping enabled communities to co-produce evidence-based inventories of local resources, and triggered stakeholders’ planning of obesity-related policies. These findings provide a foundation for planning equitable, place-based obesity prevention policies and increase community engagement.

I-P-I.13

Surviving the City: Food and Nutrition Inequalities among Child-headed Households in Korogocho Informal Settlement, Nairobi

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Purpose: Child-headed households (CHHs), an emerging yet under-recognized crisis in urban informal settlements across Sub-Saharan Africa, represent one of the most invisible yet vulnerable populations within urban food systems. Defined as households without an adult caregiver and led by the eldest child, CHHs often arise due to orphanhood, parental illness, incarceration, poverty, conflict, or displacement. This study examined the socio-economic determinants of food and nutrition insecurity among CHHs living in Korogocho, an informal settlement in Nairobi, Kenya. It aimed to identify key barriers, coping strategies, and opportunities for strengthening inclusion in urban food systems.

I. SOCIO-ECONOMIC INEQUALITIES

Methods: A qualitative dominant mixed-methods design was employed to explore the lived experiences of food insecurity. A sample of 10 Children Heading Households (aged 10–17) and local stakeholders was engaged. Data collection involved Needs assessment surveys, focus group discussions, and participatory mapping of food access points. The study applied thematic analysis to qualitative data and descriptive statistics to household-level food security and diet diversity indicators. Stakeholder consultations were conducted to validate findings and co-develop potential interventions.

Results: Analysis revealed that 73% of CHHs experienced severe food insecurity, often skipping meals or relying on low-cost street foods. Lack of adult support, high food prices, and competing priorities such as rent and school fees were dominant stressors. Gendered differences emerged in both social risks and survival strategies, with female CHHs facing risks of sexual exploitation, sex-for-food trade and teenage pregnancies, while male CHHs used drugs and joined gangs for food and protection. For survival, female CHHs engaged in caregiving and small-scale vending, while male-headed CHHs undertook casual labor. Despite challenges, participants displayed agency through urban farming, informal food vending, and peer support networks. Exclusion from existing nutrition and social protection programs emerged as a major structural barrier.

Conclusion: CHHs in Nairobi's informal settlements experience multidimensional inequalities that heighten their food insecurity. Addressing their needs requires explicit policy recognition of CHHs as a distinct demographic group and integrating them into social protection programs and urban food systems strategies. Strengthening youth-responsive, nutrition-sensitive interventions can advance equity and build resilience within Kenya's urban food systems and urban poor communities.

I-P-I.14

Barriers to Nutrition Security among Adults with Uncontrolled Type 2 Diabetes: Qualitative Findings from the LINK Trial

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Purpose: Nutrition security is an emerging concept that reflects access to nutritious foods and the conditions that enable health equity. Despite growing attention, limited research explores how individuals with chronic disease experience and navigate barriers to nutrition security in daily life. This qualitative study examined these barriers among adults with uncontrolled Type 2 diabetes (T2D) participating in the LINK trial, a pragmatic, community-based randomized controlled trial addressing food insecurity and diabetes management through layered interventions.

Methods: LINK employs a 2x2 factorial design to evaluate multi-level strategies that address food and nutrition security among adults with T2D at risk of food insecurity in a Midwestern city. All participants receive weekly produce through the Mid-Ohio Farmacy (MOF), a produce prescription program distributing fresh produce via community food pantries. Participants are randomized to one of four arms: (1) MOF only; (2) MOF plus Cooking Matters for Diabetes (CMFD), a six-week culinary and diabetes self-management program; (3) MOF plus Health Impact Ohio (HIO), a community health worker model addressing social needs; or (4) MOF plus both CMFD and HIO. We conducted ~30-minute semi-structured interviews with 25 participants purposively recruited from all four study arms at their 3-month follow-up visit. To support the process of thematic analysis, a codebook was developed based on the two-item Nutrition Security Screener and organized using the domains of the Social Ecological Model, then refined inductively via iterative transcript review and applied consistently across transcripts.

Results: Most participants were female (72%), non-Hispanic Black (76%), and aged ≥50 years. Analysis identified four themes: structural barriers (e.g., non-inclusive food environments), competing constraints (e.g., unstable housing, work demands), individual-level challenges (e.g., health conditions, stress, unmet dietary needs), and barriers to self-efficacy and information gaps (e.g., limited foodwork-related skills, confusion about resources).

Conclusion: Barriers to nutrition security span structural, social, and individual domains that compound among individuals managing chronic disease and unmet social needs. Findings highlight the need for sustained, practical interventions, such as those tested in LINK, that build health-related autonomy, improve self-efficacy, and address competing life demands to promote nutrition security in real-world settings.

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I-P-I.15

Process Evaluation of the ProMIO Program: A Culture-sensitive Lifestyle Intervention for Non-western Migrant Older Adults

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Purpose: As the proportion of older adults continues to rise, the risk of sarcopenia - defined as the progressive loss of muscle mass, strength, and physical function - poses an increasing public health challenge. Lifestyle interventions combining physical activity with adequate dietary protein intake can counteract sarcopenia. Yet, most community-based programs lack cultural sensitivity, limiting their reach among non-Western migrant populations who are particularly vulnerable to functional decline. The ProMIO program was developed as a culture-sensitive lifestyle intervention integrating resistance exercise and dietary counseling, tailored to the cultural and nutritional context of these older adults. While the randomized controlled trial demonstrated improvements in physical performance (Biersteker et al., 2025), this study evaluated the implementation process and explored barriers and facilitators for sustainable adoption of this intervention in practice.

Methods: A mixed-methods process evaluation was conducted among 35 intervention participants (mean age 66±7 years). Twenty-seven participants completed a process questionnaire, and 21 took part in focus groups. An additional focus group was held with professionals, including four dietitians, three physiotherapists, and one trainer. Quantitative data on adherence and satisfaction were analyzed descriptively to assess population reach and engagement. Qualitative data were transcribed and thematically analyzed in MAXQDA, guided by the RE-AIM dimensions: Reach, Effectiveness, Adoption, Implementation, and Maintenance.

Results: Reach was supported by community-based recruitment through trusted local networks, leading to good accessibility and adherence. Participants and professionals perceived the intervention as valuable and motivating. Qualitative findings supported the quantitative results (median [IQR] total intervention score = 8.5 [1.0]). Key facilitators for adoption and implementation included group-based exercise sessions, interprofessional collaboration, personalized feedback, and increased lifestyle awareness among participants. Barriers involved limited integration of culture-specific dietary practices and challenges with home-based exercise adherence due to low motivation. These factors influenced both implementation quality and perceived effectiveness.

Conclusion: ProMIO was well received and supported meaningful lifestyle changes among non-Western migrant older adults. For long-term sustainability, stronger cultural adaptation and enhanced support for home-based exercise are recommended to improve the efficacy and scalability of this intervention in community settings.

I-P-I.16

Integrating Prenatal Care with Food Provision and Education Impacts Food Insecurity, Even in Communities with High Deprivation

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Purpose: Food insecurity and high community-level deprivation are mutually reinforcing challenges that contribute risk to adverse perinatal outcomes. We examine whether integrating prenatal care with a community food provision program and/or telehealth nutrition education protects against food insecurity.

Methods: A randomized controlled trial at Geisinger Health (Pennsylvania, USA) in 2024 enrolled pregnant patients with household income <185% federal poverty level. Participants were randomly assigned to models: Clinic (usual prenatal care); Clinic-WIC (referral to the Special Supplemental Nutrition Program for Women, Infants and Children); Clinic-RDN (referral to Registered Dietitian/Nutritionist); Clinic-WIC-RDN. Self-reported household food security (USDA

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6-item) was assessed by study questionnaire. Changes in food insecurity (low/very low food security) from baseline to 6-month follow-up and across models were compared using GEE regression. This model was adapted to evaluate association of change in food security with area deprivation index (ADI, Neighborhood Atlas). Trial Registration: NCT06311799.

Results: Among 240 participants, the mean (Standard Deviation [SD]) age was 29.2 (6.1) years, 65% were white, 14% black, and 12% Hispanic. Participants enrolled at 17+6 weeks gestation and most lived in communities with high/very high ADI. Food insecurity prevalence was similar at baseline: Clinic model 59%; Clinic-WIC model 40%; Clinic-RDN model 55%; Clinic-WIC-RDN model 44%. At 6-month follow-up, participants experienced significant decreases in food insecurity, but there were no statistically significant differences between models. The absolute difference in food insecurity from baseline to 6-month follow-up in the Clinic model was -14.6% ($p=0.029$); Clinic-WIC model was -4.2%; Clinic-RDN model was -19% ($p=0.016$); Clinic-WIC-RDN model was -15.9% ($p=0.0049$). Among participants in communities with very high deprivation (decile 9-10), food insecurity decreased by 21% ($p=0.031$), from 51% at baseline to 30% at follow-up whereas small decreases (47% to 41%) were observed among those areas with less deprivation (deciles 0-8).

Conclusion: Prenatal care, usual or enhanced with a nutrition expert via telehealth, emerged as promising models to reduce food insecurity. The impact of food provision on food insecurity was inconsistent, potentially explained by adherence. Women living in communities where adverse social exposomes present risk experienced reduced food insecurity. Further research is needed with larger sample sizes and adequate statistical power to confirm findings.

I-P-I.17

Social and Physical Environmental Correlates of Movement Behaviors, Body Weight Status, and Well-being among Adolescents in Nigeria: A YoPA Project Narrative Review

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Purpose: Nigeria is experiencing rapid urbanization and a chronic disease epidemiological transition, with adolescents increasingly affected by physical inactivity, sedentary behavior, overweight and obesity, as well as mental health challenges. While evidence supports the importance of social and physical environmental factors in improving adolescents' health, understanding these issues among Nigerian adolescents remains limited. This narrative review aims to synthesize findings from available literature on social and physical environment correlates of movement behaviors, body weight status, and well-being among adolescents in Nigeria.

Methods: We searched electronic databases for original research articles, published prior to January 2025, on socioenvironmental factors and movement behaviors and health among Nigerian adolescents (aged 10-20 years). Each study underwent screening and data extraction by two reviewers. Study quality was assessed with the modified Downs and Black checklist, and data were analyzed using narrative synthesis.

Results: A total of 25 articles met the inclusion criteria, all of which were cross-sectional studies. The review suggests that social class, school settings, peer relationships, family structure, electronic device use in the bedroom, neighborhood walkability features, availability of open recreational spaces, and urbanization are important socioenvironmental factors related to multiple movement behaviors and health outcomes among Nigerian adolescents. Some of these relationships were modified by gender and socioeconomic status.

Conclusion: The evidence highlights the need for context-specific interventions and more longitudinally designed research that incorporates socioenvironmental factors to promote healthier lifestyle movement behaviors, and enhance health and overall well-being among Nigerian adolescents.

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I-P-I.18

Intersection of Gender and Socio-economic Status and Engagement in Physical Activity among Adolescents Living in European Union Member Countries

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Purpose: To identify the associations of the intersection of gender and socio-economic status (SES) with no or low moderate to vigorous-intensity physical activity (MVPA).

Methods: We used cross-sectional data from the 2018 Health Behaviour in School-aged Children (HBSC). HBSC is a World Health Organisation collaborative cross-national study that uses a self-reported questionnaire to collect data on adolescent health and well-being. Gender, SES, and no or low MVPA were self-reported. SES information was collected using the Family Affluence Scale III. The threshold of ≤ 1 day/week of 60 min/day of MVPA was used to categorise those with no or low MVPA. Weighted relative frequencies were calculated using the 'survey' package. The 'svyglm' function, from the 'survey' package, was used to fit Poisson regression models accounting for sample weights. The 'InteractionR' package was used to calculate interactions. All analyses were conducted using R Studio Software.

Results: We analysed data from 25 out of 27 European Union member countries. The final sample was composed of 117,496 adolescents (50.9% girls, average age of 13.5), and 11.7% of the participants reported no or low MVPA. Boys with medium and low SES presented a probability of no or low MVPA 48% and 114% higher than boys with high SES, respectively [Boys with medium SES, PR: 1.48 (1.37;1.59); Boys with low SES, PR: 2.14 (1.97;2.33)]. The probability of no or low MVPA was, respectively, 35%, 91%, and 186% higher for girls with high, medium, and low SES than the probability observed for boys with high SES [Girls with high SES, PR: 1.35 (1.23;1.47); Girls with medium SES, PR: 1.91 (1.78;2.06); Girls with low SES, PR: 2.86 (2.65;3.08)]. Additive interaction analyses revealed that the PR observed for being a girl with low SES was greater than the sum of the estimates of being a girl and having low SES alone [RERI: 0.36 (0.19;0.53)]. Country-level inequalities were also observed.

Conclusion: Physical activity, even considering its minimal uptake, is a behaviour unequally distributed across different intersections of gender and SES among European adolescents. Girls from low socioeconomic backgrounds should be the priority in strategies for promoting physical activity.

I-P-I.19

Demographic and Socioeconomic Factors Associated with Food Insecurity in Urban Alaska Families

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Purpose: Examine demographic and socioeconomic characteristics associated with food security status among households with young children in urban Alaska. The identified correlates of food insecurity provide locally-relevant insight for public health, policy, and food assistance efforts in the communities where most Alaskans reside.

Methods: Secondary cross-sectional analysis used data from Fairbanks, Matanuska-Susitna Valley, Kenai Peninsula, and Anchorage collected by the Children's Healthy Living (CHL) program. Household-level food security status was assessed by dichotomizing participant responses to a single-item question about running out of money for food before the end of the month, adapted from a U.S. Department of Agriculture survey. Food security status was examined by household characteristics using chi-square tests ($p < 0.05$). Adjusted stepwise (entry/retainment $\alpha = 0.05$) and logistic regression models were performed to select household characteristics and determine factors associated with food insecurity, accounting for shared variance and community clusters.

Results: Among 1,527 households, 31% were food insecure. Food security status differed by 14 household characteristics: child ethnicity, race; caregiver education, unemployment status; and household size, living arrangement, multigenerational living, income, and six food assistance variables. Among food insecure households, 80.6% used food assistance vs. 44.3% of food secure households. A higher proportion of food insecure households used Supplemental Nutrition Assistance Program (SNAP) (51.3% vs. 19.6%), Special Supplemental Nutrition Program for Women, Infants, & Children (WIC) (53.2% vs. 33.6%), food banks/pantries (36.5% vs. 10.7%), and free/reduced-cost school meals (32.5% vs. 14.2%). In an adjusted model, SNAP (aOR 1.70, 95% CI 1.32-2.20) and food bank/pantry use (aOR 2.65, 95% CI 1.44-4.88) were associated with food insecurity, as were Hispanic children (aOR 1.73, 95%

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CI 1.21-2.46), medium (aOR 1.40, 95% CI 1.23-1.58) and large households (aOR 2.09, 95% CI 1.05-4.18), cohabiting couples (aOR 1.46, 95% CI 1.34-1.59) and single caregivers (aOR 1.71, 95% CI 1.12-2.62), high school level education (aOR 1.74, 95% CI 1.3- 2.19), and household income <\$35,000 (aOR 2.02, 95% CI 1.75-2.34), compared to reference categories.

Conclusion: Both SNAP and food bank/pantry participation were prevalent among food insecure households, yet food insecurity persisted. Food assistance and socioeconomic inequities should be considered in prevention, reduction, and alleviation of food insecurity among urban Alaska populations.

I-P-I.20

Sociodemographic Disparities and Weight History among U.S. Adults in the International Weight Control Registry

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Purpose: The purpose of this study was to examine sociodemographic disparities in weight history profiles among U.S. adults enrolled in an online study and evaluate longitudinal associations between weight history and sociodemographic characteristics using mixed effects modeling.

Methods: This analysis used baseline data collected from December 2020 to October 2021 using the International Weight Control Registry (IWCR). Participants self-reported sociodemographic characteristics, self-categorized a weight history group (Successful, Regain, Attempted) and provided current weight/height, highest adult weight/date, lowest adult weight/date, and weight at age 18. Group differences were evaluated using Dwass-Steel-Critchlow-Fligner tests for continuous variables and Chi-square tests for categorical variables ($\alpha=0.01$). Linear mixed models were fit with repeated measures of BMI, including weight history condition, time, and their interaction as fixed effects. Models adjusted for age (linear and quadratic), race, sex, household income, marital status, geographic region, social vulnerability index, and rurality. An unstructured covariance matrix modeled within-subject correlation.

Results: Among 1,619 U.S. IWCR participants, 504 (32.5%) reported Success, 964 (59.5%) Regain, and 151 (9.3%) Attempted weight loss. Those reporting Success were more often male, married, higher income, and non-Hispanic White ($p<0.01$). Participants reporting Attempted were more likely to be non-Hispanic Black, unmarried, and receiving government assistance ($p<0.01$). Mixed effects modeling demonstrated significant effects of time, weight history condition, and a condition $\times$ time interaction (all $p<0.0001$), indicating distinct BMI trajectories across weight-history groups. Relative to reference levels, BMI was higher among participants identifying as non-Hispanic Black participants (2.82 kg/m²), female (1.68 kg/m²), lower income (1.30 kg/m²), and unmarried (1.16 kg/m²), and lower among residents of the Northeast (-1.98 kg/m²). A significant nonlinear relationship was observed between BMI and age; BMI was higher in middle-aged adults and lower in older adults.

Conclusion: Distinct sociodemographic patterns characterize weight history groups while BMI trajectories vary significantly across these groups in the IWCR. These findings underscore the need for increased representation of marginalized populations and tailored equity-focused weight management interventions.

I-P-I.21

Feasibility and Cultural Adaptation of Nutrition Education for Rural Latino Communities: The ¡HOLA! Health & Nutrition Program

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Purpose: The purpose of this study was to evaluate the feasibility, cultural relevance, and implementation of the ¡HOLA! Health & Nutrition program. The program aimed to increase health and nutrition literacy among marginalized

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Latino/Hispanic families in rural Coastal Georgia. The program curriculum was evidence-based and implemented through a combination of community engagement strategies, partnerships, health promotion across multiple channels, and direct and indirect nutrition and health education activities.

Methods: This study utilized a mixed-method, convergent, and participatory design through a “Developmental Evaluation” which helped prioritize real-time programmatic modifications to address changing community needs, barriers, and disability-specific needs of the population served. Formative evaluation included four bilingual focus groups (n = 72) to identify community-specific barriers and facilitators. Process evaluation tracked reach, fidelity, delivery locations, and dosage across 34 sessions at various community sites (clinics, churches, libraries) measured via post-class surveys (n = 83). Qualitative data from facilitator notes and open-ended responses were analyzed via thematic analysis, while quantitative data were analyzed with descriptive statistics.

Results: Formative findings identified critical barriers, including language and low education barriers, and the fear of immigration enforcement. In response, 100% of materials were transitioned to bilingual, plain-language visual formats, and intervention delivery was modified to use as many channels as possible, both in-person and online, and the addition of services. Process measures showed consistent engagement at health clinics but fluctuating attendance at community sites due to safety concerns related to increased immigration enforcement activities. The program acceptability was high, with 91.7% of participants reporting overall satisfaction. Qualitative themes observed that the inclusion of culturally familiar ingredients and texture-modification strategies for caregivers of individuals living with disabilities were the most valued components.

Conclusion: The behavioral nutrition HOLA! The program is acceptable among marginalized immigrant and Latino populations; the flexibility provided by the Developmental Evaluation processes enabled rapid changes that addressed important barriers faced during program implementation. This research provides a scalable framework for implementing highly acceptable nutrition and health literacy programs in „high-fear“ or resource-limited environments, through cultural and disability-friendly adaptations, linguistic access, trusted community partnerships, and flexibility and creativity in implementation.

I-P-I.22

Identification of Sedentary or Insufficiently Active Profiles in Belgium

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Purpose: The Belgian national surveys (Food Consumption Survey and Health Interview Survey), which measure physical activity in the Belgian population, showed that part of the adult population failed to achieve the WHO guidelines for physical activity. Importantly, physical activity level remained largely stable over the last decade. Therefore, identifying different profiles is critical for policymakers, as it enables the targeting of high-risk groups and the development of evidence-based, context-specific interventions.

Methods: The data from 2025 Health Interview Survey were analyzed using a Factor Analysis of Mixed Data (FAMD) and a Hierarchical Clustering on Principal Components (HCPC) model. The variables included in these analyses cover several complementary dimensions: physical activity, sedentary behavior, sociodemographic characteristics and health status.

Results: Five clusters were identified. Clusters 1 and 2 reflect high-risk profiles marked by overweight or obesity, multimorbidity, low physical activity, and prolonged sedentary time. Cluster 1 mainly includes urban women aged 55–74, while Cluster 2 consists mostly of men living in suburban or rural areas with limited screen time. Cluster 3 comprises young rural women with normal BMI and at least one chronic condition, low transport-related activity, and low sedentary time. Clusters 4 and 5 include individuals without chronic disease: older urban men (overweight, active, low sedentary time) and young suburban men (normal BMI, active, high sedentary time), respectively.

Conclusion: This analysis enabled the identification of sedentary or insufficiently active profiles. Although no definitive recommendations can be made, preliminary proposals were developed and will need to be validated through further analyses and/or field-based studies.

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I-P-I.23

Association of Neighborhood Deprivation with Body Mass Index and Accelerometry-measured Physical Activity in Berlin: Data from the German National Cohort (NAKO)

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Purpose: Neighborhood socioeconomic status (nSES) is associated with health status and physical activity, but data on this association are scarce for urban environments in Germany. We aimed to examine how physical activity (PA) and body mass index (BMI) vary across Berlin neighborhoods while taking individual risk factors into account.

Methods: We analyzed baseline data from the Berlin study centers of the German National Cohort (NAKO). nSES was assigned using Berlin's Social Index from the Social Structure Atlas (1=most advantaged, 7=most disadvantaged) based on residential prognosis areas and divided into three categories (1–2=best, 3–5=middle, 6–7=worst nSES). Outcomes were accelerometer-measured moderate-to-vigorous PA (MVPA) (minutes/day) and BMI (kg/m²), calculated from measured height and weight. We used descriptive analyses and maps to visualize spatial patterns of nSES, PA, and BMI across Berlin. Multivariable linear regression models were fitted for PA and BMI, adjusting for sociodemographic and lifestyle covariates. Results are presented as regression coefficient β with 95% confidence intervals (CI).

Results: Of 31,075 Berlin NAKO participants, 11,922 with complete accelerometry data were included (mean age 50.6±12.9 years; 52.8% women). Mean MVPA was 69.8±34.2 min/day and mean BMI was 25.8±4.7 kg/m². Across the seven nSES categories, PA was relatively similar overall, whereas BMI increased consistently with worsening nSES. The spatial distribution maps supported these patterns. In the three-category analysis, participants residing in the most disadvantaged neighborhoods (nSES 6–7) had significantly lower PA than those in the most advantaged areas (1–2) (adjusted β -2.18 min/day, 95%CI: (-4.03;-0.32), while the middle group (3–5) did not differ. For BMI, the most disadvantaged group had higher values (adjusted β +0.85 kg/m² (0.60;1.10), also with little difference for the middle group compared to the best nSES group.

Conclusion: In Berlin, PA and BMI differences by neighborhood may be driven less by a linear nSES gradient but rather by differences in the most disadvantaged areas. This threshold-like pattern may be important for targeting urban health promotion and prevention strategies.

II-P-I.02

Interaction and Hierarchical Structure of Socioeconomic Status and Other Social Categories in Swedish Adolescents' Physical Activity during School Time

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Purpose: Currently, most research on inequalities in socioeconomic status (SES) has studied SES in isolation. Little attention has been paid to how SES interacts with other social categories, as well as to adolescents' voices and perspectives. Therefore, this study aims to explore how Swedish adolescents conceptualise SES alongside other social categories and how these categories are perceived to interact during school-based physical activity (PA).

Methods: This qualitative multiple-case study examined two municipally operated schools in western Sweden. The schools included an advantaged school (with Swedish background and high SES) and a disadvantaged school (with foreign backgrounds and low SES). Data were gathered in spring 2024 through semi-structured focus group interviews with adolescents in grades five, seven, and nine. In addition to SES, the social categories discussed included gender,

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ethnic culture, age, and religion. Data were analysed using reflexive thematic analysis with an abductive approach.

Results: Three key themes emerged: a) social categorical meetings, b) student interaction, and c) school as a setting. The first theme emphasised the heterogeneity within SES, which was further nuanced by other social categories. Additionally, SES was considered to carry less weight and be less connected with gender and age. The second theme highlighted the existence of hegemonic power within PA during school time, where SES was regarded as irrelevant, as hegemonic power often related to social categories in which students were heterogeneous. The concluding theme centred on contextual factors, where SES was seen to manifest differently within and outside the school environment. Specifically, SES was believed to have no impact on PA during school but did influence PA outside of school.

Conclusion: Understanding whether SES (and other social categories) within schools is homogeneous or heterogeneous can help clarify how SES influences PA during school time and, consequently, support efforts to reduce inequalities and promote equality. Additionally, the homogeneous or heterogeneous nature of SES may reveal the presence or absence of hegemonic power, which, when heterogeneous, might lead to exclusion, segregation, and teasing. Furthermore, contextual and domain-specific factors can aid in understanding and explaining the structural factors underlying (in)equalities in SES across various domains and contexts.

II-P-I.04

Prevalence and Trends of Physical Activity, Sedentary Behaviors, and Sleep in Adolescents and their Association with Sociodemographic Factors

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Purpose: To examine the prevalence and trends in physical activity, sedentary behavior, and sleep in Mexican adolescents, and their association with sociodemographic factors.

Methods: A cross-sectional study with data from adolescents aged 15–19 years from the ENSANUT (National Health and Nutrition Survey) from 2012 to 2022–2024. Generalized linear models were used to compare daily minutes and prevalence by survey and sociodemographic factors, and logistic regression was used to analyze associations with sociodemographic factors.

Results: Women, individuals under 18 years old, and those who do not work, as well as those with higher well-being and living in urban areas, reported fewer minutes per day of moderate-to-vigorous physical activity. Daily sitting time increased from 2012 to 2022–2024 in almost all groups. Noncompliance with the three behavior recommendations increased from 2012 to 2022–2024. Women, adolescents under 17, those who do not work, with high well-being and education levels, living in urban areas and in the north of the country, were more likely to fail to meet one or all three recommendations.

Conclusion: These findings highlight the need to design strategies that specifically address the sociodemographic characteristics associated with lower compliance with the recommendations

II-P-I.05

Meeting Physical Activity Guidelines among Rural, United States Youth Across Household Income, Sex, Sports Participation, and Age Subgroups: 2022-2023 National Survey of Children's Health

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Purpose: This study aimed to examine the prevalence of meeting physical activity (PA) guidelines among sociodemographic subgroups defined by household income, sex, sports participation, and age among rural-dwelling youth in the United States (US).

Methods: This cross-sectional study used the combined 2022-2023 National Survey of Children's Health, focusing on

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youth aged 6-17 living outside a metropolitan statistical area (i.e., rural). Survey-weighted proportions of meeting PA guidelines (past week PA of 60+ minutes/day) were estimated across sociodemographic groups defined by income (0-199% FPL [federal poverty level], $\geq 200\%$ FPL), sex (male, female), and sports participation (sport, non-sport) to develop eight subgroups (e.g., High-income Male Sport, High-income Male Non-sport, etc.). To visualize disparities, equity plots were generated with High-income Male Sport serving as the reference group. Subgroups were also 1) examined separately by age (6-11 and 12-17 years) and 2) compared by age (6-11 versus 12-17 years). Adjusted Wald tests were conducted for pairwise comparisons.

Results: The final analytic sample included 10,809 youth ($M_{age} = 11.7$ years; 51.6% male). Overall, 25.6% of youth met guidelines. The prevalence of meeting guidelines ranged from 6.2% (95% CI: 3.9%–9.6%) among High-income Female Non-sport (ages 12-17) to 43.3% (34.9%–52.1%) among Low-income Female Non-sport (ages 6-11). When comparing all subgroups to the High-income Male Sport group, significant disparities were seen in the overall sample and within both age groups. For ages 12-17, five subgroups showed significantly lower PA prevalence than the reference, including High-income Non-sport (Male and Female), High-income Female Sport, and Low-income Female Non-sport (all $p < 0.05$). When comparing by ages 6-11 versus 12-17, significant differences were observed in all subgroups except the Low-income Sport (Male and Female).

Conclusion: This study found that most rural US youth do not meet PA guidelines, with the lowest prevalence observed among adolescents (12-17 years), females, and non-sport participants. Critically, sports participation appears to serve as an „equalizer“, as its involvement mitigated the age-related PA decline seen in all other subgroups and lower disparities between income levels. These findings necessitate targeted interventions that promote both organized sports for all youth and increased unstructured PA to effectively address the significant disparities in PA, particularly among adolescent females.

II-P-I.06

Is Food Insecurity a Weight Problem? Cross-sectional Associations between Dietary Patterns and Food Insecurity in Adolescents from an Amazon Region, Brazil

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Purpose: The geographic area of a country may play an important role on aspects of food insecurity. Understanding associations of socio-demographic factors with diet quality among adolescents living in an urban-remote area of Brazil, close to the Amazon region, can inform behavioural-change strategies and public health policies for advancing nutrition and health disparities. This paper aims to verify associations between household food insecurity and overall diet quality.

Methods: Full-time high-school students ($n=337$, $M_{age} = 16.22$; 95%CI 16.10-16.33years; 63.50% female) completed a self-report survey on a food screener, socio-demographic and weight/height measurements. The most knowledgeable member of the household ≥ 18 yo completed the 14-item Brazilian Food Insecurity Scale. The 19-item food screener was used to evaluate overall dietary quality of the adolescents based on recommended dietary guidelines with scoring points ranging from 0 to 65. Socio-demographic and anthropometric measurement were used as potential co-variables. Descriptive statistics and regression models were calculated for the associations considering $p < 0.05$ as significant.

Results: Approximately, 65% of the adolescents' experience food insecurity and 25.47% were overweight. Adolescents showed significant differences in total diet quality scores with slightly lower diet quality score for adolescents living in marginal ($M_{score} = 24.20$) and severe ($M_{score} = 23.46$) vs. secure ($M_{score} = 26.06$) households ($p < 0.01$). Adjusted models showed that adolescents in the 3rd tercile of diet quality (highest) had 11% of chances for food insecurity (OR = 0.89; 95%CI 0.82, 0.85; $p < 0.01$). The scores for fruits and vegetables ($\beta = -0.14$; 95%CI -0.25, -0.03; $p < 0.02$) and foods high in fat and sodium ($\beta = -0.05$; 95%CI -0.09, -0.01, $p = 0.04$) were significantly negatively associated with food insecurity.

Conclusion: Adolescents diet quality worsen as increase severity for food insecurity. Dietitians and other nutrition/food practitioners can use results to advocate for and plan behavioural-change strategies to improve adolescent health and nutrition.

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Socioeconomically Disadvantaged Children's Screen Time Behaviors by Weight Status

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Purpose: Excessive screen time is associated with childhood obesity. The purpose of the survey study was to comprehensively examine the relationship between screen time and weight status in a socioeconomically disadvantaged population using a recently validated instrument.

Methods: 739 parent proxies of children aged 5-11 years mostly enrolled in Medicaid (83.9%) in a United States (US) southern state responded to an online questionnaire called the *Movement Behavior Questionnaire - Child* (MBQ-C; open version). Eight items of the MBQ-C separately measured passive (e.g., watch TV, videos, movies) and interactive (e.g., play games, look at photos, video chat) screen time on weekdays and weekend days. The survey also gathered parent-reported child weight and height, along with their sociodemographic characteristics. Weight and height were used to calculate body mass index (BMI) and BMI percentile scores. Two weight status groups were defined for analysis, namely, overweight or obese (OWOB): $\geq 85^{\text{th}}$ BMI percentile vs normal weight: $< 85^{\text{th}}$ BMI percentile.

Results: Only 24.9% of the sample met the ≤ 2 h/day sedentary screen time guideline. Compared to normal weight children ($M = 294.5 \pm 7.2$ min/day), OWOB children ($M = 364.3 \pm 10.6$ min/day) reported greater amount of total screen time ($\Delta M = 69.8$ min/day, 95% CI = 45.0-94.6, $p < 0.001$). OWOB children also had 41% lower odds of adherence to screen-time guideline (OR = 0.59, 95% CI = 0.39-0.86, $p = 0.008$). The difference of screen time between weight-status groups was most pronounced in passive screen time, particularly on weekdays ($\Delta M = 63.2$ min/day, 95% CI = 47.6-78.7, $p < 0.001$). Race, age, sex, and household income did not significantly moderate the relationship between screen time and weight status.

Conclusion: Over 75% of the socioeconomically disadvantaged children failed to meet the screen time guidelines. Being OWOB further puts these children at elevated risk for excessive screen time. These findings suggest the need for tailored interventions to not only curb overall screen time but also mitigate specific types and timings of screen time behaviors (i.e., passive screen use on weekdays) for OWOB children from socioeconomically disadvantaged background child population.

II-P-I.08

Association between Parental Social Position and Childhood Overweight: Mediation by Parental Feeding Practices and Lifestyles during Early Childhood

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Purpose: In high-income countries, children of parents with a low socioeconomic position (SEP) or a migration background are disproportionately affected by overweight from preschool age, yet the causal mechanisms remain poorly understood. These associations are likely partly driven by interrelated postnatal factors, particularly parental feeding practices (breastfeeding and age at complementary feeding) and energy balance-related behaviors (EBRBs). This study aimed to assess the extent to which parental feeding practices and early-life EBRB patterns (lifestyle patterns, LPs) mediate social inequalities in childhood overweight at age five.

Methods: The analysis included 5-year-old children from the French ELFE birth cohort ($n=8,388$). Parental social characteristics—migration status and SEP (education level and household income)—were collected through questionnaires, and anthropometric data were obtained from the child's health booklet. We used counterfactual mediation analysis to assess the potential mediating role of previously identified children's LPs—namely, “Early complementary feeding along with discretionary consumption and high screen time at age 2” (unhealthy), “Balanced diet and leisure activities other than screens at age 2” (healthy), and “Optimal feeding practices and poor sleep at age

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2" (mixed)—in the associations between the different dimensions of social position and childhood overweight (IOTF definition). Models accounted for potential intermediate confounders, including parental BMI and lifestyle, cesarean delivery, and birth weight, where appropriate.

Results: Children born to immigrant parents or to parents with lower SEP had higher scores on the unhealthy pattern. This LP explained 10.7% of the association between parental migration status and childhood overweight, 18.4% of the association with parental education, and 24% of the association with household income. Children born to immigrants or to parents with lower income also had higher scores on the mixed pattern, which explained 9.8% of the association between parental migration status and childhood overweight and 10.5% of the association with household income.

Conclusion: These findings (1) suggest that feeding practices and early-life EBRBs jointly contribute to shaping social inequalities in childhood overweight from early life and (2) highlight potential targets for early multibehavioral interventions to reduce these inequalities.

II-P-I.09

Heart Health for All: A Community-based No-cost Cardiac Rehabilitation Pilot in Rural Northern Ontario

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Purpose: Cardiac rehabilitation programs are a cornerstone of supportive care for people who have experienced a cardiovascular event. Disparities in access to cardiac rehabilitation, however, have been well documented with people of lower socioeconomic status having less opportunity for participation. To compound this, rural and northern areas in Canada have substantially fewer publicly funded cardiac rehabilitation programs available, further reducing access to people of lower income. To mitigate this, a partnership of stakeholders recently launched a novel, no-cost cardiac rehabilitation program in a northern and rural town in Ontario, Canada. A pilot group of cardiac patients completed a 16-week cardiac rehabilitation program in summer/fall 2025. Participants were prescribed 5 weekly exercise sessions including a once weekly supervised session, weekly education sessions, and nutrition counselling. Participants from the pilot group were invited to participate in a focus group upon completion of the program in order to explore the unique context of a novel no-cost cardiac rehab program in a rural and northern setting.

Methods: Participants (N=10) completed a questionnaire and participated focus groups. Focus groups were asked a series of open ended questions that gave insights on the program in terms of (a) access/barriers, (b) expectations/motivation, (c) experience with the program, (d) outcomes/impact, (e) any context-specific factors (i.e., Northern and small town/rural context), (f) sustainability/continuity, and (g) improvements/feedback. Data were audio-recorded, transcribed, and analyzed using thematic analysis.

Results: Three primary themes emerged from the data: praise for the program effectiveness, gratitude for access to a no-cost program, and challenges due to long distances for travel. Participants overwhelmingly reported that they found improvement in their physical health and well-being and found the program to be enjoyable. Participants frequently noted gratitude for access to the program as they could not have afforded a cardiac rehab program at a private facility. Driving long distances to access the program was a recurring point.

Conclusion: This pilot demonstrates that a no-cost cardiac rehabilitation model can improve health and well-being while reducing inequities in access for rural and lower-income populations. Future directions include implementation of a virtual program to mitigate long commutes within the catchment area.

II-P-I.10

Patterns of Food Insecurity and Weight Change among Rural Adults in a Diabetes Prevention Program

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Purpose: The purpose of this study was to examine the prevalence of food insecurity among rural-living adults over the first six months of a diabetes prevention program and the association of food insecurity patterns with weight change.

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Methods: This secondary data analysis included 24 U.S. rural-living adults with a body mass index ≥ 25.0 kg/m² and at risk for type 2 diabetes. All individuals enrolled in a 12-month community-based diabetes prevention program with goals of 5-7% weight loss and 150 minutes per week of physical activity. At baseline and 6-months food security in the past 30 days was assessed using the USDA Household Food Security Scale. Participants were categorized as food secure (FS, score: 0-1) or food insecure (FI, score: ≥ 2). Linear regression models examined main and interactive effects of FI status and time (baseline and 6 months) on 6-month weight change (kg), adjusting for gender and baseline weight.

Results: Participants were predominantly female (87.5%), weighed 102.5 ± 21.0 kg at baseline, FI was prevalent at baseline (29.1%) and 6-months (25%); over 40% ($n=10$) of participants experienced FI at any time point, and 12.5% transitioned from FS to FI. There were no differences in 6-month weight change ($n=24$, -2.0 ± 4.6 kg) in participants who were FI at baseline ($n=7$, -1.8 ± 5.8 kg) compared to those who were FS at baseline ($n=17$, -2.3 ± 4.1 kg; $p=0.895$). Participants who were FS at 6 months lost more weight ($n=16$, -3.6 ± 4.3 kg) than those who were FI at 6 months ($n=8$, $+1.2 \pm 3.5$ kg; $p=0.0127$). Participants who transitioned from FI to FS ($n=2$, -9.8 ± 0.7 kg) lost more weight than those who remained FI ($n=5$, $+1.4 \pm 2.6$ kg; $p=0.0086$) and those who became FI at 6 months ($n=3$, $+0.8 \pm 5.4$ kg; $p=0.0244$) but not those who were always FS ($n=14$, -2.7 ± 3.8 kg; $p=0.0842$).

Conclusion: In this sample of rural-living U.S. adults, experiencing FI during a diabetes prevention program was associated with unfavorable weight loss outcomes. Replication in larger samples would expand upon these results with the potential to improve the effectiveness of diabetes prevention programs in rural areas.

II-P-I.11

Emerging Evidence on How U.S. Pay-what-You-can Restaurants Improve Diet Quality among Food-insecure Individuals

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Purpose: Food insecurity leads to poor diet quality and increased chronic disease risk. U.S. community cafes (hereafter cafes) are pay-what-you-can restaurants that offer nutrient-dense meals and welcome individuals of all income levels. Cafes may improve diet quality among food-insecure individuals, but evidence remains limited. We aimed to summarize our research team's emerging findings to advance understanding of how this novel café model may improve diet quality.

Methods: We summarized findings from four studies conducted by our research team on how cafes may influence diet quality. Two qualitative interview studies with executive directors and managers (EDMs) ($n=13$) and guests ($n=39$) explored how cafes address healthy food access. One national cross-sectional survey of guests ($n=74$) characterized guests' perceptions of café meals. One observational assessment of diet quality of café meals selected by food-insecure guests ($n=40$) compared to meals they consume elsewhere. Diet quality was determined using Healthy Eating Index (HEI) (scored 0-100, with higher scores indicating stronger alignment with Dietary Guidelines for Americans).

Results: Four cross-cutting themes emerged. (1) **Improving diet quality:** Survey data indicated 61% of food-insecure respondents reported healthier diets due to café meals. The observational study supported these perceptions: Average HEI score for café meals was 12.3 points higher than for meals consumed elsewhere (46.7 ± 10.5 vs. 34.4 ± 11.6 ; $p < 0.0001$). (2) **Increasing healthy meal access:** Across interviews, EDMs and guests described cafes as providing reliable access to nutrient-dense meals. Guests reported reduced hunger and eating more balanced meals at cafes than through other charitable food programs. (3) **Promoting dignity through guest agency:** EDMs and guests valued guests' ability to select meals freely, versus having limited choices at other charitable food programs. This autonomy, combined with welcoming atmosphere, was viewed as central to promoting dignity. (4) **Cafe utilization barriers:** Guests noted some barriers, such as long wait times and limited hours.

Conclusion: Preliminary evidence consistently indicates cafes' potential to improve diet quality among food-insecure guests by improving access to a variety of nutritious meals in a dignified way. Findings underscore the need for future research to quantify how using cafes affects diet quality over time and strategies for overcoming guest barriers.

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Examining Perceived Food Environment, Social Cohesion, and Food Security among Older Asian Americans in the San Francisco Bay Area

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Purpose: Older Asian American adults represent one of the fastest-growing populations in the United States (U.S.). This study examined the associations between perceived food environment, social cohesion, demographics, by food security level among older Asian American adults living in the San Francisco Bay Area in California, United States. A secondary aim was to assess the internal consistency of a social cohesion scale within this population.

Methods: A 32-item cross-sectional survey was administered from April to July 2025. Participants were recruited from senior nutrition programs to complete a Qualtrics survey. Eligible participants self-identified as Asian American, lived in the San Francisco Bay Area for at least one year, and were older than 65 years. The survey was available in English, Chinese, Korean, and Vietnamese and contained validated measures from the 6-item U.S. Household Food Security Survey Module, the Nutritional Environment Measures Survey - Perceived, and a social cohesion scale. Descriptive statistics, Mann-Whitney U test, Chi-square tests, and Cronbach's alpha were applied for quantitative analysis.

Results: Of the 203 participants, 77 (38%) were food insecure. Food security status differed by ethnicity ($p<0.002$); Chinese and Vietnamese respondents had higher rates of food insecurity (42% and 44%, respectively). Significant differences were observed between foreign-born and U.S.-born participants ($p=0.007$) and across income groups ($p<0.001$). Food-secure participants perceived higher availability of healthy food at the stores they shop at compared to food-insecure participants ($p<0.001$). The social cohesion scale showed low internal consistency (Cronbach's $\alpha=0.480$), and it did not differ between food security status ($p=0.142$).

Conclusion: Although participants were recruited from congregate meal sites, the prevalence of food insecurity remained higher than the national average. Differences in perceived healthy food availability suggest variation in shopping behaviors between groups. The low reliability of the social cohesion scale suggests that it may fail to capture culturally relevant aspects of connectedness in Asian cultures, where relationships center on family rather than friends or community members. These findings highlight the need for culturally tailored approaches to addressing food insecurity and social connectedness among older Asian American adults.

II-P-I.14

Co-creating Healthy Food Interventions with Adolescents to Promote Health Equity: Insights from a Participatory, System-based Approach

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Purpose: Social inequalities shape adolescents' access to and choices around healthy food. Those growing up in socially vulnerable circumstances face disproportionate barriers and are at greater risk of unhealthy diets. Addressing these inequities requires system-level change. Participatory, system-based approaches that engage adolescents as co-creators may be key to developing contextually grounded and sustainable solutions. This study aims to: (1) explore how adolescents in a socially vulnerable school context perceive their food environment and food choices; (2) identify actions they propose to improve this environment; and (3) examine their experiences of a co-creation process to design a school-based healthy food intervention.

Methods: An ongoing qualitative observational study is evaluating a co-creation process involving 15 students, one teacher, a facilitator, and a group of adult stakeholders (e.g., school staff, local health and food actors) who provide input and support to the adolescent co-creators. Participants review and extend a causal loop diagram (CLD) previously developed by another group of adolescents from the same school, mapping feedback loops influencing healthy eating and identifying leverage points for change. CLD analysis focuses on the version validated with participants, examining feedback loops and leverage points to characterise perceived system drivers and dynamics. Building on these insights, participants will collaboratively develop and prioritize intervention ideas. The co-creation process will be evaluated through focus groups and interviews guided by the PROSECO framework, exploring

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domains such as delivery, participation, experience, context, and perceived impact (e.g., ownership, empowerment, capacity building). Data will be analyzed using framework analysis in MaxQDA, combining deductive coding guided by PROSECO domains with inductive identification of emergent themes.

Results: Data collection is ongoing. Preliminary findings indicate key influences on adolescents' food choices include exposure to food-related social media, peer dynamics, family support, and limited availability of healthy options at school. Adolescents report feeling heard and valued through co-creation, though sustaining engagement across sessions is challenging.

Conclusion: Engaging adolescents from socially vulnerable contexts as co-creators, supported by adult stakeholders, can reveal the lived complexities of food environments and possibly foster more equitable, contextually relevant, and empowering intervention design.

II-P-I.15

Development of a Preliminary Nutrition Security Screening Tool that Incorporates Measures of Health Equity

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Purpose: Current measures of nutrition security do not assess health equity, a key construct in the USDA's 2021 nutrition security definition and indicator of social cohesion. Shame and stigma, established systemic barriers that disadvantage populations and preclude people at the individual level from accessing food resources, are health equity indicators that can be added to a nutrition security measure. Current nutrition security measures assess only food security and diet quality but not the interrelated health equity construct, potentially underestimating nutrition insecurity levels. The purpose of this study was to develop a nutrition security screening tool that incorporates health equity indicators.

Methods: A preliminary Nutrition Security Screening Tool was developed using survey data from 898 caregivers of young children with an income of 100% of the federal poverty level. The survey included the Hunger Vital Signs as strong predictors of food security, measures of shame, stigma, and diet quality. Stepwise linear regression with 5-fold cross-validation was used to identify a subset of these items predictive of raw food security scores while balancing model simplicity and correlation with other key nutrition security concepts. Non-significant items were removed.

Results: The final six items include two Hunger Vital Signs questions, one diet quality item (vegetable intake), two shame items, and one experienced stigma item. The model demonstrated strong predictive performance against the USDA Household Food Security Survey Module (18-item; Spearman $\rho=0.78$, $R^2=0.6$) and acceptable internal consistency (Cronbach's $\alpha=0.6$), especially given the multidimensionality and brevity. Convergent validity was supported by correlations with food security, diet quality, anxiety, depression, and physical health.

Conclusion: This preliminary tool includes measures of each nutrition security constructs: food security, diet quality, and health equity. Stigma and shame, which undermine social cohesion, are important health equity indicators. This tool can be used to monitor population nutrition security and evaluate interventions and programs designed to address to promote nutrition security status. Additional validation is needed for populations other than caregivers of young children.

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Socioeconomic Differences in Ultra-processed Food Purchases in New Zealand

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Purpose: This study provided the first national estimate of ultra-processed food (UPF) purchases among New Zealand households and examined their associations with socioeconomic characteristics, addressing a critical gap in evidence on dietary inequalities in New Zealand.

Methods: This cross-sectional study used data from the 2019 New Zealand Nielsen Homescan® panel (October 2018–October 2019), nationally representative by household demographics and geography. A sample of 1,800 households with consistent participation was included. Detailed records of all foods and beverages purchased for

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household consumption and sociodemographic characteristics (household income, sex and age of the primary shopper, household life stage and size) were analysed. Foods were classified using the Nova system to identify UPF and linked to national food composition databases to estimate energy content. The relative share (%) of UPF in total energy available from household purchases was calculated (mean $\pm$ standard deviation). Linear regression assessed associations between household socioeconomic characteristics and UPF share, with statistical significance at $P \leq 0.05$.

Results: UPF represented $56.8 \pm 13.5\%$ of total available energy from household food purchases in New Zealand. UPF showed the greatest variation across income quintiles, with a decreasing contribution to total energy as household income increased (-5.4 percentage-point [pp] difference across extreme quintiles), p -trend < 0.001). No significant variation was observed by sex. Differences by age were observed in pairwise comparisons, with higher energy availability from UPF among those aged >65 years compared with those aged <35 years ($+3.2$ pp), no linear trend. By household life stage, mixed ($+3.3$ pp) and older ($+2.8$ pp) family households had higher availability compared with young families. Single-person households had the highest contribution of energy from UPF compared with households with two (-3.6 pp) or three (-3.4 pp) members, with no linear trend.

Conclusion: UPF represented over half of the energy from New Zealand household food purchases across all income groups, with a higher proportion among lower-income households and modest variation across other sociodemographic characteristics. These findings indicate widespread national consumption and support the need for comprehensive population-level policies to reduce UPF contribution to the diet, including marketing regulation, fiscal policies and measures to promote minimally processed foods.

II-P-I.18

Using Physical Activity for Reintegrating Individuals into the Workforce: An Exploratory Study in the Swiss Disability Insurance System

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Purpose: Disability Insurance (DI) is a compulsory Social Insurance (SI) in Switzerland, aimed primarily at rehabilitating individuals with disabilities linked to chronic health conditions. Physical Activity (PA) is known to positively affect health by mobilising and developing individuals' preserved capacities, thereby supporting their reintegration into society. Despite this potential, PA promotion largely occurs within the health sector, and its role within SI remains underexplored. This exploratory case study examined the feasibility of implementing a PA intervention for DI beneficiaries in French-speaking Switzerland.

Methods: Data were collected through qualitative semi-structured interviews (60–90 min) with officials from the cantonal DI offices of Fribourg, Geneva and Vaud. The interview guide focused on participants' trajectories, beneficiary profiles, existing interventions, and the legal and practical possibilities for introducing PA programs. Attention was paid to interviewees' conceptions, practices and attitudes regarding PA. After transcription, a qualitative discourse analysis was conducted based on central categories drawn from the DI Act (RS 831.20).

Results: Findings indicate that the Swiss legal framework governing DI provides sufficient flexibility to integrate PA as a socio-professional reintegration measure. Respondents highlighted a strong alignment between DI objectives and individually tailored PA promotion. They emphasised that PA interventions may be particularly appropriate during the first year of support and for young adults, who often require more comprehensive measures. However, participants also stressed that broader adoption of PA within DI depends on addressing professionals' attitudes and strengthening their awareness of the complementary nature of DI goals and PA promotion.

Conclusion: According to social security data, socio-professional PA interventions within DI could potentially reach more than 200,000 beneficiaries. PA is especially relevant for vulnerable populations at higher risk of developing multimorbidities, which can be partially or fully prevented through regular activity. Ensuring long-term access to low-cost PA measures, therefore, requires that key actors within the social welfare system recognise the shared interests of SI and PA promotion and support their integration into DI practice.

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Intersectional Sampling in Physical Activity and Health Research: A Scoping Review Revealing High-income Country Concentration and a Framework for Operationalization

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Purpose: Physical activity and health research is often biased missing the distinct health burdens experiences by Individuals at the intersection of multiple axes of social disadvantage (e.g. Gender, Age, SES, geography) . Analytical advances enable estimation of intersectional effects, yet this is only possible for samples representative of the intersectionality in a population. No framework guides how samples should be designed to capture intersectional populations. We mapped how intersectionality has been conceptualised and operationalized at the sampling stage in physical activity and health research.

Methods: We conducted a scoping review following Joanna Briggs Institute guidance and PRISMA-ScR reporting standards (OSF: 10.17605/OSF.IO/W7BY4). We searched seven databases from inception to 8 December 2024 (updated Feb 2026). Studies were eligible if sampling was explicitly designed around combinations of power axes or if methodological papers discussed sampling in relation to intersectionality. Two reviewers independently screened records, extracted data, and classified intersectional depth.

Results: From 51 154 records, ten studies met inclusion criteria. All originated from high-income Anglophone settings; none were conducted in low- or middle-income countries. Only three studies implemented intersectional sampling with primary data collection. No probability-based design governed intersections as sampling units. Implemented designs operationalized at most three axes. We developed the Intersectional Sampling Triad (structural, processual, relational dimensions) and a four-category Taxonomy through inductive-deductive synthesis. Five mechanisms constrain intersectional sampling to high-income contexts: infrastructure dependency, missing identity variables, digital access filters, language restrictions, and cell sparsity.

Conclusion: Intersectional sampling remains more rhetorical than operational. The Intersectional Sampling Triad and Taxonomy provide tools for distinguishing designs embedding intersectionality in sampling governance from those invoking it as post-hoc framing. Realising intersectionality's promise for health equity requires investment in empirical implementation and structural change supporting LMIC-led methods development.

II-P-I.20

Cardiovascular Disease Risk Factors among Staff of Two Universities in South-Eastern Nigeria

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Purpose: Cardiovascular diseases, the leading cause of death globally, are largely influenced by poor lifestyle habits developed over time. Academic work environments are often characterised by sedentary behaviour and long working hours, which may contribute to adverse lifestyle factors. Therefore, this study aims to assess the risk factors for cardiovascular diseases among university Staff at Michael Okpara University of Agriculture, Umudike, Nigeria.

Methods: This descriptive cross-sectional study employed a multi-stage sampling technique to select 440 academic and administrative staff from two Nigerian Universities: Michael Okpara University of Agriculture, Umudike, and Abia State University, Uturu, Nigeria. Ethical approval (FMC/QEH/G.596/Vol. 10/544) was obtained, and written informed consent was secured from all participants. Data were collected on respondents' family history, dietary practices, and patterns of alcohol and tobacco use. Standardised procedures were used to obtain anthropometric measurements, physical activity and blood pressure indices. Descriptive statistics were used to summarise the study variables, while inferential analyses, such as the chi-square test and correlation analysis, were applied to examine associations

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between cardiovascular disease risk factors. All statistical analyses were conducted using IBM SPSS Statistics, Version 27.

Results: Family history of diabetes mellitus (21.1%) and hypertension (52.7%) was reported by most of the study participants. Poor lifestyle habits characterised by unhealthy snacking, infrequent fruit and vegetable consumption, alcohol intake and meal skipping were reported. The majority (>60%) of the respondents had low (less than 600 MET) physical activity levels and were classified as overweight or obese based on BMI. However, waist-to-hip ratio assessments indicated a lower risk of obesity-related non-communicable diseases. Only a tenth of the study participants had normal blood pressure levels, with elevated or hypertensive status observed among respondents. Dietary practices, physical activity, and lifestyle habits were found to be significantly ($p > 0.05$) associated with anthropometric and blood pressure indices.

Conclusion: The observed poor lifestyle practices among university staff are associated with adverse health outcomes that predispose individuals to cardiovascular diseases. There is a clear need to create supportive work environments that promote overall health and well-being.

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I-P-J.01

Multilevel Within-person Associations between Sleep and Physical Activity in Young Adults: An Ambulatory Assessment

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Purpose: Observational evidence on sleep–physical activity associations is inconsistent (e.g., Atoui et al., 2021), likely reflecting heterogeneity in samples, monitoring duration, measurement approaches, and analytic levels. Most prior studies relied on brief monitoring periods, with few examining within-person day-to-day or mid-term dynamics. This study investigated these associations between sleep and next-day steps across four 14-day bursts over one year in a large sample of young adults. We hypothesized that longer total sleep time (TST) and greater wake after sleep onset (WASO) would be associated with fewer steps, and higher subjective sleep quality (SSQ) with more steps.

Methods: Daily step counts were modeled using three-level linear mixed-effects models (days nested within bursts within persons). Data were collected between 2019 and 2022 from 388 Czech young adults (18–29 years; 48.2% women) who continuously wore Fitbit Charge 3/4 during four 14-day bursts across one year. Separate models were estimated for TST, WASO, and SSQ as predictors of next-day steps. Models adjusted for age, sex, day type, season, burst number, and wear time, with random intercepts and slopes specified at both burst and person levels, and an AR(1) structure for day-to-day autocorrelation.

Results: Sleep–activity associations varied by analytic level. At the within-person level, higher WASO predicted fewer next-day steps ($\beta = -7.48, p = .027$), whereas daily fluctuations in TST and SSQ were unrelated to steps. At the between-burst level, longer TST ($\beta = -14.82, p < .001$) and greater WASO ($\beta = -49.75, p < .001$) were linked to lower step counts. Between-person associations between sleep indicators and steps were not significant. Age, season, burst number, and wear time consistently influenced step counts.

Conclusion: These findings highlight the importance of extended monitoring to capture both day-to-day and mid-term within-person variability in sleep–activity relationships among young adults. Daily fluctuations in WASO, but not TST or SSQ, were associated with next-day activity, indicating that short-term sleep disruptions may coincide with lower next-day activity. In contrast, between-burst associations for TST and WASO suggest that sleep–activity associations emerge primarily across broader (mid-term) timescales, even after accounting for season, reflecting gradual behavioral shifts rather than short-term fluctuations.

I-P-J.02

Social Jetlag, BMI, and Eating Behaviors from Adolescence to Adulthood

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Purpose: Social jetlag is the misalignment between biological circadian timing and socially constrained sleep schedules, measured by the difference in mid-sleep time between work or school days and free days. Social jetlag has been linked to adverse health outcomes, including higher adiposity, cardiometabolic risk, and mortality, potentially through weight-related behaviors such as eating patterns and dietary quality. Longitudinal data on adolescent social jetlag and later health outcomes in diverse samples remains limited. The present study describes social jetlag from adolescence through adulthood in a socioeconomically and racially diverse sample and examines cross-sectional and longitudinal associations between social jetlag with body mass index (BMI) and eating behaviors.

Methods: 994 participants from the population-based Eating and Activity over Time study completed surveys as adolescents in 2010 ($m_{age} = 14.4$), young adults in 2018 ($m_{age} = 22.1$), and adults in 2023 ($m_{age} = 27.6$). Descriptive statistics summarized social jetlag across time points. One-way ANOVAs tested socioeconomic status (SES) differences in social jetlag at each wave. Linear mixed-effects models assessed associations of social jetlag with BMI and eating behaviors cross-sectionally and longitudinally with an SES x social jetlag interaction term to examine SES-specific effects. Analyses included unadjusted models and models adjusted for demographics and total sleep time. Longitudinal models further adjusted for adolescent BMI and eating behaviors.

Results: Preliminary analyses indicated greater social jetlag in adolescence compared to young adulthood ($p < .001$) and adulthood ($p < .001$), as well as significant SES differences in social jetlag ($p < .05$). Cross-sectional analyses showed greater social jetlag was associated with lower breakfast frequency ($p < .05$) and greater fast-food consumption ($p < .05$) in young adulthood. However, these associations were attenuated after adjusting for demographics and total sleep time. Longitudinal analyses will be conducted and shared at the conference.

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Conclusion: Initial findings showed a decline in social jetlag from adolescence to adulthood, as well as socioeconomic differences. Greater social jetlag may contribute to less healthful eating behaviors in young adulthood. Understanding social jetlag and its associations with weight-related behaviors across developmental stages is critical for informing population-level health promotion efforts.

I-P-J.03

Seeking Nutrition and Physical Activity Content on Social Media: Associations with Body Esteem among Young Adults

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Purpose: Social media provides young adults with accessible resources to support a balanced lifestyle. However, it may contribute to negative associations between social media exposure and body image, defined as one's self-evaluation of their body and appearance. This study examines social media use to seek information related to nutrition and physical activity, and its association with body image among French-speaking students at Université Laval, a university in Québec, Canada.

Methods: In this quantitative cross-sectional study, students were recruited through Université Laval's institutional mailing list to complete online questionnaires assessing social media use and body image perception. Body image was measured using two subscales from the Body Esteem Scale for Adolescents and Adults (BESAA): BE-Appearance (overall physical appearance), and BE-Weight (satisfaction with body weight). Generalized linear models compared body-esteem scores between lifestyle-related social media information seekers and those who do not use social media for this purpose. Analyses were done for each lifestyle domain, in the overall sample and by gender. Models were adjusted for age, BMI, ethnicity, student status, education, chronic health condition, social media patterns of use, and eHealth literacy score.

Results: 714 students (24.9±6.8 years; 80.1% women) completed the BESAA. Most participants used social media to seek content on nutrition (68.8%) and physical activity (59.1%). Students who sought nutrition-related information had significantly lower BE-Appearance ($p<0.0001$) and BE-Weight ($p<0.0001$) scores compared to non-seekers, even after adjustments. Among women, this difference was observed only for BE-Weight ($p<0.05$) and was no longer significant after adjustments. Among men, seekers had lower scores for both BE-Appearance ($p<0.001$) and BE-Weight ($p<0.0001$), even after adjustments. Similarly, participants who sought physical activity-related information reported lower BE-Appearance ($p<0.001$) and BE-Weight ($p<0.001$) scores compared to non-seekers, with these differences remaining significant after adjustments. These differences were significant among women but not among men.

Conclusion: Students who use social media to seek information about nutrition and physical activity reported lower body esteem compared to non-seekers, with men showing more significant associations for appearance and weight dimensions. These findings point to the psychological implications of health-related social media use and underscore the importance of integrating these considerations into lifestyle research.

I-P-J.04

Perceived Environmental Barriers and their Influence on Active Commuting among Chilean University Students

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Purpose: Active commuting, such as walking or cycling to university, represents an accessible opportunity to increase daily physical activity in young adults. However, perceived environmental and personal barriers may discourage this

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behavior. This study aimed to analyze the influence of perceived barriers to walking or cycling on the time dedicated to active commuting among Chilean university students.

Methods: A cross-sectional study was conducted with 307 university students (mean age = 20.3 ± 2.1 years; 57.6% women) from northern Chile (*Atacama Study, 2024*). Daily active commuting time (min/day) was obtained through the *Global Physical Activity Questionnaire*. Fourteen perceived barriers (items 3.1–3.14) related to infrastructure, safety, and personal constraints were assessed using a 4-point Likert scale (1 = strongly disagree; 4 = strongly agree). Spearman correlations were calculated between each barrier and walking time, and a multiple linear regression model was applied to identify independent predictors ($p < 0.05$).

Results: Negative correlations were found between active commuting time and the perception that walking or cycling requires too much physical effort ($\rho = -0.137$; $p = 0.016$) and that students carry too much weight ($\rho = -0.136$; $p = 0.017$). The regression model explained 8.7% of the variance in walking time ($R^2 = 0.087$; $F(14,292) = 1.98$; $p = 0.019$). Two barriers were significant predictors: “dangerous crossings along the route” ($\beta = -9.13$; $p = 0.023$) and “excessive physical effort or insecurity when walking or cycling” ($\beta = -12.80$; $p = 0.001$).

Conclusion: A greater perception of danger and physical effort is associated with less active commuting time among Chilean university students. These findings highlight the need for policies and interventions that improve urban safety and reduce perceived difficulty to promote active transportation and physical activity in young adults.

I-P-J.05

Characterising Health-related Behaviours and Cardiometabolic Profiles of UK University Students

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Purpose: University students demonstrate poor health behaviours, including disrupted sleep, high levels of sedentary behaviour, poor diet and risky alcohol consumption, which can increase cardiometabolic disease risk (Savage et al., 2024). Limited research has objectively assessed these risks, particularly among male students and those from minoritised ethnicities (ME). This study aimed to characterise movement, sleep, anthropometry and cardiometabolic health markers in UK university students and examine gender and ethnicity differences to inform inclusive, targeted interventions.

Methods: One hundred and fifteen students (53% female, 73% White) attended the laboratory, fasted, for blood pressure, anthropometry and blood biomarker assessments. Waist circumference (WC), body mass index (BMI), waist-to-hip and waist-to-height ratios (WHR; WHtR), insulin resistance (HOMA-IR), lipid profile and metabolic syndrome (MetS) were calculated. A sub-sample ($n=51$) wore a wrist accelerometer to assess movement and sleep behaviours. Percentages indicate the proportion of students classified as ‘at-risk’. Groups were compared using t-tests, Mann-Whitney U, and Chi-squared tests.

Results: All students spent >6h/day sedentary; however, 98% met UK physical activity guidelines. Physical activity volume was higher in males than females (40.5 vs 32.4mg/day; $p=0.043$) and in White students compared to ME students (39.5 vs 29.6mg/day; $p=0.012$). ME students spent more time sedentary than White students (750.2 vs 638.3min/day; $p=0.001$). Average wake after sleep onset was 64min/day, and females had later sleep and wake times than males (01:43 and 09:20 vs 00:53 and 08:32, $p\leq 0.044$). ME students had shorter sleep duration than White students (5.74 vs 6.75hrs/day, $p=0.006$). The most prevalent ‘at-risk’ anthropometric markers were BMI ≥ 25 (40%) and WHtR ≥ 0.5 (19%). Males had greater central adiposity, higher systolic blood pressure (SBP) and lower HDL ($p\leq 0.008$). White students had higher SBP, fasting glucose and triglycerides than ME students ($p\leq 0.033$). Only 1% met the IDF MetS criteria; however, 33% met one criterion and 12% met two.

Conclusion: High sedentary time and poor sleep patterns, especially among females and ME students, were common despite most meeting physical activity guidelines. Although very few met the full IDF MetS criteria, a substantial proportion presented with individual risk factors, highlighting the need for personalised, preventative interventions in this population.

I-P-J.06

Normalized Muscle-building Behaviours and Muscularity-oriented Disordered Eating in Young Men

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Purpose: Normalized and socially valorized muscle building behaviours may represent a more problematic characterization of disordered eating in young men. While physical activity is generally promoted for its physical and mental health benefits, the manner in which young men engage in muscle-building practices often reflects internalized social norms around masculinity and body ideals. Behaviours such as engagement in bulk/cut cycles, “cheat meals,” and protein supplementation are socially accepted and even promoted within fitness and bodybuilding communities, yet they may serve as markers of underlying disordered eating tendencies. The present study aimed to investigate the associations between common muscle-building behaviours and muscularity-oriented disordered eating in a sample of young men. By examining these behaviours collectively, we sought to clarify which normalized practices are most closely linked to disordered physical activity and nutritional behaviours.

Methods: In a cross-sectional survey design, young men ($N = 214$; $M_{\text{age}} = 21.55$, $SD_{\text{age}} = 3.23$) completed assessments of muscularity oriented disordered eating, engagement in bulk/cut cycles and cheat meals, and exercising, using protein powder/shakes, using steroids, and using another muscle substance for the purpose of gaining muscle mass. A multiple linear regression was conducted to examine whether various muscle building behaviours predicted muscularity-oriented disordered eating.

Results: 61% of men reported engaging in bulk/cut cycles and 73% of men reported engaging in chat meals. The most common muscle building behaviour was exercise with only 3 men reporting not exercising for the purpose of gaining muscle. The overall model was significant, $F(7,214)=8.603$, $p<.001$, $R^2=0.22$. We found that engagement in bulk/cut cycles ($p=0.020$) and cheat meals ($p<0.001$) were associated with muscularity-oriented disordered eating. Exercising ($p=0.585$), using protein powder/shakes ($p=0.097$), using steroids ($p=0.054$), and using another muscle enhancing substance ($p=0.664$) were not significantly associated with muscularity-oriented disordered eating.

Conclusion: Results indicate that engagement in bulk/cut cycles and cheat meals may reflect or reinforce a focus on muscularity-related disordered eating behaviours, and that not all muscle-related behaviours are equally linked to disordered eating. Future research using longitudinal or experimental designs could determine causation and inform interventions to promote behaviour change in men’s physical activity and nutritional behaviour.

I-P-J.07

Adolescents’ Perceptions of Intuitive Eating: Preliminary Findings from a Qualitative Study Using the French-Canadian Intuitive Eating Scale-3 in Quebec

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Purpose: Intuitive eating is a positive approach that promotes eating without rigid rules or self-judgment, while respecting the body’s internal cues. The most used tool to assess adherence to intuitive eating principles is the *Intuitive Eating Scale* (IES). A new version, the IES-3, comprising 12 items, was recently published in English, translated into French, and validated among adults in Quebec (Canada). As part of a face validity assessment of this French version among Quebec adolescents which took place during summer 2025, qualitative data were collected to explore how they perceive intuitive eating and how it can be integrated into their daily lives.

Methods: Individual interviews were conducted to assess face validity and then, to gather more insights on barriers and facilitators of intuitive eating behaviors, based on the Theory of Planned Behavior (TPB). Participants were recruited mainly from sports clubs and youth centers. Thematic analysis is ongoing and conducted on the adolescents’ comments. All interview content is analyzed, including responses related to face validity and comments related to the TPB questions.

Results: A total of 14 interviews were conducted (mean duration = 50 minutes). Participants included boys ($n = 5$) and girls ($n = 9$), aged 13 to 16 years (mean = 14.5) with diverse backgrounds. Although analysis is ongoing, preliminary

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findings have emerged. Among the IES-3 subscales, *Reliance on Hunger and Satiety Cues* and *Body-Food Choice Congruence* subscales appeared to pose greater challenges, as participants seemed to exhibit lower adherence to these dimensions. A frequently mentioned barrier was unclear hunger or satiety signals, or difficulty noticing the effects of food on the body. Emotional eating (*Eating for Physical Rather than Emotional Reasons*) was rarely reported, although some participants mentioned eating out of boredom. Regarding the *Unconditional Permission to Eat* subscale, those with lower adherence often cited limiting certain foods for health reasons or body weight concerns. The analysis, notably the identification of facilitating factors, is expected to be completed by March 2026.

Conclusion: These preliminary results allowed mainly the identification of key barriers to the adoption of intuitive eating during adolescence, which could help to develop more effective interventions for youth.

I-P-J.08

State Muscularity Satisfaction and Engagement in Muscle-building Behaviours in Young Men's Daily Life

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Purpose: Young men face increasing societal pressures to achieve a muscular physique, a preoccupation that has been associated with worsened mental health and psychological wellbeing. According to sociocultural body image theories, dissatisfaction with muscularity leads to compensatory muscle-building behaviours (e.g., weightlifting, protein consumption, anabolic steroid use). Despite robust evidence demonstrating this relationship at the individual level, no studies have assessed if moment-to-moment fluctuations in muscularity satisfaction impact engagement in muscle-building behaviours. This is surprising given that engagement in muscle-building behaviour varies within individuals over time. The primary purpose of this study was to examine the association between state muscularity satisfaction and engagement in muscle-building behaviours in men's daily life.

Methods: Adult men who regularly engage in muscle-building behaviour ($N = 244$; $M_{\text{age}} = 21.55$, $SD_{\text{age}} = 3.23$) participated in an ecological momentary assessment, reporting on their muscularity satisfaction and engagement in a range of muscle-building behaviours 5x/day for a period of two weeks.

Results: As expected, there was substantial variation in engagement in muscle-building behaviours within-individuals over the study period ($ICC = 0.170$). Findings from random intercept models revealed that men who reported higher overall levels of muscularity satisfaction reported significantly lower odds of engaging in muscle-building behaviours overall ($ORs = 0.82-0.87$, $ps < .05$). Contrary to hypotheses, there were no significant within-person relationships between muscularity satisfaction and muscle-building behaviour at the same assessment ($OR = 0.96$, $p = .62$), or in subsequent assessments ($OR = 0.99$, $p = .81$).

Conclusion: Men who experience higher overall levels of muscularity satisfaction may be less likely to engage in muscle-building behaviours over time. These findings extend muscularity-oriented compensatory models by demonstrating robust individual level differences and providing no evidence for transient state-level effects between muscularity evaluation and subsequent behaviour. It is likely that compensatory muscle-building behaviours are routine, stable, and habitual, particularly in young men who regularly engage in these behaviours. Future research is needed to test state-level dynamics of compensatory health behaviours.

I-P-J.09

Exploring Barriers and Facilitators to Meeting the 24-Hour Movement Guidelines among Adolescent Girls in Mexico

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Purpose: In Mexico, many adolescent girls do not meet guidelines for physical activity, sleep, and screen time, and are less likely than boys to achieve physical activity recommendations. Despite this, there is limited qualitative research examining barriers and facilitators. This study aimed to explore these factors across the 24-hour day among Mexican adolescent girls.

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Methods: Four focus groups were conducted with 25 adolescent girls (aged 15-19) enrolled in public high schools in an urban municipality in the Guadalajara Metropolitan area. A semi-structured guide was used to examine barriers and facilitators to meeting physical activity, sleep, and screen time guidelines. Data were analyzed using Braun and Clarke's reflexive thematic approach, applying a socioecological framework deductively.

Results: Adolescent girls described personal knowledge, awareness, and strategies related to getting active, sleeping well, and limiting screen time. Families played a significant role in shaping girls' movement behaviours across the 24-hour day, at times supporting physical activity and limiting screen use, but also contributing to poor sleep and increased screen time. School-related barriers included inadequate physical activity spaces, low quality of physical education classes, and early start times that negatively impacted sleep. Community-level barriers included limited access to safe physical activity spaces and security concerns, while environmental noise and long commutes impeded sleep. Gender-based physical activity barriers, including restrictive stereotypes and social norms, experiences of sexual harassment during exercise and fear of gender-based violence, were particularly salient.

Conclusion: Adolescent girls face multiple barriers to meeting movement behaviour guidelines, across family, school, and community settings. Efforts to promote a healthy balance of movement behaviours must extend beyond the individual level to include changes to the broader environments in which girls live, learn, and move. Future research should explore how gender-based differences, including power dynamics and social roles, affect adolescents' experiences, needs and opportunities across the gender spectrum.

I-P-J.10

Young Adults' Perceptions of a Healthy Lifestyle and Its Associated Factors: A Multi-center Qualitative Inquiry

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Purpose: In the last decade, India has witnessed a significant rise in the prevalence of obesity and the associated chronic degenerative diseases among its urban youth population. One of the primary causes of this escalating disease burden is the adoption of unhealthy lifestyles by Indian young adults.

Methods: Informed by the social constructivist theory, this descriptive, qualitative study was designed to understand the urban Indian young adults' views about a healthy lifestyle and the factors associated with its adoption. Both purposive and snowball sampling techniques were employed to recruit young adults (aged 21-29 years) from eight Indian metropolises (New Delhi, Mumbai, Kolkata, Chennai, Ahmedabad, Pune, Hyderabad, Bengaluru). In-depth, semi-structured interviews were either carried out in person or virtually till thematic saturation was attained. Interviews were digitally recorded, transcribed, and transferred to NVivo software for the purpose of data analysis. Interview transcripts were analyzed using inductive coding.

Results: Seventy-nine young adults (38 females, 41 males) completed the interviews. Emerging themes and sub-themes were: (i) Perceptions of a healthy lifestyle (consuming a balanced diet, leading an active life; having adequate sleep); (ii) Facilitators of a healthy lifestyle (upbringing and support of family members, health promotion by famous personalities, built-in environment, intrinsic motivation, physical appearance); (iii) Barriers to a healthy lifestyle (lack of time, peer pressure, food environment challenges); (iv) Strategies adopted to maintain a healthy lifestyle (limiting screen time, regular participation in exercise and other forms of physical activity, diet management); and (v) Recommendations for future lifestyle interventions (developing healthy and hygienic food environments, nutrition and health education).

Conclusion: This multisite study offers novel insights into understanding the barriers and facilitators at the individual, social and environmental levels to adoption of healthy lifestyles among urban Indian young adults. In addition, prospective lifestyle interventions can be designed by removing the barriers and strengthening the facilitators to support vulnerable Indian young adults in adopting and maintaining a healthy lifestyle, subsequently reducing their morbidity risk. Potential avenues for interventions could include enhancing food and health literacy of young Indian consumers as well as increasing the provision of more healthy food and beverage items in workplaces and educational institutions.

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I-P-J.11

Effectiveness of an Active Breaks Programme on the Psychological Performance among University Students

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Purpose: Mental fatigue resulting from prolonged cognitive activity leads to tiredness and decreased performance, particularly among university students. Active breaks (ABs) are short exercise sessions designed for use in the classroom, helping to alleviate stress and counteract the effects of prolonged sitting. This study aimed to evaluate the effectiveness of an AB programme on the psychological determinants of academic performance (motivation, attention, mood and mental fatigue) among university students.

Methods: A quasi-experimental design with pre- and post-repeated measurements was conducted with 96 undergraduate students (73.6% male, 26.4% female) in Mallorca, Spain. The intervention involved 3- to 5-minute ABs over 10 weeks, with two breaks per week. The order of conditions (AB/without AB) was counterbalanced. A visual analogue scale was used at the beginning, middle and end of the class to assess relevant psychological determinants. In total, 753 VAS questionnaires were completed across all sessions and participants (753 records), corresponding to repeated measures at the beginning, middle and end of each class. These records were completed during 20 sessions, of which 434 (57.6%) corresponded to sessions with ABs and 319 (42.4%) to sessions without ABs. The present study was approved by the Research Ethics Committee of the University of the Balearic Islands (Reference: 074CER24).

Results: All mid-class measurements were significantly better in the AB condition compared to the condition without ABs. The AB condition had higher mean scores than the non-AB condition for motivation (7.07 vs 5.91), attention (6.83 vs 5.90) and mood (7.19 vs 6.41). The AB condition also showed less mental fatigue (4.80 vs 5.38).

Conclusion: ABs are efficacious in improving attention, motivation and mood while reducing mental fatigue among university students, with immediate benefits observed both after the break and at the end of the class, compared to the control condition. However, the positive effects appear to be acute and short-term, indicating that ABs need to be implemented routinely in classroom settings to sustain their benefits on psychological performance.

I-P-J.12

Movement Behaviours Relate to Cortisol Stress Output and NR3C1 Methylation Profiles in Young University Students

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Purpose: Young university students often experience high psychosocial stress and lifestyle irregularities that may affect hypothalamic-pituitary-adrenal axis regulation and epigenetic regulation of the glucocorticoid receptor gene (*NR3C1*). This study examined associations among lifestyle factors, *NR3C1* DNA methylation, and cortisol output, and whether these markers relate to psychological distress and cognitive function.

Methods: A cross-sectional study included 97 university students (48 women; mean age = 21.6 years). *NR3C1* promoter methylation was measured by pyrosequencing, and two components (C1, C2) were derived. Salivary cortisol was collected during the Trier Social Stress Test, and the area under the curve with respect to ground (AUCg) was calculated. Lifestyle behaviours, cardiorespiratory fitness (CRF), symptoms of depression, anxiety, and stress, and cognitive domains were assessed. Multiple regression and moderation analyses tested associations and interactions with sex and BMI.

Results: Higher sedentary behavior was associated with lower *NR3C1* C2 methylation, and higher physical activity and CRF were related to lower cortisol AUCg. *NR3C1* C1 methylation was associated with poorer executive function and inhibition, and cortisol AUCg was positively associated with depressive symptoms. Other associations were not significant. Exploratory moderation analyses indicated that higher *NR3C1* C2 methylation was associated with better attention at lower BMI, higher *NR3C1* C1 methylation with poorer inhibition in men, and higher *NR3C1* C2 methylation with better attention-processing speed in women.

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Conclusion: Movement-related behaviours emerged as the primary lifestyle correlates of stress system markers. *NR3C1* methylation showed sex and domain-specific associations with cognition, suggesting glucocorticoid receptor-related epigenetic variation may relate to cognitive function.

I-P-J.13

Higher Education Employees Attitudes and Willingness to Act on College Student Food Insecurity

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Purpose: Support for food insecurity in higher education exists, but campus employees' roles are largely unknown and few interventions involve grass-roots campus community input. This study explored higher education employee attitudes towards student food insecurity and willingness to provide food insecurity support to clarify knowledge gaps and barriers for decreasing food insecurity on college campuses.

Methods: This cross-sectional study utilized an anonymous, online survey to collect data. Higher education employees over 18 years old and living in the United States were eligible. A nine-item survey with Likert-type responses was used to assess participant attitudes/awareness and willingness to act/show support for food insecurity. Exploratory factor analysis of all survey items revealed two factors of four items each independently loading. These subscales were labeled „Attitude“ and „Action“ and used for further statistical analysis. Mean subscale scores were then compared among employment role (faculty, staff, or administrator), campus food security involvement (yes or no), and personal experience of food insecurity (yes or no). Nonparametric tests, such as Mood's median or Mann-Whitney U, were used to compare differences among attitude subscale means comparisons (negatively skewed). One-way ANOVA and independent samples t-test were used for action subscale means comparisons (normally distributed).

Results: The participants (n = 584) were predominantly female, white, and 63% (n = 367) were faculty. Attitude median subscale scores did not significantly differ by employment role and scores were > 4.5 out of a possible high score of 5 in all groups. Action subscale mean scores differed significantly by role (p = 0.021), with administrators having significantly higher scores than staff or faculty (p = 0.045). Both attitude and action subscale scores were significantly higher in participants involved with food insecurity efforts and having past food insecurity experience (p < 0.001 for all variables, respectively).

Conclusion: Higher education employees have positive attitudes toward addressing student food insecurity, but willingness to act is potentially influenced by prior involvement and personal experience, revealing a critical gap between awareness and action. Institutions may benefit from targeted training and engagement strategies that involve all employees as active participants in food security efforts.

I-P-J.14

Menstrual Bleeding Phases and Self-reported Physical and Mental Readiness in Active Young Adult Females: Preliminary Data from the PERCIVIR Project

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Purpose: Women remain underrepresented in sports science, although menstrual bleeding-related symptoms are reported to influence sport-related decisions and participation. Understanding perceived readiness across bleeding phases is therefore relevant. Most research relies on retrospective questionnaires or elite samples, limiting validity and generalizability¹. Daily monitoring in non-elite active women is scarce, constraining evidence-based exercise recommendations. We investigated whether physical and mental readiness to train or compete differ across bleeding (B), non-bleeding (NB), and pre-bleeding (PB) phases in active young adult females.

Methods: This is a preliminary analysis of a subsample from the PERCIVIR project². A prospective daily monitoring was used with 19 active females (age: 30.90±7.77 years; body mass: 59.10±8.47 kg; height: 165.00±6.43 cm; cycle length: 26.20±2.67 days). Participants completed a daily online questionnaire assessing their physical and mental readiness to train or compete using two 0–10 visual analogue scales (0=not ready at all; 10=very ready; 0.1 precision). Phases were established based on self-reported data for B or NB, and considering the seven days before bleeding-onset for PB. Repeated-measures ANOVA was used.

Results: Although phase effect was not statistically significant ($F=2.15$, $p=0.147$, $\eta^2p=0.107$), a medium-to-large effect size was observed for physical readiness (B: 6.64±1.39, PB: 7.23±1.54; NB: 7.47±1.15). Mental readiness followed a non-significant similar pattern (B: 6.79±1.62; PB: 7.17±1.59; NB: 7.43±1.47), with a medium effect size ($F=1.38$, $p=0.264$, $\eta^2p=0.071$).

Conclusion: In this preliminary analysis, cycle phases were not significantly associated with perceived physical or mental readiness to train or compete. However, the lower scores observed during bleeding, along with the effect sizes, suggest a possible phase-related pattern requiring confirmation in larger samples. This contrasts with findings in elite athletes¹, indicating potentially distinct perceptions among non-elite populations. Incorporating menstrual cycle awareness into exercise promotion may facilitate personalized guidance and improve participation.

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1. Engseth (2025). JSportsSci

2. Cupeiro (2026). <https://short.upm.es/4thlt>

I-P-J.15

Demographic Characteristics Contribute to Poor Food Choices: A Retrospective Observational Study of UK Secondary School Purchasing Data

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Purpose: Dietary behaviours developed during adolescence are likely to be maintained throughout the lifecourse. Current evidence shows adolescents have poor diet quality. Adolescents spend 20% of waking hours at school; it is crucial that we examine how this setting shapes dietary behaviours. Relevant existing evidence from this setting relies on self-report methods, leaving them vulnerable to bias. This study aimed to address this issue by using objective purchasing data to assess food choices.

Methods: This study used a retrospective observational design, set in a comprehensive secondary school in England. Participants were pupils aged 11–16 years. Canteen purchasing data spanning one year were extracted from a biometric payment system. Health scores were assigned to each of the 79 food items using two food-based and two nutrient-based methods. Overall nutritional scores were calculated using the average score per purchase. Purchasing data were linked to students' demographic characteristics. Linear and logistic regression analyses assessed associations between demographic characteristics and diet score.

Results: 966 participants purchased at least one item from the canteen and could be given a nutritional score (measured in standard deviations). The three most sold items (all cakes and biscuits, soft drinks and hashbrowns) were ultra-processed and high in fat, salt and sugar, indicating poor food choices. After adjusting for confounders

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identified using a Directed Acyclic Graph, being older (β 0.09 95% CI 0.04, 0.13 $P < 0.001$), identifying as a boy (β 0.17 95% CI 0.11, 0.23 $P < 0.001$), and being from a white background (β -0.22 95% CI -0.46, 0.03 P 0.08) were associated with making less healthy choices. Being eligible for free school meals (β -0.53 95% CI -0.70, -0.36 $P < 0.001$) was associated with healthier choices.

Conclusion: This study presents a protocol for using objective purchasing data to assess diet quality. Despite the presence of the school food standards, food choices were poor, especially for older pupils, boys, and those from a white background. In future, the social and contextual drivers of these choices and whether they are considered representative of food choices across English schools should be assessed.

I-P-J.16

Food Consumption of Finnish Young Adults by Sex, Parental Socioeconomic Status, and Weight Status

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Purpose: Previous research has indicated differences in food consumption across sociodemographic groups in Finland. However, less is known about how food consumption varies among young adults—an important life stage characterised by increased independence and responsibility. Our aim was to explore how food consumption differs in emerging adulthood by sex, parental socioeconomic status (SES), and weight status in Finland.

Methods: This study included 3,416 participants aged 18–24 years from the prospective Fin-HIT study conducted between 2020 and 2024. The habitual diet over the previous 12 months was measured with a validated, 134-item food frequency questionnaire (FFQ). The average daily food consumption and energy intake were calculated using the Finnish National Food Composition Database (Fineli®). Height and weight were self-reported, and body mass index was calculated. We included previously collected data on parental SES. We applied analysis of variance (ANOVA) to examine differences between groups.

Results: The mean (SD) age of participants was 19.5 (0.9) years, and 63% were women. The largest differences in food consumption were observed between the sexes. In relation to total energy intake, women had a higher consumption of vegetables (38 vs. 22 g/MJ), fruits and berries (27 vs. 13 g/MJ), and chocolate and sweets (3 vs. 2 g/MJ) compared to men ($p < 0.001$). In contrast, men had a higher consumption of milk and milk products (64 vs. 45 g/MJ), red meat (10 vs. 7 g/MJ), and fish (5 vs. 4 g/MJ) ($p < 0.001$). Participants with high parental SES consumed more vegetables, fruits and berries, legumes, and fish, but less red meat compared to those with low parental SES ($p < 0.001$). Participants with normal weight ate more vegetables, fruits and berries than those with underweight, overweight, or obesity ($p < 0.001$). Chocolate and sweets consumption was similar in all weight status groups.

Conclusion: Food consumption varied by sex, SES, and weight status in emerging adulthood. Public health efforts should aim to promote healthier food choices among men, individuals with lower parental SES, and those living with underweight, overweight, or obesity during this critical phase of emerging adulthood.

I-P-J.17

Changes in Diet Across the Transition from Adolescence to Early Adulthood in the UK: Longitudinal Associations with Education and Employment Pathways and Changing Living Arrangements

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Purpose: Adolescence is an important period for dietary behaviour development, which influences long-term health, characterised by life transitions (e.g. entering further education or the workforce), exposing individuals to new environments, which may shape diet. This study examined changes in diet quality from the final year of school (UK school year 13) to 12 months later and investigated variations by employment/education pathways and living arrangements.

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Methods: The Diet and Eating Behaviours across Early Adulthood Transitions (DEBEAT) study recruited participants from schools/colleges across England in 2023-4. This analysis included 773 participants who were attending school/college and living with their families at wave 1 and completed dietary recalls and questionnaires at waves 1 and 2. Diet quality was assessed using the Dietary Approaches to Stop Hypertension (DASH) diet score (range 0-80). Linear regression models examined associations between (1) education/employment at wave 2 (education only; education and work; work only) and (2) living arrangements at wave 2 (family/non-family), with DASH score at wave 2. Models were adjusted for parental sociodemographic characteristics, physical and mental health, and baseline DASH score. Multiple imputation addressed missing covariate data.

Results: DASH score showed a small improvement between wave 1 and wave 2: $\beta = 0.42$ [95% CI: 0.33, 0.51]. Compared to individuals in education only, those combining education and employment showed a similar change in DASH score, whereas those working and not in education showed a decrease in DASH score: $\beta = -1.66$ [95% CI: -3.97, 0.65]. Most participants in work only (93%) and combining employment and education (60%) remained living with their family, whereas 66% of those in education only were living away from home. DASH score decreased among those moving away from family: $\beta = -1.42$ [95% CI: -3.14, 0.29] compared to those who stayed living at home.

Conclusion: Diet quality modestly improved across the transition out of school. However, entering employment, rather than further education, and moving out, rather than living with family were associated with decreases in diet quality. Although initial findings lack power, these changes suggest potential early drivers of dietary inequalities and further research is warranted.

I-P-J.18

Four-week Time Restricted Eating Intervention Is Associated with Improvements in Cardiometabolic Risk Factors and Dysregulated Eating among Emerging Adult Women: A Single-armed Trial

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Purpose: Time restricted eating (TRE) is associated with favorable cardiometabolic (CM) outcomes, suggesting use as a CM disease prevention strategy. However, the impact of TRE on dysregulated eating among emerging adult women at risk for disordered eating is unknown. This study examined the effects of a 4-week TRE intervention on dysregulated eating behaviors and body composition in emerging adult women with moderate-high dietary restraint.

Methods: 36 emerging adult women with eating windows ≥ 12 hours and moderate-high dietary restraint completed 1 baseline week and 4 weeks of TRE (10hr eating window ending by 8pm). Participants completed the Dutch Eating Behavior Questionnaire, 3-day food logs, anthropometric measurements and DXA scans at baseline and post-intervention. Ecological momentary assessments (EMA) were administered 5x/day during baseline and week 1 and 4 of TRE to assess eating in the absence of hunger (EAH).

Results: Adherence with TRE and EMA was above 85%. Significant decreases occurred in emotional eating ($p=0.009$, Cohen's $d=-0.470$), caloric intake ($p<0.001$, Cohen's $d=-0.750$), body weight ($p<0.001$, Cohen's $d=-0.649$), and visceral fat ($p=0.026$, Cohen's $d=-0.452$) between baseline and end of TRE. The odds of EAH were significantly lower during TRE than baseline (week 1 OR: 0.48, 95% CI: 0.32-0.71; week 4 OR: 0.46, 95% CI: 0.29-0.71, both $p<0.001$). Compared to baseline, EAH decreased during fasting and early TRE eating periods ($p=0.002-0.033$), but not later in the eating window ($p=0.579-0.763$).

Conclusion: 4-week TRE intervention with modest eating window reduction produced beneficial changes in eating behavior, body weight, and visceral fat in emerging adult women.

II-P-J.01

The Influence of Social Media on Female Athletes' Body Image: Exploring the Role of Social Media in Shaping Perceptions and Impacting Eating Behaviours

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Purpose: This research examined how social media influences body image and eating behaviors among competitive female athletes in Aotearoa New Zealand. Despite evidence that female athletes are at heightened risk of disordered eating, little is known about how social media contributes to these experiences within sporting contexts. This study addressed this gap by asking: (1) How do perceptions of beauty standards influence athletes' experiences of body image? (2) What are the implications of engaging with social media for athletes' body image? and (3) What social and psychological factors shape positive and negative body image experiences on social media? In doing so, the research highlights future directions for athlete support and education that are responsive to both digital pressures and the physical and emotional demands of competitive sport.

Methods: Eight semi-structured Zoom interviews were conducted with competitive female athletes aged 18–24. Data were analyzed using reflexive thematic analysis (Braun & Clarke, 2006), with the researcher's experience as a former competitive athlete supporting a reflexive and nuanced interpretation of participants' accounts.

Results: Three overarching themes were identified. Risk factors included the normalization of overtraining, misinformation and insufficient education, and the influence of coaches and family on nutrition and training. Protective factors included social support, self-regulatory strategies, and access to guidance and resources. Lastly, experiences of body image and social media impact included habitual comparisons both online and offline, internalization of appearance norms and expectations, and patterns of disordered eating and exercise behaviors.

Conclusion: Athletes reported dual pressures: to achieve the athletic ideal within their sport, and to conform to unrealistic beauty standards reinforced by social media. Comparison was habitual, as athletes evaluated their bodies, training, and food intake against peers and online figures, sometimes leading to disordered eating and over-exercise. Most had limited access to nutritional or psychological support, relying instead on social media for guidance. Coaches and family emerged as protective influences, fostering healthier relationships with food. Findings highlight the need for early intervention, such as online training modules and workshops focused on nutrition, body image, and social media literacy within sporting or school environments.

II-P-J.02

Sedentary Behaviour among Students and their Socioecological Determinants: A Cross-sectional Study

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Purpose: Prolonged sedentary behaviour (SB) is linked to adverse health outcomes and is particularly prevalent among university students. While individual determinants have been widely studied, less is known about the social and environmental influences on SB during structured academic activities. This study aimed to examine the prevalence of SB and its socio-ecological determinants within the university context.

Methods: A cross-sectional online survey was conducted among 434 students at a German university. Participants self-reported their sedentary time during the academic day and within 90-minute lectures. Variables at individual, social, and environmental levels were assessed. Logistic regression models identified associations with (1) overall sitting time, (2) uninterrupted sitting during 90-minute lectures and (3) number of sitting breaks during 90-minute lectures.

Results: Students reported sitting for an average of 12.4 hours per day, with 55% taking no breaks during lectures. Higher motivational self-efficacy and autonomy were associated with reduced SB and more frequent interruptions. Social norms supporting movement predicted less sitting, while subjective norms encouraging sitting were linked to more sedentary patterns. A movement-supportive environment showed strong associations with sitting interruptions during lectures. The high prevalence of SB and its socio-ecological embedding underscore the need for multi-level interventions addressing individual agency, social norms, and institutional structures in university settings.

Conclusion: Our findings highlight the need for interventions that address both individual dispositions and the structural embedding of SB in the university context. While motivational self-efficacy emerged as a relevant individual factor, its impact depends on supportive social and environmental conditions. Behaviour change efforts are unlikely to succeed if they focus solely on internal motivation without tackling institutional and cultural barriers. Universities should consider reforms that reduce sedentary constraints and expand behavioural options, such as integrating physically active teaching formats and redesigning learning spaces. Institutional policies can also play a key role by legitimizing physical activity during academic activities.

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II-P-J.04

The Nova Scotia Youth, Nature, and Wellbeing Survey: Filling Gaps in Our Understanding of Youth's Experiences with and Access to Nature, and Benefits to Wellbeing

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Purpose: According to the biophilia hypothesis, contact with nature is a basic need, part of our evolutionary history, and critical for mental, emotional, and physical wellbeing. In Nova Scotia (NS), a province in Atlantic Canada, youth engagement with nature continues to decline, while mental health challenges rise. As evidence of the benefits of nature exposure grows, so does its potential to reduce the healthcare burden related to poor mental health and wellbeing among youth. While some research has examined youth experiences with and access to nature and benefits, little has been done in Canada, and few studies have used surveys and mixed-methods approaches. The purpose is to examine NS youth's experiences with and access to nature, and benefits to wellbeing.

Methods: The Nova Scotia Youth, Nature, and Wellbeing survey was created for NS youth aged 13-18 years, informed through literature reviews and youth focus groups, and is the first survey of its kind in Canada. The survey is situated within our Outdoor Health project, community-engaged participatory research focused on developing an integrated, multi-sector approach to outdoor/nature-based recreation and mental health services to support youth wellbeing in NS. The online survey includes open and closed-ended questions to provide context on youth experiences with and access to nature and benefits. Demographic information (age, geographic area, cultural identity, gender) is collected; youth are also asked whether they identify as belonging to an equity-owed group. The survey was launched on October 9, 2025, and distributed via partners (practitioners, educators, and policymakers in parks and recreation, allied health, youth services, and community development), other youth-serving and youth-led organizations, social media, posters, word-of-mouth, and youth-focused events.

Results: A total of 92 youth have completed the survey (November 2025); the goal is 300 responses, representing 0.5% of NS youth aged 13-18 (comparative with previous NS youth health surveys). Quantitative findings (frequencies, proportions) will be integrated with open-ended responses through a convergent mixed-methods approach. Data will be explored across demographics to examine disparities in access to nature, including equity-owed groups.

Conclusion: Findings will contribute to our goal of reducing inequities experienced by NS youth in accessing health-promoting natural spaces.

II-P-J.06

Pilot and Evaluation of a Nutrition Education Program for Emerging Adults

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Purpose: Emerging adulthood (18 to 25 years) is a period of life characterized by transitions that lead to increased autonomy. Long-term health behaviors are typically established in this stage of life, yet many emerging adults have low quality diets, experience weight gain, and lack cooking skills. This presents an opportunity for nutrition education to promote healthier food choices. Community-based programs like the Expanded Food and Nutrition Education Program (EFNEP) have not historically targeted emerging adults. Therefore, we developed Fuel to Thrive (F2T) by adapting an EFNEP adult nutrition program and piloted it at Texas A&M University. The 5-week program included weekly in-person classes (~1 hour) on nutrition basics, knife skills, reading food labels, budgeting, meal planning, and food safety. We present the preliminary results of an evaluation of the F2T program.

Methods: The program was piloted by the university health center in spring 2025, with plans to continue data collection through fall 2025 and spring 2026. We collected pre- and post-survey data at the beginning and end of the program, respectively. We calculated summary statistics of baseline participant demographic characteristics and health behaviors in the pre- and post-periods. We also conducted focus groups with participants and interviews with educators following the final class to better understand the relevance of the curriculum. Content analysis was employed and descriptive categories were created that summarize participant perceptions.

Results: Thirty-three students registered for at least one class and 11 registered for the full five-session series.

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Attendance varied across classes and dropped off as the program progressed. Nineteen students completed both pre- and post-surveys. While the number of respondents limits our ability to detect significant changes, preliminary results suggest that participants improved health behaviors following completion of the program. Two focus groups (with 9 total participants) and interviews (with 4 educators) suggested that the program was relevant for emerging adults and provided suggestions for future programming to streamline delivery and reinforce learning.

Conclusion: Early findings from this evaluation suggest that the program is effective and can inform future program modifications. Next steps include implementing and evaluating the program within EFNEP and in other settings outside the university.

II-P-J.08

Normative Values for Hop Tests Used to Assess Knee Injury Risk in Adolescent Athletes

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Purpose: Low scores and asymmetries in hop tests are associated with an increased risk of knee injuries in young athletes. There are few reference values for hop tests in adolescent athletes, making comparisons by sport, gender, and age difficult. Our aim was to determine normative values for vertical hop (VH), single hop for distance (SH), crossover hop for distance (CH), and side-to-side hops in 30 s (SSH), and for the limb symmetry index (LSI), in uninjured adolescent athletes.

Methods: Subjects were 114 athletes (females= 59; males=55; age=16.3 ± 1.2 yrs) from 16 sports. For VH, SH, and CH, athletes executed three practice and three test trials with the dominant (D) and non-dominant (ND) leg. The highest scores were chosen for analysis. For SSH, they performed five practice hops, and one test trial. The LSI was calculated as: $ND/D \times 100$. A paired t-test was used to compare D and ND scores, an independent samples t-test was used to compare test scores and the LSI between sexes and age-groups, and percentiles (10th to 100th) were calculated for each sex.

Results: No significant differences ($P > 0.05$) were found in D vs ND for any of the tests. LSI ranged from 89% to 94%. Males scored 36%, 23%, 27%, and 52% higher than females for VH (17.5 ± 4.4 vs. 12.9 ± 2.3), SH (148.7 ± 23.6 vs. 120.5 ± 17.0), CH (501.9 ± 87.8 vs. 395.6 ± 61.3), and SSH (43.4 ± 12.4 vs. 28.6 ± 8.5), respectively, ($P < 0.05$). There was no difference ($P > 0.05$) in hop performance between the 14-15 and 16-18 year-old age groups. The 10th and 90th percentiles for females were: VH= 9.8 and 16.7 cm; SH=96 and 143 cm; CH=316 and 480 cm; and SSH=19 and 39.6 cm; and for males: VH=11.8 and 23.5 cm; SH=115 and 178.2 cm; CH=386.2 and 612 cm; and SSH=23.6 and 56.4 cm.

Conclusion: The mean and percentile values of uninjured adolescent athletes determined in this study are useful to assess knee injury risk by age and sex. These reference values may also help evaluate the progress of adolescent athletes during rehabilitation and return to sport following knee injuries.

II-P-J.09

Physical Activity Program Executed through Immersive Virtual Reality for the Improvement of Body Composition and Physical Condition

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Purpose: The practice of physical activity is beneficial for health. However, a large part of the adult population does not comply with the recommendations for physical activity, due to factors such as lack of time and nearby sports facilities. Immersive virtual reality is a tool that allows people to immerse themselves in a simulated world and perceive visual, auditory, and tactile sensations. Its use in physical activity interventions favors exercise in situations that, due to time and space, could be limited in real life. The aim of this research is to measure the impact on body composition and physical fitness of an exercise program executed through immersive virtual reality.

Methods: Repeated measures study (pre-post, without control group), in which body composition (fat and muscle

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component) and physical fitness (cardiorespiratory fitness, speed-agility and manual grip strength components) were evaluated. The physical exercise program based on immersive virtual reality lasted 14 weeks.

Results: The results indicate that the fat component decreased and the musculature slightly improved. For physical fitness, cardiorespiratory fitness and speed-agility improved, but manual grip strength decreased.

Conclusion: It is concluded that training developed through immersive virtual reality proves to be a tool that can promote improvements in body composition and physical fitness.

II-P-J.10

Force Manifestation-Specific Adaptations After a 4-week Trunk Resistance Training program in Adults with Non-specific Chronic Low Back Pain

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Purpose: Non-specific chronic low back pain (NSCLBP) is a leading cause of disability worldwide, with significant impacts on individuals' physical well-being. Trunk resistance interventions are recommended for NSCLBP, yet the neuromuscular mechanisms underlying clinical improvement remain insufficiently understood. In particular, it is unclear whether different trunk force assessment devices capture distinct manifestations of force adaptations following resistance training and how these adaptations relate to pain reduction. This study aims to examine trunk force adaptations following a trunk resistance training (TRT) program using two complementary assessment devices and to explore associations between changes in trunk force and pain intensity in adults with NSCLBP.

Methods: 28 participants with NSCLBP were enrolled in a RCT and allocated to a TRT group or a control group. The intervention consisted of supervised TRT performed twice weekly for 4 weeks. Trunk force was assessed pre and post intervention using an isokinetic dynamometer and a functional electromechanical dynamometer (FEMD). Isokinetic assessment quantified flexors and extensors peak torque, total work, and average power per repetition, whereas FEMD assessed concentric and eccentric mean force. Pain intensity was measured using an 11-points NRS. Repeated measures mixed ANOVA analyses evaluated Time x Group interaction, and Pearson's bivariate correlation analyses explored associations between changes in force variables and pain intensity.

Results: Significant Time x Group interactions were observed for trunk extensor total work ($p=0.024$) and average power per repetition ($p=0.019$) assessed with the isokinetic device, indicating greater improvements in the TRT group. FEMD variables showed significant within-group increases in concentric and eccentric trunk extensor mean force but no significant interaction effects. Improvements in isokinetic trunk extensor work and power were moderately associated with reductions in pain intensity ($p<0.05$). Associations between FEMD-derived force changes and pain reduction were weaker and non-significant ($p>0.05$).

Conclusion: TRT induced force manifestation-specific adaptations, with notable improvements in repeated-force capacity and power using isokinetic assessment. Combining isokinetic and FEMD devices provided complementary insights, suggesting that different assessment methods may vary in sensitivity to early training-induced changes. These findings clarify the mechanical correlations of pain reduction and support multidimensional trunk force assessment in NSCLBP rehabilitation.

II-P-J.11

Physical Activity-related Health Competence beyond 24-hour Movement Behaviours in Explaining Life Satisfaction among Central European University Students

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Purpose: The 24-hour movement behaviour (24HMB) framework conceptualizes moderate-to-vigorous physical activity (MVPA), sedentary behaviour, and sleep as integrated components of daily health. Physical activity-related health competence (PAHCO) reflects individuals' capacity to manage and regulate physical activity in health-

promoting ways. This study examined whether PAHCO explains additional variance in life satisfaction beyond 24HMB among Central European university students.

Methods: Cross-sectional data were analysed from 2,691 university students aged 18–29 years from the V4 countries participating in the V4MoRe project. MVPA and daily sitting time were assessed using the International Physical Activity Questionnaire (IPAQ–Long Form), and average sleep duration was self-reported. PAHCO was assessed using movement, control, and self-regulation competence dimensions. Life satisfaction was measured using a single-item 10-point ladder. Hierarchical linear regression analyses were conducted. Model 1 included MVPA, sitting time, sleep duration, gender, and country. Model 2 additionally included the three PAHCO dimensions. Standardized coefficients (β) and explained variance (R^2) were examined using IBM SPSS version 29.0.

Results: Participants had a mean age of 21.31 years ($SD = 2.34$); 72.1% were female, and mean life satisfaction was 6.72 ($SD = 1.62$). In Model 1, MVPA ($\beta = .100, p < .001$), sitting time ($\beta = -.093, p < .001$), and sleep duration ($\beta = .052, p = .015$) were significantly associated with life satisfaction, explaining 3.0% of variance ($R^2 = .030$) adjusted for gender and country. After inclusion of PAHCO dimensions (Model 2), explained variance increased to 10.4% ($R^2 = .104$). Movement competence ($\beta = .131, p < .001$), control competence ($\beta = .101, p < .001$), and self-regulation competence ($\beta = .105, p < .001$) were significant positive predictors.

Conclusion: PAHCO explained substantially more variance in life satisfaction than 24HMB alone and reduced the strength of behavioural associations. These findings highlight the importance of competence-related psychological factors in understanding links between daily movement patterns and subjective well-being. Integrating competence development into 24-hour movement strategies may strengthen their impact in young adult populations. The research was funded by the V4More project co-financed by the International Visegrad Fund under the Visegrad Grants programme (Agreement number 22420149).

II-P-J.12

Examining Identity and Habit as Predictors of Device-measured Physical Activity Trajectories During the First Semester of College

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Purpose: Although many first-year students arrive at college engaging in levels of physical activity (PA) that meet public health guidelines, maintaining these patterns is challenging, and substantial declines commonly emerge during the first semester. The Multi-Process Action Control framework proposes that reflexive processes (i.e., habit, identity) support sustained PA. However, few studies have examined whether these processes predict trajectories of device-measured PA. This study tested whether habit and identity predict trajectories of weekly PA across the first semester of college.

Methods: Secondary data were drawn from the College Activity and Mental Health (CALM) study, a prospective cohort of 144 first-year undergraduate students assessing movement behaviors and mental health during the college transition. A total of 118 students ($Mean = 18 \pm 0.3$ years; 58% female) with <30% missing moderate-to-vigorous PA (MVPA) were included in the analytic sample. MVPA was continuously assessed for 16 weeks using Fitbit Charge 6 devices and aggregated into weekly minutes. PA-related habit (Self-Report Behavioral Automaticity Index) and identity (Exercise Identity Scale) were assessed at baseline. Latent growth curve models estimated trajectories of MVPA and tested whether habit and identity predicted baseline levels (intercept) and rates of change (slope), adjusting for sex. Sensitivity analyses examined moderate and vigorous PA separately.

Results: Significant declines in weekly MVPA were observed ($b = -12.21, p = .002$), driven by declines in moderate PA ($b = -9.76, p < .001$), but not vigorous PA ($b = -2.74, p = .46$). Identity predicted higher baseline MVPA ($b = 43.24, p = .014$) and moderate PA ($b = 19.42, p = .016$), but did not consistently predict change over time, except for steeper declines in moderate PA ($b = -1.01, p = .040$). Habit was not significant in any models. Strong negative intercept–slope covariances ($rs \approx -.80$) indicated that students with higher initial MVPA experienced larger declines.

Conclusion: Although identity predicted higher initial PA levels, neither identity nor habit buffered declines in PA during the first semester. These findings suggest that reflexive processes alone may be insufficient to sustain PA amid the contextual disruptions of the college transition. Future research should examine dynamic contextual factors that undermine PA maintenance during this critical period.

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II-P-J.13

Understanding Mechanism of Physical Activity Maintenance During the Transition to College: An Intensive Longitudinal Examination of Stress and Reflexive Processes

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Purpose: Reflexive processes (i.e., habit, identity) are thought to sustain physical activity (PA) behavior, but prior longitudinal studies with infrequent assessments miss daily fluctuations in context, demands, and motivation, leaving the protective role of these stable processes unclear. The purpose of this study is to test whether reflexive processes moderate the effects of daily contextual factors (i.e., stress) on PA maintenance during the transition to college.

Methods: The Active College Transition: Investigating Activity, Trends, & Environment (ACTIVATE) study is a 16-week prospective cohort study of 85 first-year students (Mage=18±0.2yrs; 88% female) entering college in Fall 2025 who met aerobic PA guidelines and intentioned to maintain adherence. Daily PA (i.e., steps, active minutes) was collected via Apple Watch. Five monthly surveys assessed reflexive (i.e., habit, identity) processes outlined in the Multi-Process Action Control framework. Five randomly distributed 7-day diary bursts captured daily stress. Daily stress and PA were aggregated into weekly values. Linear mixed-effects models (weeks nested within persons) will be used to predict weekly PA from time, weekly stress, monthly habit and identity, stress*habit, stress*identity, and covariates (sex, BMI).

Results: Protocol compliance was high: 89.4% monthly survey completion, 75.1% daily survey completion, and 88.7% valid device days (>1,000 steps). Of the 85 enrolled participants, 73 provided ≥70% valid device wear data and will comprise the analytic sample. Linear mixed-effects model results will be presented to estimate within- and between-person effects on weekly PA trajectories and to examine whether habit and identity moderate the effects of stress on PA.

Conclusion: High-resolution, multimodal data are needed to elucidate the dynamic processes that foster or undermine PA maintenance. These theory-driven models represent an initial step toward integrating additional contextual indicators captured in ACTIVATE (e.g., daily PA intentions, mood, sleep quality, academic/social/occupational demands, campus recreation center use, and weather) using machine learning to detect individualized risk for PA disruption. Our work aims to identify when, where, and for whom disruption risk is elevated to inform just-in-time adaptive interventions. By moving beyond static predictors toward dynamic, precision-based models, this work advances our understanding PA maintenance.

II-P-J.14

Adolescent Perspectives on Participation in Research Using Device-based Sleep Measurement

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Purpose: During adolescence, biological shifts in circadian timing, combined with social and academic pressures and frequent digital technology use, contribute to widespread sleep problems in young people. Recent advances in consumer sleep-tracking technology offer new opportunities to measure sleep objectively at scale, to inform research aiming to improve sleep health. However, optimal methods for collecting high-quality device-measured sleep data among adolescents in free-living settings remain unclear. This study aimed to explore adolescents' preferences for sleep monitoring and co-produce strategies to maximise participation in sleep research.

Methods: Our research was conducted in the UK and comprised of (1) online focus groups with 16–24-year-olds who had previously worn a FitBit as part of the Study of Cognition, Adolescents and Mobile Phones (SCAMP) in London, and (2) a series of six co-design workshops with Year 12 students (age 16–17) in Cambridge. The focus groups followed structured topic guides with 2–5 participants per group. Workshop participants tested four sleep-monitoring devices (Garmin Venu SQ, Fitbit Inspire 3, Withings Sleep Analyzer, and GeneActiv) and provided structured feedback. Framework analysis was applied to transcripts to identify themes relating to motivations and barriers to participation, preferences for sleep monitoring, and inform strategies to optimise participation and retention in future studies.

Results: 20 young people took part in the focus groups and 28 participated in the workshops. Participants agreed

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that interest in sleep and health data were a key driver of participation, as well as financial incentives and interest in using a tracking device. Trust in researchers and transparency around data use were important when considering participation. Barriers to engagement included device discomfort, particularly sleep disturbances during overnight wear, technical issues, and forgetting to wear devices. Reactions to seeing their own health data varied, with some reporting increased awareness and behaviour change, while others had negative affective responses. Participants noted that meaningful feedback and seeing study outputs were important to them.

Conclusion: Sleep monitoring in adolescents is feasible but contingent on trust, perceived value, and low device burden. Aligning current technology potential with adolescent preferences is important achieving high-quality, scalable sleep measurement and advancing understanding of sleep as a determinant of health.

II-P-J.15

Acute Resistance Exercise Load Modulates Brain Hemodynamics, Working Memory, and Inhibitory Performance

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Purpose: Acute resistance exercise can transiently enhance executive function, but the extent to which exercise load influences specific executive domains and the underlying neurophysiological mechanisms remain unclear. This study compared the immediate and delayed effects of moderate versus high load resistance exercise on inhibitory control, working memory, and prefrontal cortex hemodynamics measured with functional near infrared spectroscopy (fNIRS).

Methods: Forty-two healthy, physically active adults (mean age 26.9 years; 24 men) were randomly allocated to high load resistance exercise (HRE, 75% of estimated one repetition maximum, 3 sets of 8 repetitions), moderate load resistance exercise (MRE, 50%, 3 sets of 12 repetitions), or a seated control condition (CON). Workload was equated across exercise groups by adjusting load and repetitions. Executive function was assessed pre-exercise, 5 to 10 minutes post exercise, and 45 minutes post exercise using a Stroop task (congruent and incongruent trials) and an n back task (1 back and 2 back). During cognitive testing, multi channel fNIRS measured oxygenated haemoglobin (O2Hb) responses over left and right dorsolateral prefrontal cortex.

Results: HRE produced small improvements in Stroop incongruent reaction time (d 0.40) and moderate to large improvements on the 2-back task (d 0.80 post; d 0.93 post45), exceeding changes in MRE (approximately d 0.60) and CON (approximately d 0.30 to 0.45). HRE elicited stronger right lateralised increases in prefrontal oxygenation, including congruent Stroop right hemisphere O2Hb increases (post d approximately 0.65). MRE showed smaller O2Hb increases (d 0.35 to 0.54), while CON showed minimal or declining activation.

Conclusion: High load resistance exercise showed the most consistent improvements in executive function, particularly under higher cognitive demand, and was accompanied by increased right lateralised prefrontal oxygenation. These findings suggest that resistance exercise load is an important determinant of acute cognitive and neurophysiological responses, with potential implications for optimising exercise prescriptions to support cognitive functioning.

II-P-J.16

Relationship between Muscle Mechanical Properties and Perceived Spasticity in People with Multiple Sclerosis: Data from ADVICE Project

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Purpose: In people with multiple sclerosis (MS), spasticity impacts wellbeing and functional status, limiting participation in exercise. Although its assessment is usually based on subjective reports or clinical measures, identifying whether objective muscle mechanical properties are associated with self-reported spasticity could

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contribute to a more comprehensive assessment of this symptom. Therefore, this study examined the association between muscle mechanical properties assessed with MyotonPRO and self-reported spasticity in people with MS.

Methods: Twenty adults with MS (10 men, 10 women) were recruited from the Multiple Sclerosis Unit of Virgen de la Arrixaca Hospital (Murcia, Spain). Self-perceived spasticity was quantified using the Numerical Rating Scale (NRS). Bilateral assessment of muscle mechanical properties was performed with MyotonPRO at the vastus lateralis (VL), rectus femoris (RF), vastus medialis (VM), lateral gastrocnemius (LG), medial gastrocnemius (MG), and Achilles tendon (AT). Frequency, stiffness, decrement, relaxation time, and creep were recorded. Associations between NRS scores and Myoton-derived variables were examined using Spearman's rank correlation coefficients. Correlations were classified as small (0.10–0.29), moderate (0.30–0.49), or large (≥ 0.50), with statistical significance set at $p < 0.05$.

Results: Higher NRS scores showed a moderate positive correlation with frequency in the right RF ($r = 0.473$, $p = 0.035$). Conversely, in the right LG, higher NRS scores tended to correlate with lower frequency ($r = -0.415$, $p = 0.069$), lower stiffness ($r = -0.435$, $p = 0.055$), and higher relaxation time ($r = 0.381$, $p = 0.097$). Similar pattern was observed in the right AT between NRS scores and frequency ($r = -0.491$, $p = 0.028$), stiffness ($r = -0.328$, $p = 0.159$), and relaxation time ($r = 0.348$, $p = 0.132$). The left LG demonstrated a similar trend.

Conclusion: Associations between self-reported spasticity and muscle mechanical properties were site-specific. Greater spasticity was associated with higher frequency in the right RF, whereas calf muscles and the AT showed reduced frequency and stiffness alongside prolonged relaxation time. These findings suggest distinct mechanical responses between quadriceps and triceps surae–tendon structures in MS. Myoton-based assessment may help characterize spasticity-related impairments relevant to physical function, improving exercise prescription in this population.

II-P-J.17

Gen Z's Perceptions of Stress, Digital Environments, and Weight Management Behaviors: Findings from Project EAT Next Generation Focus Group Discussions

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Purpose: The socio-environmental landscape for young people has shifted drastically since Project EAT (Eating and Activity over Time) began in the late 1990s. Gen Z (born 1997–2012) navigates a nexus of a global pandemic, economic challenges, and an image-centric digital ecosystem (e.g., TikTok, Instagram). While body-positive messaging is more popular, it coexists with proliferating digital weight-management tools and new pharmacotherapies. This work represents the first step of a larger study exploring contemporary stressors and technological shifts and their potential relevance for eating, activity, and weight-related health of Gen Z young people.

Methods: We conducted six virtual focus group discussions: three with adolescents (ages 13–17; $n = 31$) and three with young adults (ages 18–25; $n = 27$) from across the U.S. Semi-structured guides explored stress, social media, and weight-management behaviors, including familiarity with GLP-1 medications. Questions were refined with our young adult community advisory board to ensure relevance and comprehension. Initial thematic analysis was conducted independently by two researchers and refined through consultation with community advisory boards and the full research team. Formal qualitative analyses are planned and will be shared at the conference.

Results: Participants reported academic pressure, social relationships, and future uncertainty as primary stressors. Coping strategies included both active behaviors (e.g., focusing on homework, exercise) and avoidant behaviors (e.g., sleep, scrolling social media). Preliminary themes suggest that stress may disrupt eating patterns; adolescents frequently reported meal skipping due to perceived time scarcity, while young adults reported a mix of restriction and emotional eating. Despite awareness of wellness practices like yoga and meditation, engagement appeared low, potentially due to a lack of guidance or perceived personal inefficacy. While participants demonstrated awareness of social media risks (e.g., “doom scrolling”) and benefits (e.g., learning, connection), niche “pro-disorder” content (e.g., “eating disorder Twitter”) remains a potential underlying risk. Preliminary analysis also highlighted stigma against weight-loss medications, which were dismissed as an “easy way out.”

Conclusion: These findings are being utilized to inform our survey development in which a U.S. national sample of 2500 young people will provide data on the broad spectrum of eating, activity, and weight-related health.

II-P-J.18

Demystifying the “Freshman 15” with Comprehensive and Repeated Physical Assessments of First-year College Students in North Carolina

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Purpose: The transition to college is a major milestone for emerging adults. First-year college students living on campus experience autonomy in health decision-making and establish behavioral patterns that can be carried into adulthood. Public health data indicates obesity, diabetes, and other chronic conditions are on the rise among 18-24 year olds living in the United States. The purpose of this study was to explore changes in students' physiological health outcomes across their first academic year while attending a public university in North Carolina. We hypothesized there would be less favorable health outcomes related to the development of chronic conditions observed by the end of the spring semester.

Methods: Participants were first-year students recruited through university email announcements and fliers. There were two lab-based measurement visits, one per semester scheduled at least six months apart, conducted at the Health Risk Assessment Lab on campus. At each visit, participants completed an online survey of demographics, health history, and self-reported health behaviors. Students were also asked to provide consent for access to University card swipe data which linked the research team to meal plan usage, decline cash balances on food and beverage purchases, and recreational facility usage. After the survey, participants completed anthropometric measurements (e.g., DEXA scan), and physical assessments including blood pressure and a blood draw by finger stick (e.g. triglycerides, A1c, cholesterol). Individual student data were linked between visits and two-sided t-tests and correlations were conducted.

Results: Ninety participants completed their baseline assessment, with 73 returning for the follow-up. In less than 9 months, we observed a significant raise in A1c (T1=4.5, T2=4.6, p=0.036), as with diastolic blood pressure (T1=69, T2=71, p=0.003) and visceral fat (T=0.5, T2=0.6, p=0.027). Triglycerides decreased significantly.

Conclusion: We observed small effect sizes which were expected due to our sample size and limited time frame. However, these findings suggest additional longitudinal studies on physiological changes during college years would be valuable. Our results indicate college students are at an increased risk for developing long-term chronic conditions, underlining the importance of health promotion interventions.

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I-P-K.02

Timing of Device-measured Physical Activity and Sleep in Relation to Meeting Physical Activity Guidelines in U.S. Adults

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Purpose: This cross-sectional study aimed to provide the first nationally representative evidence on whether the timing of daily moderate-to-vigorous physical activity (MVPA) and sleep is independently and jointly associated with adherence to physical activity (PA) guidelines among U.S. adults.

Methods: We analyzed data from the 2003–2006 National Health and Nutrition Examination Survey (NHANES). Eligible participants were non-pregnant adults aged ≥ 20 years with valid accelerometer data and ≥ 5 min/day MVPA. We excluded individuals with extreme MVPA (>200 min/day), mobility limitations, or missing covariates. Participants ($n=3,153$) were categorized into morning (6:00–9:59), midday (10:00–13:59), afternoon (14:00–17:59), evening (18:00–21:59), or overnight (22:00–5:59) if $\geq 50\%$ of their average daily MVPA occurred in that window; those not meeting this threshold were assigned to a mixed group. Sleep periods were estimated from daily non-wear accelerometer intervals of 4–14 h. Participants with valid estimated sleep data ($n=2,370$) were categorized as irregular if the standard deviation (SD) of sleep midpoint was >1 h; regular sleepers ($SD \leq 1$ h) were further classified by mean sleep midpoint: early (22:00–01:59), mid (02:00–03:59), late (04:00–07:59). Meeting PA guidelines was defined as an equivalent combination of moderate- and vigorous-intensity PA ≥ 150 min/week. Because outcome prevalence exceeded 40%, we used survey-weighted modified Poisson regression with robust variance to estimate prevalence ratios (PRs) and 95% confidence intervals (CIs), adjusting for sociodemographic, behavioural, and health covariates. Joint associations were examined in the sleep subsample.

Results: Morning MVPA ($PR=1.48$, $95\%CI=1.31-1.66$) and early sleep timing ($PR=1.14$, $95\%CI=1.01-1.28$) were each independently associated with a higher prevalence of meeting PA guidelines compared to the mixed MVPA and irregular sleep timing group, respectively. These associations were stronger in morning MVPA with early sleep ($PR=1.69$, $95\%CI=1.22-2.34$) and morning MVPA with mid sleep ($PR=1.70$, $95\%CI=1.45-1.99$), and were also significant in midday MVPA with mid sleep ($PR=1.48$, $95\%CI=1.23-1.78$), compared to the mixed MVPA with irregular sleep group.

Conclusion: The associations between morning MVPA, earlier sleep and higher PA guideline adherence may inform the development of timing-based strategies for MVPA and sleep in PA promotion, while prospective studies are needed to validate these associations and evaluate their effectiveness.

I-P-K.03

A 12-week School-based Exergaming Intervention to Promote Physical Activity in Preschool Children: A Randomized Controlled Trial

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Purpose: The early years of life are critical for developing healthy movement behaviors linked to optimal physical, cognitive, and emotional growth. Integrating exergaming into preschool curricula represents an innovative strategy to enhance physical activity engagement in young children. This study aimed to evaluate the efficacy of a 12-week school-based exergaming intervention in promoting physical activity among preschoolers.

Methods: This randomized controlled trial included 56 preschool children (mean age = 4.56 ± 0.78 years; 30 girls) randomly assigned to an intervention group ($n = 28$) or a control group ($n = 28$). The intervention group participated in structured exergaming sessions 5 days per week for 25–30 minutes each session, while the control group continued their regular classroom routine. Physical activity was assessed using accelerometers at baseline and post-intervention, focusing on school-time moderate-to-vigorous physical activity (MVPA). Data were analyzed using linear mixed-effects models, accounting for repeated measures and group-by-time interactions, with significance set at $p < 0.05$.

Results: The intervention significantly increased school-time MVPA compared with the control group. Children in the intervention group showed an average increase of 15 minutes per day ($95\%CI: 10-20$ minutes; $p < 0.01$; $d = 0.80$), whereas the control group increased by 3 minutes ($95\%CI: 1-5$ minutes; $p < 0.01$; $d = 0.20$). Subgroup analysis

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indicated that children with baseline MVPA < 20 minutes per day exhibited the largest gains (+18 minutes; 95% CI: 12–24 minutes; $p = 0.02$; $d = 0.90$). Attendance averaged 92%, indicating strong adherence and feasibility.

Conclusion: This 12-week school-based exergaming intervention effectively increased physical activity among preschool children, demonstrating a feasible and engaging approach to promoting movement in early childhood. The high participation rate underscores its acceptability within preschool settings. Exergaming holds promise as a scalable strategy for educators and policymakers to integrate enjoyable, evidence-based physical activity into early learning environments, supporting the establishment of lifelong healthy movement habits.

I-P-K.04

Changes in Knowledge and Engagement of a Participatory Systems Approach to Promote Health among Social Health and Care Vocational Students: A Single-arm, Double-sited Feasibility Study

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Purpose: Participatory systems-based community-interventions applying group model building (GMB) show promise in addressing childhood obesity. This study explores the impact of a GMB-process on changes in stakeholders' knowledge and engagement in a social health and care vocational school setting. It also explores whether knowledge and engagement after the final GMB workshop are associated with subsequent action implementation.

Methods: This feasibility study (PROVE IT, Denmark) assessed composite normalization scores (0-1) for knowledge and engagement among school-, municipality- and internship staff and management at three time points at two sites: before workshop 1, immediately after the final GMB workshop and 9 months later, using an adapted version of the COMPACT Stakeholder-driven Community Diffusion survey. Additionally, actions implemented within the year following the final GMB workshop were recorded. Mixed-effects regression analyses explored the impact of the GMB workshop process on knowledge and engagement relative to baseline with work position and workshop participation as fixed effect, and site and stakeholder id as random effects. In a subgroup analysis with additional adjustment for baseline values it was explored if knowledge and engagement after the final GMB workshop were associated with subsequent action implementation.

Results: The analytic sample was 43 (98 %) at baseline, 23 (42 %) at first and 15 (29 %) at second follow-up, with attrition and loss to follow-up evenly distributed across sites. Compared to baseline, improvements in knowledge (0.09 (95% CI: 0.04 to 0.14)) and engagement (0.06 (95% CI: 0.01 to 0.11)) after the final GMB workshop were statistically significant. Only knowledge (0.10 (95% CI: 0.04 to 0.14)) remained statistically significant 9-months later. In the subgroup analysis ($n=19$) knowledge and engagement of stakeholders were positively associated with the number of actions they contributed to implementing. However, giving the small sample size, this finding might reflect a type 1 error rather than an effect.

Conclusion: Tracking knowledge and engagement provides valuable insights into outcomes of the GMB process, though the high dropout rates may affect the interpretation of the results. Limited tools exist to measure effects of GMB processes, emphasizing the need for further validation and testing in larger-scale studies.

I-P-K.05

Effects of Undulating Versus Traditional Resistance Training on Total and Pelvic Bone Mineral Density and Content in Postmenopausal Women: A Pilot Study

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Purpose: This pilot study compared the effects of traditional and daily undulating Resistance training on whole-body and pelvic bone mineral density (BMD) and bone mineral content (BMC) in postmenopausal women.

Methods: Eight postmenopausal women were allocated to traditional training (TT; $n = 4$; age 64.8+2.6 years; BMI

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25.3±1.7 kg/m²) or undulating training (UT; n = 4; age 62.8±2.9 years; BMI 25.2±2.2 kg/m²). TT performed three sets of 8-10 RM with 2-3 repetitions in reserve and 1.5 min rest intervals. UT followed a daily undulating model across weekly sessions: 35 RM (3 min rest), 8-10 RM (1.5 min rest), and 20 RM (45 s rest). All exercises were performed with maximal intended concentric velocity and identical exercise selection. Whole-body and pelvic BMD and BMC were assessed by DXA; the coefficient of variation was <1.5%, and calibration was performed daily according to manufacturer guidelines. Analyses followed an estimation-statistics approach with 95% confidence intervals.

Results: Mean pre-post change scores (A = Post-Pre) were small outcomes. For whole-body BMC, A was 39.4g in TT and 14.6g in UT, yielding a between-group difference in change(ATT-AUT) of 24.8g (95% CI: -112.6 to 162.1). For whole-body BMD, ATT - AUT was 0.00g/cm² (95% CI: -0.03); for pelvic outcomes, ATT-AUT was 6.8g for Pelv-BMC (95% CI: -8.8 to 22.3) and -0.04 g/cm² for Pelv-BMD (95% CI: -0.10 to 0.03). Across all outcomes, the 95% confidence intervals included the null, so the data do not allow firm inferences about between-group differences.

Conclusion: In this small pilot sample of postmenopausal women, TT and UT produced trivial-to-small changes in whole-body and pelvic BMC/BMD. Between-group differences in change were uncertain, with confidence intervals consistent with effects in either direction. These pilot findings justify larger, adequately powered trials to refine the estimates and clarify whether periodization model meaningfully influences pelvic bone outcomes.

I-P-K.06

Associations between Cardiorespiratory Fitness and Liver Fat in Children: The MICROKID Project

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Purpose: Cardiorespiratory fitness is a key marker of pediatric metabolic health and may be inversely related to ectopic liver fat. This question is clinically salient given the growing burden of pediatric overweight/obesity. Robust evidence in children is limited, as many studies rely on indirect adiposity measures and insufficient adjustment for confounders. Therefore, the aim of this study was to examine the association between cardiorespiratory fitness and liver fat percentage in children from the MICROKID study.

Methods: A cross-sectional analysis of 60 children (25 girls; mean age 11.19 ± 1.75 years) from the MICROKID study was conducted. Cardiorespiratory fitness was assessed using the 20-m shuttle run test (laps). Liver fat percentage was quantified as MRI-derived proton density fat fraction (PDFF) during breath-hold. Descriptive statistics were stratified by sex. Associations were examined with Spearman's correlation and linear regression of log-transformed liver fat (%) as the dependent variable. Model 1 adjusted for age and sex; Model 2 additionally adjusted for BMI. Results are presented as percent differences in liver fat per 1-SD higher cardiorespiratory fitness.

Results: Median liver fat was 3.50% [3.00–4.20] in girls and 4.50% [3.40–7.57] in boys. Cardiorespiratory fitness correlated inversely with liver fat (Spearman $\rho = -0.56$; $p < 0.001$). In Model 1, each +1 SD higher fitness was associated with -20.8% liver fat (95% CI -31.3 to -8.8; $p = 0.002$). In Model 2, the association attenuated and was not significant (+9.6%; 95% CI -11.5 to 35.6; $p = 0.393$). Boys had higher liver fat than girls independent of covariates (51% relative difference; $p = 0.001$). BMI was positively associated with liver fat (9.7% per 1 kg/m²; $p < 0.001$), whereas age was not.

Conclusion: Higher cardiorespiratory fitness is associated with lower hepatic fat in school-age children. However, this inverse association is largely attenuated after accounting for BMI, suggesting that overall adiposity explains a substantial proportion of the fitness liver fat relationship. These findings support early-life strategies that jointly enhance fitness and address adiposity to mitigate pediatric ectopic fat accumulation and future metabolic risk.

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I-P-K.07

Association between Meal Timing and the Risk of Metabolic Syndrome among Korean Adults: A Cross-sectional Data from the Korea National Health and Nutrition Examination Survey

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Purpose: Metabolic syndrome (MetS) is a cluster of metabolic risk factors, including obesity, hypertension, diabetes, and dyslipidemia, that arise from abnormalities in the body's metabolic processes. Previous studies have focused on aspects of chrono-nutrition such as meal frequency and fasting duration, **but** research on specific meal timing remains limited in Korea. Therefore, this study aimed to investigate the association between meal timing and MetS in Korean adults.

Methods: This study analyzed data from 47,346 participants aged 40–69 years from the Korea National Health and Nutrition Examination Survey (KNHANES, 2010–2023), excluding those without data on meal timing or MetS, those with abnormal energy intake, or those with extreme body mass index (BMI) values. Meal timing was categorized into four groups based on breakfast and dinner time intervals. In addition, a combined meal-timing pattern was constructed using both breakfast and dinner timing to evaluate differences according to meal-timing patterns (Early–Early, Early–Late, Late–Early, and Late–Late). Logistic regression analyses were conducted to examine the association between meal timing and MetS. Model 1 was adjusted for age, while Model 2 additionally included education level, smoking status, alcohol consumption, physical activity, BMI, total energy intake, and household income.

Results: The analysis revealed that a later breakfast time was associated with higher odds ratios (ORs) of MetS in both sexes (men: 1.22, 95% CI: 1.07–1.38; women: 1.49, 95% CI: 1.18–1.66). In addition, a later dinner time was associated with an increased prevalence of MetS only in women, with an OR of 1.22 (95% CI: 1.08–1.38). When considering combined meal-timing patterns, the Late–Late pattern showed the highest risk of MetS (OR 1.57, 95% CI: 1.33–1.85).

Conclusion: This study demonstrated that specific meal timing habits are independently associated with an increased risk of MetS among Korean adults. These findings suggest that the timing of meals may play a crucial role in metabolic health and highlight the importance of incorporating chrono-nutritional perspectives into dietary guidelines and public health strategies.

I-P-K.08

Sit Less or Be Fittest? Sedentary Time, Patterns, and Cardiovascular Health in Apparently Healthy Adults: The Moderating Role of Physical Fitness

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Purpose: Sedentary behaviour (SB) is a recognised cardiovascular risk factor, yet no consensus exists on how daily sedentary time (ST) and sedentary patterns (SP) affect health risks. Moreover, the relationship between SB and cardiovascular health (CVH), and the moderating role of physical fitness (PF), remains unclear—particularly when CVH is assessed through “Life’s Essential 8” (LE8). This study examines the associations between ST and SP on CVH and whether PF influences this relationship.

Methods: This is a population-based cross-sectional study with 394 apparently healthy adults (42,34±12,63years; 45,82% female; 25,21±3,93kg/m²) from Cadiz. ST and SP were measured with accelerometry, PF was assessed using a graded-exercise test for cardiorespiratory fitness (CRF) and a handgrip strength test for muscular strength. CVH was scored from 0 (poor) to 100 (high) using the LE8, which comprises diet, physical activity, smoking, sleep, body mass index, blood pressure, blood lipids and fasting blood glucose. Multiple linear regression models, adjusted for PF age, sex, and education level, were conducted, as well as separately by sex and age-groups (18–34years; 35–49years; 50–64years). The statistical significance was set at $p < 0,05$.

Results: The average ST was 10,30h±1,49/day, 30.74% in prolonged SP and 17,06% in very prolonged SP (>30 min

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and >60 min bouts, respectively). The mean LE8 score was $76,09 \pm 10,96$, indicating moderate CVH. There were no significant association between the ST ($\beta = -0,49; t = -1,34; p = 0,18$), nor the prolonged SP ($\beta = -0,05; t = -1,48; p = 0,14$), with LE8. However, very prolonged SP showed a positive tendency with the LE8 ($\beta = -0,12; t = -1,89; p = 0,06$); although this tendency disappears when adjusting for PF. In contrast, the PF were positively associated with the LE8 ($p < 0,001$ and $p < 0,01$, respectively). Separated by sex, all models were non-significant ($p > 0,05$). However, ST was negatively associated with LE8 ($\beta = -1,53; t = -2,46; p = 0,02$), only in the 50-64years group, but this association disappeared only after adjusting for CRF.

Conclusion: In apparently healthy adults, ST and prolonged SP were not significantly related to CVH, though very prolonged SP tend to harm CVH. Among middle-aged adults, ST was negatively associated with CVH, but CRF mediated this outcome. Overall, higher PF was positively related to CVH. Therefore, while sitting less might help, being fitter seems more crucial for CVH.

I-P-K.09

Exploring the Social, Cultural, and Environmental Barriers to Physical Activity among African Immigrant Women in the United States

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Purpose: Despite the well-documented benefits of physical activity (PA), African immigrant women in the United States are less likely to meet PA guidelines than other population groups. Their participation in PA is influenced by the interaction of social expectations, cultural norms, and environmental factors that are not well understood. This study examines how cultural modesty norms, gendered expectations, and neighborhood environments affect PA participation. It also aims to identify culturally appropriate, community-based strategies to boost participation. The study is innovative in its focus on an understudied immigrant population and in integrating socio-ecological and cultural frameworks to understand multilevel influences on women's PA engagement.

Methods: A qualitative, exploratory approach was used, involving semi-structured interviews with African immigrant women living in urban and suburban areas across the United States. Participants were purposively selected to ensure diversity in country of origin, length of stay in the U.S., cultural background, and religious background. Thematic analysis, guided by the socio-ecological model, was employed to identify influences on physical activity across multiple levels, including individual, interpersonal, and environmental factors. This approach offers a comprehensive understanding of how cultural and environmental contexts shape women's physical activity behaviors.

Results: Preliminary analyses indicate that norms of modesty and cultural expectations related to gender and family roles often limit participation in public or mixed-gender exercise settings. Environmental barriers, such as limited sidewalks, poor lighting, and safety concerns, also lead to decreased activity levels. Nonetheless, peer networks, faith-based walking groups, women-only programs, and support from trusted community or faith leaders act as important facilitators. Variations in barriers and motivators are evident across different religious affiliations and lengths of residence in the U.S., emphasizing the need for comprehensive intervention strategies.

Conclusion: This study advances understanding of how culture, gender, and place intersect to influence health behaviors among African immigrant women, an underrepresented group in PA research. Findings highlight the importance of culturally tailored community-driven interventions that incorporate environmental support and social trust mechanisms. The study supports global efforts to promote equitable PA, providing recommendations for both high-income and low- and middle-income settings facing similar cultural integration challenges.

I-P-K.10

Cultural Food Mirages: Threats to Latine Food Access in a Southern California City

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Purpose: In the United States, standard food environment assessments often overlook how food access varies across income and culture characteristics. Such nuances may fail to capture nuances of Latino (Latine) food insecurity. This study examined the food environment of Latine residents in Costa Mesa, California, to test for „food mirages“—areas

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where nutritious food is available but unaffordable. Uniquely, we extended this framework to assess *cultural food mirages*, analyzing the availability and affordability of culturally acceptable foods. We asked: What are the barriers and facilitators to food access for Latine residents in Costa Mesa?

Methods: Adopting a Community-Based Participatory Research approach with *Resilience Orange County*, we recruited $n=37$ Latine residents. We utilized participatory mapping, a visual method where participants pinned locations on a digital interface to identify specific community assets and stressors. This generated spatial data points representing food access points and accompanying narratives. We analyzed the spatial distribution of food access points and paired them with recorded narratives explaining the „why“ behind the locations. Thematic coding followed a deductive approach, from food access and food mirage frameworks.

Results: Participants collectively mapped $n=217$ data points. Food access predominantly remained within Costa Mesa but spanned across Orange and Los Angeles counties. Qualitative analysis revealed high costs and transportation deficits as major hurdles, while resource-sharing networks and non-brick-and-mortar retail outlets (e.g., street vendors) were key facilitators. Analysis revealed evidence of a food mirage, because nutritious food was geographically available but economically inaccessible. We found evidence of a cultural food mirage, where cultural foods were available but priced higher than comparable options in neighboring cities and had limited selection ranges.

Conclusion: Cultural food mirages may place residents at greater risk of food and cultural insecurity with downstream implications for diet quality and food-related wellbeing. Participatory mapping illuminated spatial and economic nuances often missed by traditional audits, highlighting how residents navigate inequitable environments. Results suggest forces like gentrification may develop and sustain these mirages, threatening resident food insecurity and neighborhood stability. Policymakers must prioritize cultural acceptability in food policy development, and future research should examine the longitudinal impacts of cultural food mirages on diet quality.

I-P-K.11

Active Lives, Agile Mind: Coproduction and Pilot Evaluation of a Mixed Martialarts Programme for Older Adults

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Purpose: The *Active Lives, Agile Mind* project aims to promote healthenhancing physical activity and improve cognitive function in older adults from diverse communities. The objective of the first coproduction phase was to develop a multicomponent exercise programme incorporating exercises and movements drawn from a range of martial arts. The objective of the second phase was to evaluate the pilot programme among women from ethnically diverse communities to assess its acceptability and its impact on emotional wellbeing, physical and cognitive function.

Methods: In phase one, the multicomponent *Movement Inspired by Martial Arts* (MIMA) programme was developed in Cardiff through an iterative coproduction process involving older adults, healthcare professionals, and thirdsector organisations. Workshops were used to identify key factors influencing physical activity and to design a hybrid martial arts programme with instructors and researchers, focusing on coordination, learning, and social interaction. In phase two, the MIMA pilot was delivered in collaboration with thirdsector organisations, with participants joining on a rolling basis. Data were collected over three months using qualitative methods and fieldbased physical and cognitive measures.

Results: The final programme includes noncontact martial arts movements designed to improve coordination and strength, alongside educational materials, group sessions, and structured social interaction to support adherence. Participants valued the coproduction process, and showcase events demonstrated strong engagement and enjoyment across diverse groups. Preliminary findings from phase two indicate high adherence, positive participant experiences, and improvements in physical function. Participants also reported benefits related to social interaction, flexibility, and balance. Currently, 22 participants are taking part, and data collection will continue until April 2026. Volunteer MIMA ambassadors are now being trained to help sustain and expand the programme.

Conclusion: Integrating coproduction with stakeholder engagement enhanced recruitment, acceptability, and perceived feasibility among older adults. Future work will focus on scaling the programme and adapting it for carers, people living with dementia, and volunteers, ensuring accessibility in both home and care settings. Building trust through compassionate public engagement and collaborative partnerships proved essential for promoting healthenhancing physical activity in underrepresented groups.

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I-P-K.12

Protocol of PLANT-Z: How to Shift Generation-Z Towards More Plant-based Dietary Patterns?

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Purpose: Although significant health and planetary benefits are associated with plant-based dietary choices, the intake of healthy and sustainable plant-based protein sources remains low in Belgium. Food choices of adolescents are shaped by complex individual and environmental factors whilst adolescents' behaviors may substantially influence future generations. Consequently, adolescents represent a crucial target group. However, evidence on adolescents' motivations and barriers regarding plant-based diets is limited, and effective intervention strategies to promote healthier and more sustainable diets are lacking. Therefore, the PLANT-Z project aims to collect pioneering data on sustainable plant-based dietary patterns in adolescents (14-18 years old), including those with a lower socio-economic status, and on how adolescents can be motivated to shift towards more healthy and sustainable plant-based dietary patterns.

Methods: A mixed-method and co-creation approach will be used. First, a cross-sectional study will be used to conduct needs assessment on adolescents' (determinants of) dietary behavior and acceptability for the transition towards more healthy and sustainable plant-based diets. These findings will be complemented by secondary analyses of national dietary intake data from the Belgian Food Consumption Survey. Second, intervention settings for the promotion of healthy plant-based diets will be determined through a literature search, after which their feasibility will be examined with school boards and parents through in-depth interviews. Based on the findings of the first and second step, an intervention strategy will be developed in a third step, making use of co-creation with adolescents from different education types in Belgium. Finally, the potential (short-term) effectiveness and feasibility of the co-developed intervention will be evaluated through pilot testing.

Results: Through this multifactorial approach we aim to develop an effective intervention through comprehensive insight into adolescents' capabilities, opportunities, knowledge, perceptions, facilitators, and barriers related to healthy and sustainable plant-based eating, as well as contextual and policy factors within school and home environments.

Conclusion: In conclusion, this research will generate foundational knowledge for shaping future co-created public health initiatives and supports more effective promotion of healthy and sustainable plant-based dietary patterns in adolescents.

I-P-K.13

Participatory Action Research to Promote Physical Activity System Change in Low Socio-economic Position (SEP) Neighbourhoods

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Purpose: Reducing socioeconomic health inequalities requires approaches that move beyond individual behaviour change and address structural barriers across multiple system levels. As part of a broader neighbourhood-based project, this study aims to improve access to physical activity among people in a low socio-economic position (SEP), by identifying systemic barriers and contributing to system-level change.

Methods: This study is embedded in the three-year participatory action research (PAR) project 'Wij(k) in Beweging' ('Neighbourhood on the Move'), conducted in three Dutch neighbourhoods. A participatory, multi-phase design was applied. Phase one has been completed and involved a local problem analysis, consisting of document analysis, stakeholder analysis, and semi-structured (group) interviews with people in a low SEP to identify systemic barriers and potential solutions to improve access to physical activity. Phases two and three are ongoing and involve the co-creation of a theory of change and its iterative implementation. Locally tailored solutions are being developed collaboratively with relevant stakeholders, including people with a low SEP.

Results: Phase one identifies interconnected, multi-level systemic barriers across all levels of the Socio-Ecological

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Model (SEM), including intrapersonal, interpersonal, organizational, environmental, and policy levels. Barriers among people in a low SEP are mental, physical, social, cultural, financial, and environmental. Furthermore, physical activity provision is perceived as inaccessible when insufficiently tailored or poorly visible. While overarching barriers are similar across neighbourhoods, their specific manifestations vary contextually. Professionals additionally highlight fragmented cross-sector collaboration as a constraint to accessible support structures. Examples of proposed solutions include strengthening cross-sector collaboration, simplifying financial support mechanisms, enhancing visibility of local opportunities, and tailoring provision to residents' lived realities. The co-created action plans are currently being finalised and will be presented at the conference.

Conclusion: This study provides insights into systemic barriers and solutions regarding physical activity among people in a low SEP. Our findings indicate that barriers described by people in a low SEP are rooted in deeper systemic determinants. Addressing these requires participative, system-level innovation that targets structural determinants of access.

I-P-K.15

Simultaneous Language Validation of the Physical Activity Domain of a Visually Enhanced Behavior Checklist.

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Purpose: Accurate and consistent educational program evaluation requires linguistically appropriate, contextually relevant, and parsimonious measurement tools. The purpose was to test the validity and reliability of three items in the physical activity domain of a visually enhanced behavior checklist. The checklist is used to evaluate behavioral changes among English- and Spanish-speaking adults who participate in government-funded nutrition education programs in the United States.

Methods: Ten content experts reviewed existing items from validated tools that measured adherence to physical activity guidelines. A convenience sample of English- and Spanish-speaking adults with low incomes was recruited from community-based organizations and simultaneously engaged in subsequent tool testing. Face validation involved iterative cognitive interviews to improve clarity, semantic equivalence, and contextual relevance of text and accompanying photos. Test-retest (Kendall's tau-b) and internal consistency (Cronbach's coefficient alpha) reliability were examined by completion of the face-validated items at two time points (T1 & T2), four weeks apart.

Results: Three items were identified and adapted through expert appraisal. Adaptations included adding photographic representations of evaluated behaviors. Three rounds of in-person (n=32) or virtual (n=18) cognitive interviews with 24 English and 26 Spanish speakers yielded improvements in clarity and suitability, most involving photos. Face-validated items were completed by 209 respondents at T1 (English n=108, Spanish n=101) and 185 at T2 (English n=94, Spanish n=91). Temporal stability was stronger for the item of strength exercise (tau=0.63; English tau=0.63, Spanish tau=0.54), followed by the items of aerobic exercise (tau=0.53, English tau=0.51; Spanish tau=0.58) and physical activity (tau=0.52; English tau=0.45, Spanish tau=0.34). Internal consistency was acceptable for the three-item domain (alpha=0.76; English alpha=0.71, Spanish alpha=0.80).

Conclusion: Face validity of items that measure adherence to physical activity guidelines was established. Items in English showed better temporal stability, whereas internal consistency reliability was stronger for the three-item scale in Spanish. Although simultaneous language testing is resource-intensive, it enables equivalent accuracy and consistency in data collected in both languages. A tool administration guide is available to facilitate data collection.

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I-P-K.16

Co-designing an mHealth Intervention to Improve Health and Well-being in Individuals with Obesity: Stakeholder Perspectives on Eating-related Components

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Purpose: Obesity is a significant public health concern, and digital technologies offer new opportunities for enhancing health and wellbeing among individuals with obesity. Co-design addresses challenges in developing effective, engaging and sustainable mHealth interventions. This study aimed to gain stakeholder insights to inform eating-related mHealth intervention components by assessing their feasibility, acceptability, and implementation potential, in addition to identifying barriers and facilitators for successful integration into everyday life.

Methods: The co-design activities were informed by the Double Diamond framework. This analysis reports findings from the discovery phase. Twelve experts (medical doctors, nutritionists) were recruited through purposive and chain-referral sampling and divided into two workshops. The workshops utilized guided discussions and group dynamics to gather data. Discussions followed a structured funnel approach, were audio- and videorecorded and transcribed verbatim. Data were coded in MAXQDA and analyzed through Clarke's situational analysis. Cartographic techniques were employed in situational mapping to analyze elements of eating-related behavior.

Results: The analysis maps the situation through heterogeneous elements influencing an individual's motivation and capacity to adopt and adhere to dietary changes, shaping the process of change. Socio-economic and demographic factors shape the conditions, opportunities, and constraints of the intervention context. Older adults find it harder to initiate change but maintain habits once engaged. Younger adults start readily but struggle with adherence. Educational background influences how individuals negotiate eating-related recommendations. Those with lower education may follow instructions readily, while those with higher education may intellectualize non-compliance. Women adhere longer when motivated by appearance but struggle to prioritize self-care, while men seek help for health issues and may relapse more easily. Cultural norms, family traditions, and stigma shape everyday eating practices. Barriers and facilitators function as dynamic temporal elements evolving throughout an individual's change journey. Digital technologies act as non-human elements. Perceived authenticity, tone of communication, feedback mechanisms, and their usability influence trust, motivation, and engagement. The mHealth intervention should be personalised, socially embedded and responsive to individuals' everyday contexts.

Conclusion: The co-design approach yielded insights into situational complexity of individuals with obesity and informed mHealth strategies targeting motivation, social and environmental factors, self-efficacy, self-regulation, and digital-related engagement challenges.

II-P-K.02

Financial Strain, Depressive Symptomatology, and Health Behaviors among Rural Adults in the Southeastern United States

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Purpose: Rural communities experience a disproportionate burden of cardiometabolic risk factors, such as low levels of physical activity, poor dietary practices, and limited access to food, physical activity, and health care resources, that contribute to higher rates of morbidity and mortality among rural adults. While research has demonstrated how limited access to resources influence healthy lifestyle choices, much less is known about the relationship between individual level psychosocial factors like financial strain and depressive symptomatology and lifestyle behaviors among rural adults. Understanding the role of multilevel factors is important for designing interventions that address both structural barriers and individual level factors that may influence health behaviors and contribute to rural health disparities. The current study: 1) describes the health behaviors of rural adults and 2) examines associations between financial strain, depressive symptomatology, and health behaviors among rural adults.

Methods: The Rural HEALTH (Healthy Eating and Active Lifestyle Tools for Health) Program seeks to understand and address multi-level factors, including individual, social, community, and environmental, that influence the eating

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and physical activity behaviors of rural adults. Program participants were recruited from four rural counties in the southeastern United States. Baseline data were collected from 210 participants enrolled in the Rural HEALTH program between 2018-2020. We conduct a cross-sectional analysis, utilizing descriptive statistics, bivariate, and multivariate analyses to examine relationships between financial strain, depressive symptomatology, fruit and vegetable consumption, sugar-sweetened beverage consumption, and physical activity patterns.

Results: The mean age of the sample is 56 years. Most participants were female (79%) and Black American (90%). Descriptive statistics of fruit and vegetable consumption, water and sugar-sweetened beverage consumption, and physical activity behaviors of rural adults are provided. Preliminary bivariate and multivariate analysis reveal associations between financial strain, depressive symptomatology, water, and sugar-sweetened beverage consumption.

Conclusion: Financial strain and mental well-being are associated with lifestyle behaviors among rural adults. Despite study limitations, findings suggest that additional research is needed to examine how psychosocial risk factors contribute to unhealthy lifestyle behaviors among rural adults. Understanding the complete range of factors associated with lifestyle behaviors is critical for developing multilevel interventions to reduce rural health disparities.

II-P-K.03

Managing Cardiometabolic Diseases through Culturally Tailored Nutrition Education and Medically-tailored Groceries for Hispanic/Latine Communities

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Purpose: Classes providing culinary instruction including nutrition education tailored to specific ethnic groups are an effective way to support individuals managing chronic diseases. Additionally, supporting adherence to educational concepts may be reinforced at home with improved food access via medically-tailored groceries (MTG). This project aims to evaluate the impact of culinary nutrition education classes supported by MTG for Hispanic/Latine individuals with cardiometabolic diseases.

Methods: Participants with Type 2 Diabetes (DM2) and/or cardiovascular diseases (CVD) were recruited from a community health clinic and enrolled in at least one culinary nutrition education class taught by Nutrition/Dietetics and Public Health students. Participants completed pre-post evaluations with likert scales measuring their understanding of managing a chronic disease diagnosis with food choices and open ended questions to evaluate the impact of the class on disease-specific knowledge and class satisfaction. Participants received MTG to support nutritionally-dense meals at home and to incorporate education from the class(es) into their daily lives.

Results: Preliminary results from 17 (3 males, 14 females) pre-post class surveys indicate increased understanding of the way DM2 or CVD affects their body, the way food affects their blood glucose and/or blood pressure and blood lipids, and what blood glucose, blood pressure, and/or blood lipid readings show good control of DM2 or CVD. Importantly, participant scores increased on average when asked to rate their confidence in managing DM2 or CVD with food. Participants participating in more than one course were more likely to rate their knowledge higher during the second pre-survey compared to the first time taking the course. Moreover, 100% of returning participants (n= 11) indicated the MTG supported at-home alignment with diet patterns to support their chronic disease. Overall, participants rated the course 4.87/5 for satisfaction and 100% of the participants indicated the material was culturally-appropriate. Participants expressed themes of empowerment to manage their chronic disease, share what they learned with family and friends, and prepare new recipes at home.

Conclusion: Attending at least one interprofessional culinary nutrition course with culturally-appropriate MTG may improve individuals' confidence in managing chronic diseases such as DM2 and CVD via food.

II-P-K.04

Predictors of Sleep Quality among Lower Secondary School Teachers in the Porto District

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Purpose: Poor sleep quality is a growing occupational health concern among teachers, given its potential impact on physical and psychological well-being. This study aimed to identify predictors of sleep quality among lower secondary school teachers working in public schools in the Porto district, Portugal.

Methods: A cross-sectional, observational, and analytical study was conducted using an online questionnaire that included sociodemographic and lifestyle variables, the Pittsburgh Sleep Quality Index (PSQI), and the Perceived Stress Scale (PSS). Multiple linear regression analyses were performed using an adjusted model controlling for age, sex, body mass index (BMI), physical activity, and smoking habits, to identify factors associated with PSQI scores.

Results: The sample ($n = 43$) was predominantly female (55.8%) with a mean age of 44.2 ± 8.07 years. Most participants reported engaging in regular physical activity (86%), poor sleep quality (PSQI mean = 7.6 ± 3.12), and a moderate level of perceived stress (PSS mean = 24.3 ± 6.33). Regression analysis revealed that stress level ($B = 0.353$; $p < 0.001$), smoking habits ($B = -4.031$; $p = 0.007$), body mass index ($B = 0.023$; $p = 0.004$), time before bedtime without technology use ($B = -0.277$; $p = 0.018$), and maintaining a bedtime routine ($B = -1.282$; $p = 0.033$) were significant predictors of sleep quality (adjusted $R^2 = 0.688$).

Conclusion: The findings suggest that higher stress levels, smoking, and increased BMI are associated with poorer sleep quality, whereas a longer period of technology abstinence before bedtime and maintaining a consistent pre-sleep routine were linked to better sleep outcomes. Despite the study's limitations, these results highlight the importance of implementing workplace health promotion strategies targeting stress management, healthy lifestyle behaviors, and sleep hygiene education to support the well-being and occupational functioning of teachers.

II-P-K.05

Facilitators and Barriers to Migrational Transitions and Its Impact on Type 2 Diabetes in Somali Elders Living in Minnesota

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Purpose: Somali elders experience significant transitions impacting their health when migrating to the United States (U.S.) including cultural shifts, changes in diet, and challenges understanding the complex healthcare system. More importantly, dietary changes are associated with increased prevalence of Type 2 Diabetes (DM2) among Somali immigrants; however, little is known regarding impacts of migration on older Somali adults managing chronic diseases. This study aims to understand the impact of migrational transitions among Somali elders related to risk for and management of DM2.

Methods: Somali participants with DM2 were recruited from community sites and participated in 30-minute ethnographic interviews to understand intersection of DM2 management and immigrant identity using community-engaged research approaches. Demographic surveys and diet quality questionnaires were administered and analyzed using REDcap and Excel. Interview themes and subthemes were determined by identifying saturation of topics via the Framework Method.

Results: Fourteen Somali participants (7 male, 7 female) with an average age of 64.5 ± 9.6 years completed the interviews. Three themes associated with migrational transitions and managing DM2 emerged: 1) cultural norms frame perceptions around health and DM2 diagnosis; 2) systemic impacts of stress and isolation post migration; 3) religion, cultural knowledge, and support from family/community were facilitators; and 4) lower socioeconomic status, low health literacy, food quality and quantity access, and occupational limits to movement, are barriers. In particular, participant 14 noted that familial pressures for women (and mothers) heightened barriers to self-care related to aging and managing DM2 stating, "We as a society have normalized putting your child's life over a mother's... Everything is for the kids. We forget ourselves. Even our food. That's where most of these illnesses come from."

Conclusion: Migration from Somalia to the U.S. in older adulthood can affect cultural norms, food access, quality & portions, physical activity, and healthcare delivery, all of which impact DM2 management. It is evident that impacts of stress from migration, resettlement, and gender norms place increased pressure on women, exacerbating poor health outcomes. Increased access is needed for transitional services for chronic disease management in older adults: from nutrition education to healthcare system support.

K. PARTICIPATORY RESEARCH IN HEALTH PROMOTION

II-P-K.07

Co-designing a System-based Intervention Approach to Stimulate Physical Activity and Motor Competence in 0-4-year-Old Children – The ASAS Project

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Purpose: Early childhood (0-4 years) is a critical period for developing motor competence (MC) and physical activity (PA) habits. However, compliance with PA guidelines among young children remains low, and MC levels are declining. While early intervention is essential, most existing interventions focus on school-aged children, and the limited interventions for 0-4-year-olds rarely adopt a system-based, multi-component perspective. Furthermore, stakeholder engagement, such as collaborating with primary caregivers and professionals working with children or families, is recognised as crucial for designing feasible interventions that can be successfully implemented in practice. This study, therefore, aimed to co-design a system-based intervention approach with primary caregivers and professionals to stimulate PA and MC in Dutch children aged 0–4 years.

Methods: An iterative co-design methodology was applied, consisting of multiple participatory sessions with primary caregivers and professionals. System insights from a broader research consortium informed the development process, and active working forms (from the A-Z of Methods of Kerr et al., 2023), alongside theoretical frameworks for intervention development (e.g., Behaviour Change Wheel) and implementation science (e.g., Updated Consolidated Framework for Implementation Research) were used as guidance. Furthermore, qualitative and quantitative data were collected on participants' background characteristics (questionnaire), acceptability, appropriateness, and feasibility of the approach (observations and focus group discussions) and the group process (focus group discussions and evaluation form).

Results: System factors influencing young children's PA and MC were discussed, and screen use behaviours, physical environment, parental insecurity/doubts and the societal trend of individualism were identified as key factors. Subsequent sessions focused on generating ideas for intervention and implementation strategies, which the research team synthesised into intervention principles by combining participants' insights with the theoretical frameworks. Prototypes of these intervention principles will be developed and refined in future sessions to enhance fit with real-world contexts.

Conclusion: By actively involving primary caregivers and professionals, we work towards an innovative, system-based intervention approach that stimulates PA and MC in young children. The flexible methodology of an iterative co-design process allowed integration of emerging insights from the broader consortium, ensuring responsiveness to the dynamic, real-world context of intervention development for early childhood.

II-P-K.08

Beyond the Clinic: Medical Students' Perceptions of Behavioral Drivers of Nutrition and Physical Activity and Obesogenic Environments for Children in the Dominican Republic

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Purpose: In rapidly urbanizing middle-income countries like the Dominican Republic, childhood obesity is driven by complex socio-ecological factors. While medical training often emphasizes individual clinical outcomes, there is a need to understand how future physicians conceptualize the environmental determinants of nutrition and physical activity (PA). This study explored medical students' perceptions of the community-level barriers to healthy eating and active living in their local contexts.

Methods: Using a Photovoice-informed qualitative design, two audio-recorded focus groups were conducted with medical students (n=18) at a university in the Dominican Republic. Participants captured and presented visual prompts depicting local community factors. Guided discussions focused on the interplay between the built environment and pediatric health behaviors (dietary intake and sedentary patterns). Data were analyzed using thematic analysis to identify perceived determinants and proposed multi-level behavioral interventions.

K. PARTICIPATORY RESEARCH IN HEALTH PROMOTION

Results: Preliminary themes highlighted significant environmental constraints on energy balance behaviors. Regarding nutrition, medical students identified the pervasive marketing of ultra-processed foods, the reward culture of sweets in schools, and food deserts surrounding childcare centers. Regarding physical activity, participants emphasized the lack of safe public infrastructure, the normalization of sedentary behaviors with digital devices and the physical decay of playgrounds. Socioeconomic pressures were seen as a cross-cutting barrier, forcing a reliance on low-cost, nutrient-poor diets. Participants proposed shifting from individual-focused counseling in a clinical setting based off their experience in clinical rotations to multi-level strategies, including school-based nutritional policy reform and urban infrastructure maintenance to support sidewalks and play.

Conclusion: Medical students demonstrated a nuanced understanding of how obesogenic environments in Santo Domingo undermine healthy nutrition and PA. These findings suggest that medical education should move beyond clinical weight management to include systems-thinking and behavioral advocacy. Integrating these community-informed perspectives can better equip future physicians to address the structural drivers of childhood obesity through context-responsive interventions.

II-P-K.09

Assessing Physical Activity Barriers by Photovoice and Computer-assisted Neighborhood Visual Assessment System (CANVAS): A Qualitative Study

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Purpose: Given the importance of neighborhood built environments in physical activity (PA) and related disparities in cardiovascular health, we assessed neighborhood disorder as a barrier to PA among African American (AA) women using the Computer-Assisted Neighborhood Visual Assessment System (CANVAS) and Photovoice. The purpose of this study was to compare the efficacy of these methodologies in evaluating neighborhood disorder in under-resourced Washington, D.C. wards and assess the impact of built environment on PA. We hypothesized that both Photovoice and CANVAS would capture important aspects of neighborhood disorder, but Photovoice would provide a community-centered perspective on how neighborhood factors detected via CANVAS influence PA. This study is the first to compare elements of the neighborhood environment captured by CANVAS and Photovoice to assess AA women's likelihood to engage in PA.

Methods: Participants were enrolled in the Washington, D.C., Cardiovascular Health and Needs Assessment. They participated in walking groups, and Photovoice was employed to identify environmental barriers to PA. CANVAS was then adapted to identify markers of neighborhood disorder in photographs taken by participants. This study employed a qualitative design using reflexive thematic analysis in which auditors utilized CANVAS and Photovoice to code themes represented by each image. Auditors initially identified 14 themes, which were then consolidated into five overarching themes.

Results: The study cohort consisted of 41 AA women (age = 61.9±10.2 years). Photovoice and CANVAS informed the creation of five themes highlighting barriers to PA: Physical Safety, Personal Safety, Availability of Resources, Inadequate Maintenance, and Urban Development. CANVAS was effective in assessing the fixed, physical aspects of the built environment that may impact PA. However, Photovoice provided more context to the participants' photographs as barriers to PA.

Conclusion: Our findings suggest that objective measures, such as CANVAS, are effective at capturing physical aspects of the environment that affect PA levels, but community-based participatory research methods, such as Photovoice, provide insight into CANVAS outcomes and reveal additional barriers to PA. This study provides key insights that can be used to develop pathways for the integration of community voices into local government policies and urban planning that reduce environmental barriers to PA.

K. PARTICIPATORY RESEARCH IN HEALTH PROMOTION

II-P-K.10

Empowering Truck Drivers to Enact Change in their Working Environments for Healthier Lifestyles – A Feasibility Study

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Purpose: Truck drivers make an essential contribution to the UK economy, yet they are exposed to various health-related risk factors associated with their occupation, and experience substantial health inequalities. Improving drivers' working environments, to support driver health and wellbeing is a government priority, however driver engagement in identifying priority areas and needs has been sparse. This study aims to assess the feasibility of adopting a mixed-methods citizen science approach, using the *Our Voice* "Discovery Tool" app, with truck drivers to empower drivers to positively impact their working environments.

Methods: This ongoing study will assess the feasibility of involving truck drivers in the four-step *Our Voice* process of 'Discover, Discussion, Activate and Change'. A target sample of 10 citizen scientists (truck drivers) will be recruited. Drivers will be requested to collect data using their smartphone via the Discovery Tool app, guided by the question "what supports your good health, and what negatively impacts your health within your working environment?" Collected data will include geotagged photographs with drivers' voice or text comments and good/bad ratings. Following data collection, drivers will be invited to a meeting to discuss data collected and identify priority areas and key stakeholders to invite to a further meeting to discuss actionable changes.

Results: To date, 4 male truck drivers (aged 40-64 years) have completed data collection for the 'Discover' step. Data have been collected across 16 locations at diverse times. 45 photographs have been taken, accompanied by 5 audio recordings and 32 text comments. Aspects of drivers' working environments captured thus far include toilets, showers, food options, rest areas, lighting, and road surface conditions. Full results of the project 'Discover' and 'Discuss' steps will be presented at the conference.

Conclusion: Findings to date demonstrate the feasibility of using the Discovery Tool with a sample of truck drivers. This approach offers potential to provide valuable insights into drivers lived experiences and their perceived barriers to adopting healthy lifestyle behaviours within the confines of their working environments. The *Our Voice* citizen science method holds potential to positively impact policy and environmental changes for this unique and understudied population.

II-P-K.11

Building a Rapid-response Cohort to Capture Emerging Trends in Adolescent Health

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Purpose: While traditional surveys provide valuable insights into adolescent health, they are less well-suited for capturing immediate impacts of current events, policy changes or social trends affecting youth and families. To address this, we are piloting a rapid-response survey infrastructure that complements traditional approaches by generating timely, community-informed data on emerging issues. Combining traditional and rapid-response methods has the potential to produce more responsive, actionable insights, enabling public health efforts to align closely with the lived experiences of youth.

Methods: The rapid-response cohort is embedded within the longitudinal Project EAT (Eating and Activity over Time) study. Participants are recruited from existing, well-characterized cohorts, including EAT IV (n=1,696), EAT 2010 (n=1,017), and their adolescent children (n=906), enabling an intergenerational design that includes parent-adolescent dyads alongside non-parent adults. Eligible participants include adolescents (ages 13-18), parents, and non-parent adults.

Participants provide consent (or assent, with parental consent for adolescents) to receive up to five brief (3-5 minute), SMS-delivered surveys annually. Surveys may be sent to the full cohort or targeted to subgroups based on characteristics of interest, enabling efficient, tailored data collection on emerging topics. Content is continuously

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informed by youth and professional community advisory boards to ensure relevance and inclusivity.

Results: We established a scalable infrastructure to support ongoing, low-burden, rapid-response data collection, including procedures for cohort recruitment and consent for ongoing contact, SMS-based survey delivery, and governance processes to prioritize emerging topics. Standardized workflows for rapid question development and vetting, brief survey design templates, and an IRB strategy enabling expedited review have been implemented to support timely deployment.

This system allows the team to develop and deploy brief surveys in near real time in response to current events and evolving public health concerns while maintaining methodological rigor and community engagement. Initial pilot implementation is ongoing and is assessing feasibility (e.g., response rates, completion time) and acceptability (e.g., perceived burden, satisfaction with survey format).

Conclusion: A rapid-response cohort model offers a promising approach for time-sensitive adolescent health research. By addressing limitations of traditional surveys, this infrastructure can generate actionable, context-sensitive data to complement existing surveillance tools.

II-P-K.12

A Co-design Study to Tailor a Theoretically-informed, Evidence-based Physical Activity Behaviour Change Intervention to Postpartum Individuals with Lumbopelvic Pain

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Purpose: Postpartum physical activity (PA) is associated with improved physical and mental health, yet 55% of postpartum individuals do not meet PA recommendations. Concurrently, one quarter of postpartum individuals experience lumbopelvic pain (LPP), and available PA behaviour change interventions are not tailored to postpartum LPP. In addition, most postpartum PA interventions are informed by social cognitive frameworks which do not account for the commonly observed PA intention-behaviour gap. The multi-process action control (M-PAC) framework includes post-intentional constructs, such as emotion regulation, habit, and identity, that facilitate intention-behaviour translation. The purpose of this study was to co-design an evidence-based, theory-informed mobile application (app) PA intervention tailored to postpartum individuals with LPP.

Methods: Ten community partners (n = 5 individuals with postpartum LPP and n = 5 healthcare providers) partook in a three-phase iterative co-design study to tailor a pre-existing PA app prototype (that currently targets adults 18+ years) to postpartum individuals with LPP. This involved 1) interviews to determine high-level modifications, 2) an online survey (4-months after the interviews) to determine satisfaction with and feedback of the updated app, and 3) think-aloud interviews (2-months after the surveys) to assess usability, receive final feedback about the app and complete a second online survey to determine the level of meaningful project engagement. App modifications were completed following each round of feedback.

Results: The first interview highlighted the need for additional content that captures the complexity of the postpartum LPP experience. Additionally, partners recommended a focus on habit development by incorporating PA into the pre-existing postpartum and infant schedule. The first online survey demonstrated overall satisfaction with the app (M = 3.78±.67 out of 5) and suggestions including reduced text, improved visual display, and increased interactivity. Think-aloud interviews confirmed that the app was user-friendly and ready for pilot testing. The second online survey portrayed extremely meaningful project engagement by partners (M = 93.69±9.02 out of 100).

Conclusion: This study served as an example of co-design methodology that can meaningfully engage knowledge users in the development of a theory-driven evidence-informed PA intervention. The next phase of app development will involve a pilot test among postpartum individuals with LPP.

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II-P-K.13

Participatory Co-creation to Promote Active Outdoor Play and Healthy Dietary Behaviours in Children: The B-Challenged Project in Spain

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Purpose: The European B-Challenged project aims to reduce inequalities in access to active outdoor play and healthy dietary behaviours among children from socioeconomically disadvantaged backgrounds through co-created interventions targeting physical and social environments. This study presents the initial phase of the project in Zaragoza (Spain), which aimed to identify needs, barriers, and opportunities to promote healthy behaviours from the perspective of children and key stakeholders using a participatory and intersectoral approach. The study's innovation lies in the systematic application of participatory methodologies adapted for children to inform the design of contextually relevant and sustainable interventions.

Methods: A participatory evaluation is being conducted in the Arrabal neighbourhood (Zaragoza). Participants include 25 children aged 10–12 years from Tío Jorge Primary School. Adapted participatory methods, including timelines, collective mapping, and causal loop diagrams, are used to identify barriers and facilitators related to active outdoor play and healthy dietary behaviours. In parallel, participatory sessions were conducted with key adult stakeholders from the school and community environment. Process evaluation includes direct observation, structured reflections by the facilitation team, and continuous participant feedback. Weekly co-creation sessions with 6th-grade students are currently ongoing to design and implement actions targeting the physical and social environment.

Results: Preliminary findings identify multiple barriers within the physical and social environment, including limited access to safe play spaces, high availability of unhealthy food options, and a predominance of sedentary activities. Potential facilitators were also identified, particularly related to the school environment, community engagement, and children's motivation to improve their neighbourhood. The participatory process showed high levels of engagement and ownership among participants and is generating context-specific action proposals currently under implementation.

Conclusion: Findings suggest that participatory approaches involving children are feasible and valuable for identifying contextual determinants of physical activity and dietary behaviours in disadvantaged settings. This study contributes to the development of context-based interventions to reduce childhood health inequalities and provides evidence on co-creation strategies in behavioral nutrition and physical activity promotion.

II-P-K.14

BODY IMAGE AND LIFESTYLE OUTCOMES FOLLOWING PARTICIPATION IN FITSPIRIT: THE ROLE OF ADHERENCE AND BASELINE INTENTIONS

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Purpose: Physical activity (PA) declines in adolescence, especially among girls. *FitSpirit* is a girls-only extracurricular PA program designed to promote PA. This study examined whether participation in *FitSpirit* was associated with

K. PARTICIPATORY RESEARCH IN HEALTH PROMOTION

changes in body size perception (BSP), body size dissatisfaction (BSD), and lifestyle habits; and whether these associations were influenced by weight intentions, weight status, and BSP-BSD profiles.

Methods: Participants ($n=293$, $14.5\pm1.5y$) enrolled in *FitSpirit* with data collected PRE-POST program. Self-reported measures included height and weight (zBMI), *FitSpirit* participation (total sessions), lifestyle habits (PA, screen-time, sleep, fruit and vegetable intakes), and BSP-BSD (Collins scale). Subgroup analyses were conducted according to baseline weight-action intentions (lose weight; control-maintain weight; gain weight; trying nothing), body weight status (underweight; normal weight; overweight; obesity), and BSP (underestimate; accurate; overestimate) and BSD (desire to be thinner; satisfied; desire to be bigger). Pre-post changes were tested with paired t-tests. Participation effects were examined using Pearson correlations and adjusted models (baseline, zBMI), and stratified analyses were conducted to explore effect modification.

Results: Overall, BSP decreased from PRE to POST ($\Delta=-0.21$; $p<0.01$), indicating a shift toward more accurate perceived body size, whereas BSD and lifestyle habits remained stable. *FitSpirit* participation was not associated with changes in BSP-BSD and lifestyle habits and subgroup analyses did not reveal any interactions for subgroup analyses. Stratified analyses showed that, based on baseline BSP profile, girls who initially “underestimated” or “overestimated” their body size shifted toward a more accurate perception over time ($\Delta=+0.53$; $p<0.05$ and $\Delta=-0.66$; $p<0.05$, respectively). Similarly, when stratified by baseline BSD profile, girls who “desired to be thinner” and those who “desired to be bigger” showed a shift toward a more accurate BSP ($\Delta=+0.18$; $p<0.05$ and $\Delta=+0.37$; $p<0.05$, respectively). Girls living with obesity presented a more accurate BSP ($\Delta=+1.26$; $p<0.05$) and a significant increase in PA ($\Delta=+17.7$ min/day; $p<0.05$).

Conclusion: Following *FitSpirit* participation, BSP trended toward greater accuracy, particularly among girls with baseline misperception or dissatisfaction. PA increased among girls living with obesity, suggesting potential benefits for higher-risk participants.

II-P-K.15

Centering Community Voices to Promote Weight-related Health in the Next Generation: A Multi-community Advisory Board (CAB) Approach

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Purpose: It is important to ensure that health research is relevant to the communities being studied. This work outlines the integration of adolescent, young adult, and professional community advisory boards (CABs) into Project EAT (Eating and Activity over Time), a longstanding, large cohort study examining the broad spectrum of eating, activity, and weight-related health in young people.

Methods: Over the last three decades, Project EAT has continuously sought input from young people. Our current research is focused on the next generation (Gen Z). We will conduct a survey with a sample of adolescents and young adults from across the United States. In addition, we will survey the original Project EAT cohorts who are now adults, as well as their adolescent children, to learn more about intergenerational trajectories. The *EAT Next Generation* study established a formal and robust process for partnering with three CABs to enrich all aspects of our study: an adolescent CAB (ages 13-17y), a young adult CAB (ages 18-25y), and a professional CAB made up of multi-disciplinary health experts. Over the course of the next six years, we plan to meet with each CAB 2-4 times per year and encourage bi-directional communication to keep an open line of idea-sharing and build genuine connection with our research partners.

Results: In the first year of our study, we have developed and introduced the CABs into our program of research and have already received useful information to guide our study. Through this collaborative process, we sought input from our CABs when identifying and refining key health priorities, such as the rising influence of weight-loss medications on social media and peer environments and current stressors facing Gen Z. The young adult group guided the refinement of our focus group questions, and our adolescent CAB provided feedback to improve the language of our national survey to ensure comprehension and relevance.

Conclusion: Working with CABs allows us to center our focus on concerns of greatest value to stakeholders but does not come without challenges. Insights into the advantages and challenges of incorporating CABs into a large research study will be shared at the conference.

L. INDIGENIZING WELLBEING RESEARCH

L. INDIGENIZING WELLBEING RESEARCH

I-P-L.02

Development and Implementation of a Diabetes Nutrition Education Curriculum “Train the Trainer” Opportunity to Build Capacity for Nutrition Educators who Serve Indigenous Adults with Diabetes

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Purpose: American Indian and Alaska Native (AI/AN) adults experience disproportionately high rates of type 2 diabetes (T2D) and face persistent barriers to accessing culturally relevant diabetes nutrition education. To address this gap, our team developed *What Can I Eat? Healthy Choices for AI/AN Adults with T2D* (WCIE) curriculum to reflect AI/AN strengths, cultural context, and traditional foodways. The WCIE Train-the-Trainer (TTT) Workshop was developed to build the capacity of AI/AN health professionals to deliver WCIE with fidelity.

Methods: Using a participatory and strengths-based approach, the team designed an interactive, two-day, in-person WCIE TTT format grounded in Adult Learning Theory that integrates flipped-classroom, teach-backs, storytelling, kinesthetic, and art-based learning strategies, offered at no cost to promote equitable access and community capacity building. Each WCIE TTT integrates local traditional foods, provides guidance for tailoring to honor the diversity of AI/AN communities, includes a scripted facilitator guide, and copies of all accompanying documents to initiate classes (e.g. participant guides). Evaluation data were compiled from workshop registration records and WCIE TTT feedback surveys.

Results: From 2021–present, 260 participants completed WCIE TTT workshops (n=11) in 8 U.S. states. Participants represented tribal and urban Indian clinics, Indian Health Service facilities, and community organizations. Over half (55%) worked in tribal clinics, and 29% were registered dietitian nutritionists. Participants (88%) rated the curriculum as highly applicable to their local context. Most rated the TTT workshop length “just right” (95%), reported high confidence teaching WCIE (56% very confident; 37% somewhat confident) and had strong intentions to implement the curriculum (46% very likely; 34% somewhat likely). Participants emphasized the TTT value of peer networking, hands-on learning, and leadership engagement, while identifying the need for ongoing technical assistance and refresher trainings (43% requested remote options).

Conclusion: WCIE TTT demonstrates a promising model for culturally tailored dissemination of diabetes nutrition education. Consistent with ISBNPA’s mission to promote innovative and impactful research in behavioral nutrition to improve global health and well-being, WCIE TTT exemplifies how culturally grounded training models can strengthen nutrition education capacity across diverse Indigenous communities. Future work will include longitudinal follow-up with trained facilitators and evaluation of WCIE implementation outcomes.

I-P-L.03

Randomized Trial of a Community Supported Agriculture Program to Reduce Chronic Disease Risk Factors Among Native Americans: The Go Healthy Study

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Purpose: Native Americans (NAs) in the United States experience higher rates of diet-related diseases including obesity, diabetes, and heart disease, compared to other population groups. The Go Healthy randomized control trial (RCT) evaluated the efficacy of a reservation-based and culturally centered community supported agriculture (CSA) intervention to improve diet and reduce chronic disease risk factors among NA adults.

Methods: This 16-week RCT was implemented from January 2024 through June 2024 with 431 NA adults aged 18 years and older with a body mass index (BMI) ≥ 25 kg/m² living on the Osage Nation Indian reservation in Oklahoma. The RCT used a community-based participatory research approach and included the following components: 1) a weekly box of fresh produce from the Osage farm; 2) a healthy eating and traditional foods curriculum with recipes incorporating

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the produce; 3) cooking demonstration videos; and 4) a kitchen “starter kit” with basic cooking equipment. Data were collected at baseline and follow-up upon completion of the 16-week intervention. The primary outcomes were to improve systolic blood pressure (SBP) and blood serum lipids and increase fruit and vegetable intake. Secondary outcomes were to improve BMI, hemoglobin A1c (HbA1c), food security, and health status.

Results: At week 16, compared with the control group, the intervention group demonstrated statistically significant improvements in dietary consumption of fresh fruits and vegetables (+4.1 points (95% CI = 1.9, 6.3; $p < 0.001$)) and reduction in HbA1c (-0.35% (95% CI = -0.5, -0.2; $p < 0.001$)). Both groups saw an increase in food security. No statistically significant differences were observed in BMI, SBP, or blood lipids.

Conclusion: This is the first RCT of a CSA on a Native American reservation. Study findings show that a culturally centered CSA can be an effective approach to improve diet and reduce chronic disease risk factors among NAs. A CSA intervention can also address upstream causes of food insecurity and create sustainable solutions to support healthy food access.

I-P-L.04

Basketball, Healthy Community Identity, and the Role of ,Exercising‘ Sovereignty in One Montana Indigenous Community

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Purpose: This study examined perspectives from one Indigenous community (St. Ignatius, Montana) about the unique role and meaning high school basketball has in promoting communal adhesiveness and inclusivity. Themes emerged that speak to a variety of health outcomes for the wider community, including promoting physical activity broadly, addressing mental health concerns, and important intergenerational engagement. This study also intentionally sought to remove the researcher from the narrative, allowing the voice of community members to emerge.

Methods: Based on Grounded Theory, we conducted 3 separate focus group sessions. Community partners invited adults with various relationships to basketball. Community partners led recruitment efforts. 40 total community members participated across the 3 sessions. Questions were developed with community partner input, from scholarship on protective factors of ,exercising‘ sovereignty during Covid-19 (Ali-Joseph, A., *et al.*, 2023). Recordings were transcribed and coded for themes from relevant literature. *Strength’s Perspective* and *Abundance-based Approach*, two Indigenous health perspectives, were used in analysis. Themes were presented back to the community for input and approval. All materials were given to the Tribal Culture Committee.

Results: Unique to this study was the focus on community sport teams for approaching further health research questions among Indigenous communities. Four themes emerged. *Interdependence:* ,Everyone‘ has an important role when examining sport as a cultural health activity; *Tradition:* The importance of sport in a community’s history, story, and over generations; *Motivations:* Sport as a health behavior bellwether; *Influencers:* The variety of key community elements connected to sporting activities/events and individuals who play significant roles maintaining sport among Indigenous communities.

Conclusion: Gathering community members’ perspectives on one fundamental aspect of their life, high school basketball, had many participants in tears. No one had ever asked what basketball meant to them as a community. The significant meaning sport has for the collective identity of many Indigenous communities provides insights about who they are, what they value, and the various health outcomes and behaviors that can be accessed around it. This proposed poster highlights the importance of examining core Indigenous sport activities, central to communal identity, to better access and understand adjacent health behaviors and outcomes.

II-P-L.01

Understanding Caregiver Perspectives and Use of an Indigenized Meal Kit Provided in Healthy Eating and Physical Activity Programming for Youth

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Purpose: Family-centered approaches are crucial to address health disparities within Native American communities. Cardiovascular diseases are associated with poor food environments, making nutrition interventions a critical component to preventative models. Community-led research programs like Building Relationships Around Indigenous Endurance (BRAID) strengthen cultural identity and empower families through culturally-grounded innovations supporting healthy eating and physical activity for youth. This study explores families' use of Indigenized meal kits provided to youth participating in BRAID.

Methods: To date, 2 of 6 focus groups (n= 13) have been conducted with caregivers of youth participating in BRAID who received meal kits at two different programming locations. Remaining focus groups will occur in November and December 2025 following the same protocols. Semi-structured interviews were used to explore facilitators and barriers, modeled from Learning Circles promoting storytelling. Researchers independently coded the transcripts using a priori and emergent codes, ensuring cultural relevance while developing the coding tree, in the first review of outcomes (2 focus groups), and for the final interpretation of the data.

Results: Two focus groups (9 males, 4 females) revealed positive perspectives; however, caregivers' needs differed based on local program capacity. At a site where an Indigenous community organization provided meal kits, caregivers focused on facilitators such as family togetherness and connection to cultural foods. At a site with fewer established resources, more barriers emerged. While caregivers utilized all foods provided, they sought stronger alignment to Indigenous foods and more community engagement regarding food sovereignty. At both sites, caregivers identified needs for Indigenous language in resources and relationality with foods.

Conclusion: Families using Indigenized meal kits in healthy eating and physical activity programming for youth desired adaptations strengthening cultural connection via language embedded in resources provided with the kits, community involvement, and relationality with the food sources.

II-P-L.02

Advancing Indigenous-led Nutrition Education through Statewide Public Health Nutrition Programming in Colorado, USA

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Purpose: Since 2022, Colorado SNAP-Ed—the nutrition education component of the United States' Supplemental Nutrition Assistance Program (SNAP)—has implemented an initiative to fund and sustain Indigenous-led nutrition education across the state. Guided by the principles of Indigenous sovereignty and self-determination, this collaboration among Colorado State University, the Centers for American Indian and Alaska Native Health (CAIANH), the Rocky Mountain Prevention Research Center, and Maven Collective Consulting aims to ensure that SNAP-Ed resources are equitably accessible and responsive to the priorities of Indigenous communities.

Methods: Through a competitive subaward process, funding was provided to three American Indian- and Indigenous-serving organizations annually between 2022 and 2025. Each organization designed and delivered culturally grounded nutrition education rooted in traditional foods, local agriculture, and community priorities. The project team provided technical assistance, evaluation training, and advocacy to promote Indigenous-led activities as “allowable costs” under USDA SNAP-Ed guidelines. Mixed-methods evaluation included interviews, observation of program delivery, and documentation of policy and systems-level changes.

Results: Across three funding cycles, nine subawards were granted, including sustained funding for one urban (Denver) and 2 rural-based organizations in southwest Colorado. Activities included Indigenous chef-led workshops, youth mentorships in traditional agriculture, and culturally tailored food literacy programming. Evaluation findings indicate strengthened community capacity, increased integration of traditional food knowledge, and enhanced visibility of Indigenous leadership within state nutrition networks. The initiative culminated in presentations at national conferences advancing advocacy for policy recognition of Indigenous-led education.

Conclusion: Despite recent federal SNAP-Ed defunding in the United States, this initiative stands as a powerful model for embedding Indigenous leadership, sovereignty, and cultural knowledge at the core of public health nutrition systems. The partnerships, evidence, and policy advocacy it generated continue to shape state and national dialogues, calling for sustained investment in Indigenous-designed and -led nutrition education as a pathway to food sovereignty and community wellbeing.

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II-P-L.03

Strengthening Indigenous Food Sovereignty through GusNIP-supported Produce Prescription and Nutrition Incentive Programs

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Purpose: The United States Department of Agriculture's Gus Schumacher Nutrition Incentive Program (GusNIP) funds produce prescription (PPR) and nutrition incentive (NI) programs to increase access to fruits and vegetables. Across the United States, Indigenous-led and Indigenous-serving organizations implement GusNIP-supported programs that align federal nutrition support with community-defined priorities for food sovereignty, cultural foodways, and wellness. These organizations bring deep place-based knowledge and trusted relationships while also navigating considerations related to Tribal governance, data sovereignty, and culturally grounded evaluation. This presentation highlights how GusNIP programs are adapted in Indigenous contexts and how peer-learning approaches support community-driven implementation.

Methods: Insights were generated through collaboration among Indigenous-serving grantees and the GusNIP Nutrition Incentive Program Training, Technical Assistance, Evaluation, and Information Center (NTAE), along with peer-learning activities. A key approach, the GusNIP Indigenous Learning Circle (ILC), convenes Indigenous-led and Indigenous-serving organizations for quarterly sessions grounded in Indigenous methodologies and relational accountability. Sessions feature community-led presentations, strategies for sourcing culturally relevant foods, discussion of Tribal IRB and data governance processes, and exchange of culturally aligned evaluation tools. Technical assistance materials and evaluation data (e.g., notes, surveys, site data) inform understanding of changes in capacity, collaboration, and confidence in program adaptation.

Results: GusNIP supports a growing network of Indigenous-serving programs across Tribal health departments, urban Indian health clinics, and community-based food sovereignty organizations. Successful implementation is rooted in long-standing relationships, Tribal decision-making authority, and alignment of program goals with cultural foodways and community wellness. Grantees report adapting PPR and NI models to procure from Tribal growers, incorporate traditional and seasonal foods, and apply Indigenous-led evaluation frameworks. The ILC has connected more than 20 organizations across 15 states in the U.S., strengthening shared learning and increasing confidence in navigating Tribal IRB review, data sovereignty considerations, and community-centered evaluation methods.

Conclusion: When guided by Indigenous leadership and community priorities, GusNIP programming advances food sovereignty in ways that are relational, culturally grounded, and sustainable. Peer-learning models such as the ILC build collaboration and demonstrate how national nutrition programs across the U.S. can partner authentically with Indigenous communities while honoring sovereignty and community-defined success.

II-P-L.04

Growing Older Staying Strong: A CBPR Collaborative to Promote Physical Activity and Healthy Longevity among Native American Older Adults Living on the Flathead Indian Reservation

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Purpose: American Indian and Alaska Native (AIAN) older adults are more likely to experience a fall-related injury than the U.S. national average, yet implementation of physical activity (PA)-based fall prevention interventions in AIAN communities has been limited. High rates of fall-related injury and death among this population can be mapped to the longstanding negative sequelae of colonization enacted by the U.S. government, including land dispossession, forced relocation, and disruption of traditional food and cultural practices. Yet AIAN older adults have demonstrated deep resilience and adaptability across generations of rapid social and environmental change, and today stand to benefit greatly from opportunities to increase PA, reduce risk of falls, and extend healthy longevity. The purpose of the study is to use a community-based participatory research (CBPR) approach to promote healthy longevity among AIAN older adults living on the Flathead Indian Reservation through attentive, inclusive implementation of evidence-

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based PA interventions.

Methods: The CBPR collaboration between the Confederated Salish and Kootenai Tribes (CSKT) of the Flathead Reservation and the University of Montana started in 2018 and continues today. This study applied a concurrent mixed methods design using post-test qualitative focus groups and pre-post survey and performance measures. The Iterative Adaptation Process (Ivanich et al., 2020) was applied to select, adapt, and evaluate evidence-based interventions to match the priorities of community members. In particular, the research is grounded in the concept of PA security (Lambert et al., 2020).

Results: We will present a concurrent mixed method evaluation with side-by-side presentation of intervention outcomes among AIAN older adults living on the Flathead Reservation. Qualitative results (N= 60 to-date) are presented across PA security domains, which informs and provides critical community voice and context to a RE-AIM-based implementation evaluation (N=220 participants) across six CSKT communities.

Conclusion: This is an exemplary tribally-drive CBPR study, where research practices are embedded within the priorities of the community, and a long-term commitment is present among partners. Outcomes indicate positive change in PA security across multiple levels of community health, suggesting promise for improved PA levels and healthy longevity among AIAN older adults.

II-P-L.05

Ripple Effects Mapping to Develop a Multilevel Community-Based Fall Prevention Intervention among Rural Native American Older Adults

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Purpose: Falls are a leading cause of injury-related disability and death among older adults worldwide, and in the U.S., American Indian and Alaska Native (AIAN) older adults experience pronounced fall-related health disparities. The purpose of this study was to use a community-based participatory research (CBPR) approach to identify multilevel impacts of a physical activity-based fall prevention intervention implemented by a rural, tribal health organization.

Methods: Ripple effects mapping (REM) is a systematic, participatory, qualitative group method that can generate contextualized, community-driven perspectives on intended and unintended impacts of public health efforts. A CBPR approach and REM were used to examine multilevel impacts of an evidence-based physical activity (PA) and fall prevention intervention (Stay Active and Independent for Life) implemented by the Confederated Salish and Kootenai Tribes (CSKT) Tribal Health from 2023-present. Members of the CSKT Tribal Health implementation personnel and CBPR study team were recruited to participate in the 4-step REM process. The REM process was conducted across two 2-hour group sessions, with follow-up sessions to conduct member checking of thematic findings.

Results: Participants (N=12) were CSKT Tribal Health personnel (75%) and CBPR study team members (25%). A preliminary analysis using the 4-step REM process yielded eight primary themes, 12 secondary themes, and 38 corresponding tertiary themes. Themes were visually documented and organized using a digital mapping tool (Xmind, 2026). Primary themes were present across multiple socio-ecological levels, including individual (knowledge sharing, improved health), social (social connectedness), organizational (staff growth, challenges with implementation), and environmental/policy levels (scale and retention, resources and collaboration). All findings will be presented in the REM visual representation.

Conclusion: This study used a CBPR approach to advance understanding of potential targets for the development of a multilevel PA promotion intervention to reduce fall risk among rural AIAN communities in the U.S. Results provide contextualized, community-driven perspectives, which are of critical importance in tribally driven intervention development. Findings will be used to inform the next steps of this research, which are to co-develop and conduct a hybrid implementation effectiveness study to test implementation of a multilevel fall prevention intervention.

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I-P-M.01

Systems Models in Food Is Medicine: Mediterranean Diet Quality Improves during Pregnancy

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Purpose: System models that combine prenatal care with food provision in the social sector and/or nutrition education via telehealth may better support dietary quality beyond prenatal care alone. Changes in diet quality during pregnancy were examined by varied models.

Methods: A randomized controlled trial at Geisinger Health (Pennsylvania, USA) in 2024 enrolled pregnant patients with household income <185% federal poverty level. Participants were randomly assigned to models: Clinic (usual prenatal care); Clinic-WIC (referral to the Special Supplemental Nutrition Program for Women, Infants and Children); Clinic-RDN (referral to Registered Dietitian/Nutritionist); Clinic-WIC-RDN. Self-reported diet quality was assessed by study questionnaire using the Mediterranean Eating Patterns for Americans (MEPA). Changes in MEPA score and adherence (>8) from baseline to 6-month follow-up and across models were compared. Repeated measures regression was used to estimate changes within each model and to compare across models. Trial Registration: NCT06311799.

Results: Among 240 participants, the mean (Standard Deviation [SD]) age was 29.2 (6.1) years, 65% were white, 14% black, and 12% Hispanic. Mean pre-pregnancy body mass index was 30.4 (8.4) kg/m² and participants enrolled at 17+6 weeks gestation. There were no differences in MEPA scores or adherence across the models at baseline: Clinic model 6.7 (2.3), 36% adherent; Clinic-WIC model 6.8 (2.3), 36% adherent; Clinic-RDN model 7.5 (2.3), 45% adherent; Clinic-WIC-RDN model 7.2 (2.3), 42% adherent. At 6-month follow-up, participants in most models experienced improvements in MEPA scores and adherence, but there were no statistically significant differences between models for MEPA outcomes. The absolute difference in MEPA scores from baseline to 6-month follow-up in the Clinic model was +0.52 (2.50); Clinic-WIC model was +0.75 (2.15; p<0.05); Clinic-RDN model was -0.04 (2.24); Clinic-WIC-RDN model was +0.70 (2.36). At 6-month follow-up, improved adherence to MEPA in the Clinic model was +4.2%; Clinic-WIC model was +14.6%; Clinic-RDN model was +9.9%; and Clinic-WIC-RDN model was +15.9%.

Conclusion: Pregnant women improved adherence to the Mediterranean Eating Pattern for Americans by two- or three-fold when exposed to models that leveraged systems approaches to connect health care, social care with food provision, and education. Future research is needed with larger sample sizes for statistical power and subgroup analyses.

I-P-M.02

The Perceptions of South African Dietetic and Nutrition Professionals on the Sponsorship and Funding of Scientific Education Opportunities by Big Food

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Purpose: Dietetic and nutrition professionals have gained greater access to evidence-based information sessions, networking opportunities and collaborative practice. This, however, provides Big Food with opportunities to sponsor and fund scientific education events, which in turn could influence nutrition research, collaboration, policy, and practice whilst simultaneously building brand loyalty. The aim of this study is to determine the perceptions of South African dietetic and nutrition professionals on the sponsorship and funding of scientific education opportunities by Big Food.

Methods: Members of the Association for Dietetics in South Africa (ADSA), the Nutrition Society of South Africa (NSSA), and the Dietetics-Nutrition is a Profession (DIP) groups (excluding students) were invited to participate in an online survey using census and snowball sampling. The online survey used a Likert scale to record participants' responses to experience and perception questions and included a short demographic section. In addition, dietetic/nutrition professionals were recruited for semi-structured interviews using purposive sampling. A semi structured interview guide with open-ended and probing questions, where necessary, was used.

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Results: Dietetic and nutrition professionals hold varied and contentious views on Big Food sponsorship of scientific education opportunities. Some participants support collaboration to modify the nutritional content of unhealthy products to healthier options, while others strongly oppose it, citing conflicts between commercial interests and public health goals. Concerns regarding conflicts of interest (COI) in scientific education opportunities emphasises the need to protect scientific credibility and integrity.

Conclusion: Participant's perceptions emphasise the diverse and complex nature of public private partnerships (PPPs) and highlight the importance of consensus guidelines to ensure ethical interaction. Well-defined disclosure and transparency measures that work synergistically within a broader food systems approach are recognised as central to achieving improved nutrition outcomes through COI-free scientific education opportunities.

I-P-M.03

The Development of a Conceptual Framework for Nutritional Psychology

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Purpose: One's psychological state can affect what, where, and how much one eats, and eating influences psychological wellbeing through a wide range of affective, cognitive, perceptual, interoceptive, and environmental processes. Many recent discoveries highlight a bidirectional link between nutrition and psychological processes. Despite these developments, the systematic study of this connection is only just emerging and nutritional psychology is not yet recognized as a formal area of study within the behavioral, psychological or nutritional sciences. This work aims to organize existing evidence into a structured conceptual framework that outlines the key domains of nutritional psychology and situates the field among adjacent disciplines.

Methods: Scientific publications on the connections between nutrition and psychological processes were compiled, reviewed, curated, and classified in a research library comprising over 3,000 publications. Key concepts were extracted, synthesized, grouped, and iteratively reviewed using a structured conceptual framework approach. The conceptualization of the framework is continuously being refined.

Results: The current framework includes six core areas of nutritional psychology: Nutrition-Conation/Affect Relationship, Nutrition-Cognition Relationship, Nutrition-Sensory Perception Relationship, Nutrition-Interoceptive Relationship, Nutrition-Psychosocial Relationship, Nutrition-Environment Relationship. These areas illustrate distinct aspects of the nutrition-psychology relationship and provide an organizing structure for conceptualizing nutritional psychology as a field of study.

Conclusion: To advance our understanding of how nutrition and psychology interconnect, the authors introduce six core areas that define the scope of nutritional psychology. By offering a conceptual framework, this work provides a theoretical foundation that can guide future research, education, and practice in this emerging interdisciplinary scientific field.

I-P-M.04

Inequities in the Availability of School-based Physical Activity Facilities in Brazil: Urban-rural Differences and the Role of Exclusive Provision for Students with Disabilities

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Purpose: The availability of adequate spaces for school-based physical activity (PA) is a determinant of healthy lifestyles and equity, particularly in contexts marked by territorial and inclusion-related inequalities. This study aimed to quantify the availability of PA-related physical structures in Brazilian schools and to examine how it varies by area of location (urban vs. rural), by the presence of exclusive educational provision for students with disabilities (yes vs. no), and by the intersection of these factors.

Methods: Cross-sectional analysis of the 2024 Brazilian School Census completed by school principals/administrators via a standardized questionnaire. The unit of analysis was the school (n = 177,067 Basic Education schools nationwide), of which 174,057 did not have exclusive classes for students with disabilities and 3,010 did. Across all schools, we

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assessed the presence of the following PA-related structures: covered courtyard, uncovered courtyard, playground, swimming pool, sports court, dance studio, and “terreiro” (i.e., an open dirt playfield, uncovered, unpaved, with no built structures). Analyses considered area of location, exclusive-service status, and their intersection. Pearson’s chi-square test was used with a significance level of 5%.

Results: Overall, 86.1% of schools had at least one PA structure, with higher prevalence in urban than rural areas (93.3% vs. 67.6%, $p < 0.01$) and in schools providing exclusive services for students with disabilities compared with those that did not (95% vs. 86%, $p < 0.01$). In the intersectional analysis, rural schools without exclusive classes for students with disabilities showed the highest proportion lacking any PA structure (32.4%; $p < 0.01$) relative to other subgroups.

Conclusion: Despite broad overall availability, pronounced inequities persist by geographic location and disability-service status, underscoring the need for targeted, intersectoral investments in PA infrastructure, especially in rural school networks, to advance equity and expand access to safe, diverse PA spaces, with likely spillover benefits for whole-of-school health promotion.

I-P-M.05

Qualitative Research on Physical Activity and Health in the Americas

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Purpose: This study provides a comprehensive mapping of qualitative research on physical activity and health across the Americas. We aimed to quantify the proportion of qualitative studies within the broader literature, identify countries contributing to this work, and examine the populations and thematic areas addressed.

Methods: An updated systematic review conducted by the Global Observatory for Physical Activity (GoPA!) (PROSPERO: CRD42017070153) of peer reviewed articles on physical activity and health in the Americas was conducted using a predefined search strategy across major databases for the period 2020 to 2023. Studies were screened using standardized inclusion criteria and classified by design. Data extraction included country, population group, study focus, and topic. Descriptive statistics were calculated to determine proportional distribution. Categorization of study focus and topic areas was conducted using a the standardized GoPA! methodology. Analyses were performed in Stata.

Results: Of 2,640 included articles extracted from the Americas, 197 (7.5%) used qualitative methods. Production was highly concentrated in the United States (37.6%) and Canada (33.0%), followed by Mexico (7.6%) and Brazil (6.6%). Several countries contributed only one study. Nearly half of qualitative studies included multiple age groups (45.2%), while adults were included in 23.4%, children and adolescents in 14.2%, older adults in 9.6%, and pregnant women in 3.6%. The most common study focus was correlates and determinants of physical activity (38.6%), followed by interventions (24.4%) and policy and practice (18.8%). Frequently addressed topics included healthy lifestyles (11.7%), cancer (9.6%), physical activity and nutrition (9.1%), and disability (8.1%), whereas environmental and sustainability related topics were rare.

Conclusion: Qualitative research represents a small fraction of physical activity scholarship in the Americas and is concentrated in few countries and selected topics. Expanding qualitative capacity across underrepresented regions and populations may strengthen culturally grounded evidence, enhance implementation relevance, and advance equitable knowledge production in behavioral physical activity research.

M. SYSTEMS SCIENCE

II-P-M.01

Using Participatory Systems Mapping to Address the Mental Health of Adolescents Growing up in Poverty

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Purpose: It is largely acknowledged that adolescents growing up in poverty have poorer mental health outcomes, but much remains unknown about the underlying complex interplay of factors and mechanisms. Acknowledging and addressing this complexity is vital for effective intervention. This study aimed to provide insight into the mechanisms underlying the mental health of adolescents growing up in poverty according to different stakeholders and to identify leverage points to improve adolescent mental health.

Methods: To collect this information, we organized four rounds of Group Model Building (GMB) workshops with adolescents, parents, professionals and policymakers in two neighborhoods in the Netherlands. GMB is a qualitative method that engages diverse stakeholders to collectively consider causes and possible solutions of complex problems, visualizing this in a systems map.

Results: Participants reported that growing up in poverty impacts adolescent mental health through (1) being able to fit in with peers, (2) spending free time outside, (3) stress caused by multiple factors, and (4) feeling unfairly treated at school. As part of these subsystems, ten leverage points were identified that could offer pathways to enhance adolescent mental health.

Conclusion: Our findings demonstrate that adolescents growing up in poverty experience mental health challenges due to various social processes and structural deficiencies. Effectively addressing adolescent mental health requires a fundamental shift in how they are perceived by the community around them while simultaneously improving families' financial and living conditions. A comprehensive systems approach is needed for lasting impact, combining interventions with immediate effects, structural reforms and socio-cultural change.

II-P-M.02

Using Systems Archetypes to Understand System Behaviour and Identify Leverage Points for Change in Local Obesity Prevention in the Netherlands

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Purpose: Participatory system dynamics (SD) approaches view public health problems as the result of a complex system of interactions. However, most public health research makes a direct leap from system mapping –often through causal loop diagrams (CLDs)- to identifying actions for change, without trying to understand the behaviour of the system as a whole and how actions could intervene. This is possibly because robust methods are lacking. This study aimed to explore whether 'systems archetypes' can bridge this gap to (1) better understand system behaviour, (2) identify leverage points (LPs) for change deeper in the system and (3) provide a more structured and traceable analysis.

Methods: We developed a novel approach using 11 generally accepted systems archetypes to perform a post hoc analysis of the eight mechanisms derived from the LIKE Project – a participatory SD project on childhood obesity prevention in Amsterdam, the Netherlands. For each LIKE mechanism we compiled a complete archetype profile, including the storyline, CLD and behaviour (graph) over time (GoT). We analysed qualitative and quantitative data to cross-check two GoTs. Finally, we reflected on this process compared with the participatory method used in the LIKE project.

Results: We identified six systems archetypes, which helped us understand the behaviour of the system. The most common was 'fixes that fail', which shows how a 'fix' applied to a problem can create unintended consequences that reinforce the problem. This can lead to 'shifting the burden' in which resources are siphoned from addressing the root cause of the problem. Compared with the originally derived points, we identified LPs deeper in the system at the paradigm and goals levels according to the Intervention Level Framework (ILF). Systems archetypes structured the process of analysis, which limited researcher interpretation and improved reproducibility and traceability.

Conclusion: Our findings suggest that systems archetypes should be added to the SD toolbox for researchers and practitioners. They can help hypothesize about a system's behaviour and lead to novel and more refined insights into how a system works and how its behaviour could be changed.

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II-P-M.05

Is Cardiorespiratory Fitness Protective Against Low-grade Inflammation in Paralympic Athletes with a Locomotor Impairment?

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Purpose: Low-grade chronic inflammation (LGCI), closely associated with atherosclerotic cardiovascular disease (ACVD), is a major contributor to chronic non-communicable diseases (1). Individuals with spinal cord injury (SCI), characterized by neurogenic obesity, sedentary lifestyle and low VO₂peak, have increased ACVD risk compared to able-bodied people (2). Rosety-Rodriguez et al showed that arm-cranking ergometer training improves VO₂peak and reduces LGCI in SCI (3). Nevertheless, LGCI is prevalent in Paralympic athletes (PA) with motor impairment (4), despite high VO₂peak. This study hypothesizes an inverse association between VO₂peak and LGCI in PA from different sports and with different health conditions (HC).

Methods: Data from 153 male PA (82 with SCI, 71 with other HC) recruited during pre-participation screenings (5) before Summer and Winter Paralympic Games were retrospectively analysed. Athletes competed in skilled (SS, n=38), power (PS, n=28), mixed (MS, n=61) and endurance sports (ES, n=26). Inflammation status was assessed by the neutrophil-to-lymphocyte ratio (NLR) from blood samples as a surrogate of LGCI (6). VO₂peak (ml·kg⁻¹·min⁻¹) was measured by incremental maximal cardiopulmonary exercise testing (Quark CPET, Cosmed). Group differences were analysed with Kruskal–Wallis test, and Spearman correlation evaluated the association between VO₂peak and NLR.

Results: Median NLR values (and ranges) didn't show statistic differences among PA competing in the different sport types: 1.7 (0.7-3.8) in SS, 1.6 (0.9-3.2) in PS, 1.6 (0.9-4.1) in MS and 1.4 (0.9-2.7) in ES. Also VO₂peak didn't show statistic differences in the 4 types of sports: 23.9 (15.2-39.7) in SS; 32.4 (17.1-50.8) in PS; 33.3 (16.4-44.7) in MS and 43.1 (27.5-58.1). A linear regression analysis showed a negative correlation between VO₂peak and NLR ($r = -0.208$; $p = 0.009$).

Conclusion: In these PA, NLR and VO₂peak did not differ among the sport types. However, the inverse relationship between VO₂peak and NLR indicates that lower cardiorespiratory fitness is modestly but significantly linked to LGCI, regardless of sport. These findings suggest that aerobic fitness, rather than sport type, may influence inflammatory status.

II-P-M.07

Higher Low-carbohydrate Diet Score is Associated with Lower Cardiovascular Mortality in Korean Adults

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Purpose: Evidence on the long-term health effects of low-carbohydrate diets remains inconsistent, particularly in populations with traditionally high carbohydrate intake such as Korea. This study aimed to examine the association between the low-carbohydrate diet score (LCDS) and all-cause and cause-specific mortality, including cancer, cardiovascular disease, and chronic respiratory disease among Korean adults.

Methods: We analyzed data from 7,303 participants aged 40–69 years from the Korean Genome and Epidemiology Study. Dietary intake was assessed using a validated food frequency questionnaire, and the LCDS was derived by assigning scores based on the percentages of energy intake from carbohydrates, proteins, and fats, with higher scores reflecting lower carbohydrate and higher protein and fat intake. Mortality was ascertained using national death records from the Ministry of Data and Statistics. Multivariable-adjusted Cox proportional hazards models were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for all-cause, cancer, cardiovascular disease, and chronic respiratory disease mortality in the overall population, with analyses further stratified by sex.

Results: During a mean follow-up of 21.0 years, 1,020 deaths were documented, including 334 from cancer, 231 from cardiovascular disease, and 129 from chronic respiratory disease. Participants in the highest quintile of LCDS had a significantly lower risk of CVD mortality compared with those in the lowest quintile (HR: 0.60, 95% CI: 0.37–0.98; P for trend = 0.01). In sex-stratified analyses, men in the third quartile of LCDS had a significantly lower risk of CVD mortality

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compared with those in the lowest quartile (HR: 0.50, 95% CI: 0.27–0.95). In women, higher LCDS was borderline associated with lower CVD mortality (HR: 0.54, 95% CI: 0.27–1.10; P for trend = 0.06). LCDS was not significantly associated with all-cause, cancer, or CRD mortality.

Conclusion: Higher LCDS was associated with lower CVD mortality among Korean adults, whereas no significant associations were observed for other mortality outcomes. These findings suggest that macronutrient composition, specifically lower carbohydrate intake, may be relevant to cardiovascular mortality risk in populations with traditionally high carbohydrate intake.

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I-P-N.02

Examining How Sources of Sociocultural Appearance Pressures Relate to Dysfunctional and Intuitive Eating among Pregnant Women: A Latent Profile Analysis

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Purpose: Women are exposed to multiple sociocultural appearance pressures (i.e., societal expectations concerning body weight and shape), and pregnancy is no exception to this reality. The present study aimed to (1) identify latent profiles of pregnant women based on their perceived sociocultural appearance pressures from multiple sources, and (2) examine how profile membership was associated with intuitive eating (i.e., eating without rigid rules in response to internal hunger and satiety cues), restrained eating (i.e., deliberate restriction of food intake to control body weight/shape), external eating (i.e., eating in response to external food cues), and emotional eating (i.e., eating in response to negative emotions).

Methods: In this study, 250 pregnant women aged 25 to 40 years ($M = 32$) in their third trimester completed an online questionnaire assessing sociocultural appearance pressures (Sociocultural Attitudes Toward Appearance Questionnaire), intuitive eating (Intuitive Eating Scale), and dysfunctional eating behaviors (Dutch Eating Behaviour Questionnaire). A latent profile analysis (LPA) using robust maximum likelihood estimation in Mplus tested two- to four-profile models based on five indicators of perceived appearance pressures: from romantic partners, family, friends, healthcare professionals, and media.

Results: The three-profile solution provided the best statistical and theoretical fit. The profiles reflected (a) low pressure from all sources (60.3%), (b) moderate pressure from all sources (30.3%), and (c) high peer- and family-related pressure (9.4%). One-way ANOVAs revealed that intuitive, restrained, and emotional eating (but not external eating) differed significantly across profiles ($ps < .01$). Specifically, participants in the low-pressure profile reported the lowest levels of restrained eating and the highest levels of intuitive eating compared to the two other profiles, which did not differ significantly from each other. In addition, participants in the low-pressure profile reported significantly lower levels of emotional eating than those in the high-pressure profile, whereas participants in the moderate-pressure profile did not differ significantly from either of the other two profiles.

Conclusion: This study highlights the varied sociocultural appearance pressures experienced by pregnant women and their associations with eating behaviors. The findings underscore the heterogeneity of these experiences and provide insights into potential risk and protective factors related to eating during pregnancy.

I-P-N.03

Impact of Judo Training on Functional Capacity in Youth with Intellectual Disabilities

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Purpose: The objective was to evaluate the impact of an adapted judo program on functional capacity in youth with intellectual disabilities (ID), specifically focusing on the 6-Minute Walk Test (6MWT). The study compared pre- and post-intervention changes between an experimental group, which participated in the judo program, and a control group.

Methods: The sample included 23 participants, comprising 9 girls and 14 boys, with a mean age of 14.1 years ($SD = 1.52$). The experimental group consisted of 16 participants, while the control group included 7 participants. On average, participants in the sample had a height of 158.3 cm ($SD = 12.13$), weight of 57.1 kg ($SD = 13.59$), and waist circumference of 68.3 cm ($SD = 11.77$). A pre-post design with a control group was implemented. The primary analysis utilized a linear mixed model to examine the effects of Group (Control/Experimental), Time (Pre/Post), and their interaction (Group $\times$ Time) on the 6MWT results. A random intercept for each participant was included in the model to

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account for individual variation. Estimated marginal means (EMMs) with 95% confidence intervals (CIs) and two-tailed p-values ($\alpha = 0.05$) were reported. Normality assumptions were verified using Q-Q and residual plots. All statistical analyses were performed using Jamovi v 2.5.5 (GAMLj module).

Results: The results revealed a significant Group $\times$ Time interaction ($p = 0.008$), indicating that the experimental group experienced a greater improvement in walking capacity compared to the control group. The control group showed minimal change in walking distance, with a pre-test score of 408 meters and a post-test score of 406 meters. In contrast, the experimental group demonstrated a significant improvement, increasing from 475 meters at pre-test to 498 meters at post-test. The estimated difference between the groups in post-intervention change was +25 meters (95% CI [7.9, 42.0], $p = 0.008$). Assumption checks confirmed the normality of residuals (Shapiro-Wilk = 0.981, $p = 0.661$).

Conclusion: The adapted judo program significantly improved walking capacity in the 6MWT, compared to the control group. These findings support the use of adapted judo as an effective physical activity to enhance functional fitness in adolescents and young individuals with intellectual disabilities.

I-P-N.04

Combined Effects of Physical Activity and Sedentary Behavior on Subjective Well-being: Insights from a German Population Study

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Purpose: Regular physical activity (PA) benefits mental and social health, contributing to overall subjective well-being (SWB), whereas sedentary behavior (SB) is linked to lower SWB independent of PA. However, the joint effects of PA and SB, and the differential impact of PA domains, remain poorly understood. This study examined associations of PA, sitting time, and their combined behavioral patterns with SWB among German adults, considering physical activity domains as work, transport, and leisure.

Methods: Data were drawn from a nationally representative 2023 telephone survey ($N = 2,753$; 46.8% men; mean age = 53.0 ± 16.6 years). PA was assessed across work, transport, and leisure using the Global Physical Activity Questionnaire, sitting time via the Marshall Sitting Questionnaire. SWB was measured with the WHO-Five Well-Being Index. Multiple linear regression models adjusted for sociodemographic and health-related covariates examined domain-specific PA, sitting time, and combined behavior patterns in relation to SWB.

Results: Overall SWB averaged 62.0 (SD = 22.6), with 25.9% of participants scoring ≤ 50 . Men, older adults, and those with better self-rated health reported higher SWB. Work-related PA and sitting time were negatively associated with SWB, whereas transport- and leisure-related PA were positively associated. Participants with lower sitting (< 8 h/weekday) and sufficient transport- or leisure-related PA (≥ 600 MET-min/week) exhibited the highest SWB ($B = 7.17$, $p < .001$), followed by high-sitting/sufficient PA individuals, relative to the reference group of higher sitting (> 8 h/weekday) and insufficient transport- or leisure-related PA (< 600 MET-min/week).

Conclusion: Leisure- and transport-related PA positively predicted SWB, while work-related PA and prolonged sitting were detrimental. Volitional PA appears to offset the negative impact of high sitting for SWB, emphasizing the need for domain-specific strategies that promote active lifestyles and reduce sedentary behavior to enhance population well-being.

I-P-N.05

The Benefits of Nature on Positive Youth Development: Evidence from the Nova Scotia Youth, Nature, and Wellbeing Survey

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Purpose: The benefits of spending time in or with nature are critical for supporting the physical, mental, and social wellbeing of youth. Positive Youth Development (PYD), a prosocial approach to adolescence, promotes wellbeing by creating opportunities for youth to develop and acknowledge their strengths to support themselves and thrive

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in society. While some studies have explored the role of nature for PYD, little evidence exists for Canadian youth, employing mixed methods approaches, or drawing connections to Lerner's six key competencies (Cs) of PYD (confidence, competence, connection, character, caring, and contribution). The aim of this study is to explore how youth living in Nova Scotia (NS; a province in Atlantic Canada) perceive the benefits of nature exposure in relation to PYD competencies using a mixed-methods online survey.

Methods: The NS Youth, Nature, and Wellbeing Survey was created for youth aged 13-18 years, informed through literature reviews and youth focus groups. Participants are asked to indicate their agreement with the benefits of nature as related to each PYD competency through 14 Likert-scale questions. Youth are also asked one open-ended question to provide context on what they feel are the most important benefits of spending time in nature.

Results: As of November 2025, ~100 youth have completed the survey. This survey aims to recruit 300 participants in alignment with past NS youth health surveys. Descriptive statistics will be calculated to understand central tendencies and distributions. Deductive content analysis will be used for the open-ended question using the 6Cs of PYD as codes to identify patterns and themes. Findings will be integrated using a concurrent mixed-methods approach.

Conclusion: Our survey is the first in Canada to explore youth's perceptions of the contribution of nature exposure to the 6Cs of PYD. Findings will be shared with partners and professionals across disciplines (e.g., healthcare, recreation, educators, policymakers), youth, and the broader community, and used to inform recommendations to increase NS youth access to nature as a mechanism for supporting PYD and overall wellbeing.

I-P-N.06

Healing Outdoors: Green Spaces in Young Adult Mental Health Recovery

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Purpose: While abundant literature links greenspace with mental health, most studies focus on the general population, and less is known about individuals with mental illness. This study examines young adults (18–30 years) with mental illnesses to assess how greenspace access and use relate to mental health outcomes and to explore participants' experiences. We hypothesize that greater greenspaces access and use improves mental health.

Methods: This cross-sectional mixed-methods study included a self-administered survey among young adults in five rehabilitation hostels different cities in Israel. The questionnaire outcomes included anxiety (GAD-7), stress (PSS-10), and depression (PHQ-9). Greenspace exposure included natural window-view and sound, distance to the nearest park, and park visits' frequency and duration. Socio-demographic and clinical variables were controlled for. Following the survey, focus groups and participatory mapping explored participants' perceptions and preferences regarding greenspaces. Transcripts were analyzed in a mixed qualitative-spatial approach to identify locations and themes.

Results: 64 participants completed the survey (mean age 22.6; 45% women; 84% Jewish; 48% employed), of which, 17 engaged in the participatory mapping (2-6 per hostel). After adjustments, greenspace access and use were mainly associated with depression, less with stress, and not with anxiety. Associations were inconsistent. Increased depression was linked with window sounds, like birdsong ($\beta=0.07$, $p=0.002$) and rustling leaves ($\beta=0.05$, $p=0.002$). Proximity to greenspaces was associated with lower depression ($\beta=-0.22$, $p=0.001$) and stress ($\beta=-0.33$, $p=0.032$). Increased park visit frequency was linked to lower depression ($\beta=-0.06$, $p=0.008$), whereas longer visit duration was associated with higher stress ($\beta=0.11$, $p=0.033$). The participatory mapping yielded three categories: greenspace barriers, greenspace benefits, and the role of greenspace in mental health rehabilitation. The latter revealed restorative effects of greenspaces that are unique to people with mental illness, such as: reducing rumination, improving sleep, and fostering grounding.

Conclusion: This study is novel in its focus on young adults with severe mental illness, a population rarely examined in relation to greenspace exposure. While the quantitative survey results were inconclusive—likely due to the small sample size—the qualitative findings provide unique insight into the restorative potential of greenspaces in mental health rehabilitation and underscore the need for further research with larger samples.

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I-P-N.09

Longitudinal Trends and Correlates of Mental Health in University Students Transitioning from University to Working Life

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Purpose: University students experience life-stage transitions, academic and social stressors, thereby increasing their risk towards mental health conditions. We fill critical knowledge gaps in regard to university students' mental health during the transition to work life and other sociodemographic, lifestyle, and COVID-19 correlates among university students in the post COVID-19 era.

Methods: Participants of the prospective Health@NUS cohort study completed a questionnaire at baseline, 12, and 24 months comprising sociodemographic, lifestyle, and COVID-19 infection-related information, and self-reported their mental well-being (WHO-5 Well-Being Index [WHO-5]) and psychological distress (Kessler 6 [K6]). We calculated mean scores for WHO-5 and K6, and examined their correlates using multivariable linear regression with generalised estimating equations.

Results: Participants enrolled between 2020 to 2022 with complete data were included (n=659, 57.2% females), of which 77.7% were ever infected with COVID-19. Mental well-being and psychological distress scores improved over the two-year follow up. Males (b = -2.59 [0.45, 4.72]), those living alone or with friends (b = 3.37 [0.26, 6.48]), and engaged in more physical activity (b = 3.94 per hour [2.44, 5.44]) had better mental well-being while those who consumed sweetened drinks (b = -1.72 per daily serving [-3.18, -0.27]), had not fully recovered (b = -7.33 [-11.75, -2.91]), and experienced moderate infection symptoms (b = -4.07 [-7.11, -1.03]) had poorer mental well-being. Males (b = -0.79 [-1.33, -0.25]), those of higher household income (b = -0.88 [-1.60, -0.15]), had more sleep (b = -0.37 per hour [-0.61, -0.14]), and had mild infection symptoms (b = -0.77 [-1.44, -0.10]) had lower psychological distress, while those who consumed sweetened drinks (b = 0.69 per daily serving [0.28, 1.09]) had higher psychological distress. Transition to work life, number of COVID-19 infections, and time since the last COVID-19 infection were not associated with either mental well-being or psychological distress.

Conclusion: This study offers a novel perspective on the longitudinal trends in mental health among university students post COVID-19. We highlight specific subgroups vulnerable to poor mental health among university students in Singapore that require holistic interventions focusing on lifestyle behaviours, with evidence suggesting that interventions may not need to differentiate by life-stage transition.

I-P-N.10

Pre- and Postnatal Maternal Psychological Distress and the Metabolomic Profile of Human Milk

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Purpose: Human milk is the gold standard of infant nutrition, providing nutrients and bioactive metabolites that shape infant immune, cognitive, and metabolic development. Maternal psychological distress, including stress, anxiety, and depression, is prevalent during the perinatal period and may influence milk composition. Evidence suggests these conditions can alter metabolite classes, with potential long-term consequences for health.

Objective: To identify whether maternal stress, depressive, and anxiety symptoms are associated with differential metabolomic signatures in human milk from 2.5 to 24 months postpartum.

Our study is the first to advance this field of research by incorporating repeated measures of maternal stress, depression, and anxiety, with multiple milk samples collected from 2.5 to 24 months, enabling examination of how

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links between maternal psychological states and milk metabolomic profiles evolve across lactation.

Methods: This data is derived from the FinnBrain Birth Cohort Study, a prospective observational study. Human milk samples were collected from 2.5 to 24 months postpartum. Maternal depressive, anxiety, and stress symptoms were assessed using validated self-report scales pre- and postnatally. Simple linear regression and linear mixed models examined associations between maternal symptom scores and human milk metabolite concentrations across lactation.

Results: Associations between maternal psychological distress and milk metabolites were heterogeneous, with both positive and negative relationships across classes and timepoints. Several human milk oligosaccharides (LNT, LNFP I, LNDFH I/II) showed negative associations with depressive and stress symptoms, while others (3'FL, 3'SL, LNT) were positively linked, particularly with prenatal symptoms. Amino acids such as threonine were reduced, whereas glutamate, glutamine, and taurine showed dynamic, time dependent associations. Energy metabolites such as succinate and hippurate were generally positively associated with prenatal symptoms but negative at later timepoints, while lactose and caprylate were mainly negatively associated with postnatal symptoms.

Conclusion: Both prenatal and postnatal maternal distress is associated with human milk metabolites. Human milk may buffer infants from some effects of maternal psychological distress, as increases in key metabolites suggest potential compensatory roles in immune modulation and healthy gut microbiota. However, reductions in metabolites with established prebiotic and immune regulatory functions reinforce the importance of interventions that support maternal mental health during the perinatal period.

I-P-N.11

Body Functionality Appreciation Buffers the Association between Negative Body Image and Problematic Eating Behaviors during Pregnancy

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Purpose: Pregnancy can lead to significant changes in women's relationships with their bodies and eating behaviors. Previous research has shown that body functionality appreciation (i.e., respecting and valuing one's body for what it can do) is associated with a more compassionate approach to one's appearance and a more positive relationship with food. The present study aimed to extend this work by examining whether body functionality appreciation during pregnancy moderates the association between negative body image and problematic eating behaviors.

Methods: The study included 245 pregnant women (M = 31.26 years, SD = 3.66) from Canada in their third trimester. The online questionnaire assessed body functionality appreciation (Functionality Appreciation Scale), seven dimensions of body image (Body Image in Pregnancy Scale), and three types of problematic eating behaviors (Dutch Eating Behaviour Questionnaire): restrained eating (i.e., deliberate control of food intake to influence body weight and shape), emotional eating (i.e., eating in response to negative emotions), and external eating (i.e., eating in response to external food cues). Correlational and linear regression analyses were performed to examine associations and test moderation effects.

Results: Most positive body image dimensions were negatively correlated with problematic eating behaviors, whereas most negative dimensions were positively correlated with them. For example, greater preoccupation with appearance was associated with more restrained ($r = .64, p < .001$), emotional ($r = .35, p < .001$), and external ($r = .24, p < .001$) eating. Regression analyses further revealed that body functionality appreciation moderated the associations between several negative body image dimensions and eating behaviors. For instance, body functionality appreciation buffered the positive association between concerns about sexual attractiveness and emotional eating. Similarly, the positive associations between appearance prioritization and all three eating behaviors were weaker among women reporting higher levels of functionality appreciation.

Conclusion: Overall, this study highlights the protective role of body functionality appreciation during pregnancy. Among pregnant women who valued their body functionality, body image concerns were less strongly related to nonoptimal eating behaviors. These findings suggest that fostering body functionality appreciation may help promote a healthier relationship with food among pregnant women experiencing body image concerns.

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I-P-N.13

Muscularity, Thinness and Body Image in Gay Men: Links to Subcommunity Identity

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Purpose: Given the central importance of appearance and beauty ideals within the gay male community, internalization of the importance of being muscular and/or thin are likely to be particularly salient. More specifically, a large proportion of gay men identify with a specific subcommunity (SC), such as *bears*, *jocks*, or *twinks*. These SC share distinct embodied physical traits and gendered norms, that might lead to specific physical activity and eating behaviors. This study is the first to study SC in terms of body image. The aim of the study is to compare SC (*bear*, *jock*, *twink*, *no SC*) in terms of muscularity/thinness internalization and body esteem.

Methods: Participants were 527 cisgender gay men ($M = 37.41$ years old; $SD = 12.71$) recruited online across Canada. They completed a questionnaire measuring sociodemographic characteristics, internalization of muscularity and thinness (SATAQ-4) and body image (Body Esteem Scale). To examine differences across SC identifications, a multivariate analysis of variance was conducted.

Results: *Jocks*-identified participants showed greater internalization of muscularity than other SC identifications ($F(3) = 24.69, p < 0.001$), with large effect sizes. *Twink*-identified participants showed greater internalization of thinness than *bear* and *no SC* participants ($F(3) = 4.75, p = 0.003$), with small to moderate effect sizes. Appearance-related body esteem did not differ across SC ($F(3) = 1.24, p = 0.296$). *Bears*-identified participants reported lower weight-related body esteem than other SC identifications with small to large effect sizes while *jocks*-identified participants reported higher body esteem related to weight than participants with *no SC identification*, with large effect size ($F(3) = 14.09, p < 0.001$).

Conclusion: Findings might reflect the endorsement of specific physical characteristics associated with the SC with which gay men identify. These ideals may, in turn influence behavioral patterns such as physical activity aimed at aligning with the SC physical characteristics. This study contributed to the understanding of how sociocultural contexts affect body image processes within sexual minority identities, highlighting the need for inclusive and tailored interventions in behavioral nutrition and physical activity promotion.

I-P-N.14

Improving Treatment through a Better Understanding of Profiles of Sexual Dispositions among Women with Binge Eating

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Purpose: Although it plays a key role in physical and mental health and well-being, sexuality has received little empirical attention in relation to eating disorders, aside from dysfunctions. To date, little is known about the perceptions individuals with eating disorders hold about sexuality, as well as their sexual fantasies, practices and experiences. However, a greater understanding of the positive sexual dispositions that can act as protective factors in treatment and increase well-being could transfer into a stronger sense of empowerment and positive embodied and relational experiences among individuals with an eating disorder. The objective of the study was to verify the presence of distinct profiles of sexual dispositions among women with binge eating episodes.

Methods: Participants were 253 adult females with recurrent and sustained episodes of binge eating in the past five years. They completed an online questionnaire including the following measures: a sociodemographic and sexorelational questionnaire, the Multidimensional Sexual Self-Concept Questionnaire (Snell, 2002), the Derogatis Sexual Functioning Inventory (Derogatis, 1978), the Arizona Sexual Experience Scale (McGahuey et al., 2000), the Sexual Pleasure Scale (Pascoal et al., 2016), and the Sexual Motivation Scale (Gravel et al., 2016). A two-step cluster analysis was performed to detect possible homogenous groupings based on similar dispositions toward sexuality. T-tests were used to specify the characteristics of each profile.

Results: Two profiles were identified, including each 50% of the sample. The first profile was associated with a more positive sexual self-concept, better sexual functioning and a wider range of sexual practices. The second profile

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was characterized by poor investment of sexuality, marked by later age at first sexual interest and consensual sexual relationship, more fear and avoidance of sexuality, fewer sexual fantasies, the experience of more sexual difficulties and less sexual pleasure, and fewer autoerotic and partnered sexual practices. Profiles did not differ relative to binge eating.

Conclusion: Concrete recommendations will be provided for the adaptation of treatment according to the presence of specific sexual dispositions among women with binge eating episodes. This will help fill the current lack of a strong empirical base, which can orient interventions that target both sexual health and well-being and sexual difficulties.

I-P-N.16

Understanding the Characteristics of a Trauma Informed Practice Training Program for Exercise Professionals

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Purpose: Trauma is a major public health concern. Approximately 70% of people experience a traumatic event in their lifetime, which can lead to lasting adverse health effects. Trauma Informed Practice (TIP) is a strength-based approach to healthcare delivery that seeks to minimise re-traumatisation, by recognising and responding to the impacts of trauma. There is growing support for the adoption of TIP in Exercise Professions given the role they play in managing health outcomes, however there is a lack of tailored training programs to support its implementation. This study aimed to understand the needs and perspectives of Exercise Professionals on the design characteristics of a TIP training program and to generate ideas to inform its development.

Methods: A qualitative exploratory design was employed, by conducting semi structured interviews with 14 Exercise Professionals, including Exercise Physiologists, Physiotherapists, Occupational Therapists, and Yoga instructors. The participants interviewed in this study were experienced Exercise Professionals who had undertaken additional training and research on TIP and were currently applying these principles in their professional practice. Interviews explored the current application of TIP across the industry, the availability of tailored training and the key design characteristics of a training program such as content, delivery methods and evaluation methods. The interviews were analysed using Braun and Clarkes thematic analysis, which identified four themes.

Results: First, a TIP training program should include content on trauma and the impacts on the body, capacity building strategies, psychological flexibility, cultural responsiveness and reporting practices. Second, participants perceive experiential and collaborative learning opportunities as essential to support practical application. Third, the program's design, delivery and evaluation should align with TIP principles such as safety, choice and empowerment. Fourth, ongoing support strategies such as mentorship and regular upskilling should be considered to support the sustainability of this approach.

Conclusion: Collectively, these findings provide a foundation for co-creating a TIP training program that equips Exercise Professionals to implement this approach.

I-P-N.17

The Effect of Exercise on Depression and Anxiety Symptoms: A Meta-meta-analysis

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Purpose: To synthesise meta-analytic outcomes from randomised controlled trials examining exercise effects on depression and anxiety across all population groups, including children and adults with both clinically diagnosed and subclinical symptoms, excluding those with pre-existing chronic physiological conditions.

Methods: Meta-meta-analysis using the PRIOR framework

Five electronic databases were searched for eligible meta-analyses published from inception to 30 September 2024. Meta-analyses of randomised controlled trials examining exercise interventions for the management of depression and anxiety symptoms were included. To avoid contamination, meta-analyses that exclusively focused on populations with chronic physiological conditions were excluded. Study selection was undertaken in duplicate by two independent reviewers.

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Results: Sixty-three studies (81 meta-analyses, 1,079 component studies, 79,551 participants) were included. Exercise reduced depression (SMD = -0.61, 95% CI -0.69 to -0.54) and anxiety symptoms (SMD = -0.47, 95% CI -0.59 to -0.36), with aerobic exercise demonstrating the most substantial impact on both depression and anxiety symptoms. The greatest benefits by population group for depression were seen in emerging adults aged 18 to 30 and post-natal females. Greater reductions in depression were associated with exercise in group and supervised settings. Exercise of shorter duration and at lower intensity was most strongly associated with anxiety reduction.

Conclusion: Findings support that exercise-based interventions, in all formats and parameters, can help mitigate depression and anxiety symptoms across all population categories. These results can help health professionals provide targeted, cost-effective, evidence-based support that aligns with individual profiles and preferences. This meta-meta-analysis is the first to comprehensively isolate the effect of exercise on both depression and anxiety across clinically diagnosed and non-clinical populations, including children, emerging adults, older adults, and perinatal females.

Exercise is effective across all population groups, with aerobic, group-based, and supervised formats showing the greatest benefits for depression. Differences in the impact of exercise intensity, duration and frequency are revealed between depression and anxiety-based populations. The effectiveness of exercise interventions appears comparable to pharmacological treatments and psychotherapies for managing depression and anxiety symptoms.

I-P-N.18

LIVE WELL – Mapping Behaviour Change Techniques to Inform a Community-based Exercise Program for Women with Depression

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Purpose: Existing community-based exercise programs may be an appropriate setting within which to deliver exercise-based interventions for women with depression. Retrospectively applying a theoretical framework to “reverse code” an existing community-based exercise program can support the identification of elements of the program that may be missing or need refining. The aim of this study was to use the Behaviour Change Intervention Ontology (BCIO) to reverse code a community-based exercise program with a focus on setting, delivery, and content (e.g., behaviour change techniques).

Methods: We applied a mixed method research design across two stages. Stage 1: the BCIO was applied to determine what BCTs does the community-based exercise program already deliver, what if anything is missing from the program, and what behavioural support does the program need to be supplemented with to meet the needs of women with depression. Stage 2 was the development of a behaviour change counselling manual informed by the Behaviour Change Taxonomy v1 (BCTTv1). The manual was then coded using the Behaviour Change Technique Ontology (BCTO) to identify BCTs present in the manual.

Results: Stage 1: We found that the community-based exercise program provides a comprehensive program encompassing 39 BCTs, including many of the common BCTs delivered in physical activity behaviour change interventions (e.g., goal setting, action planning). However, there was a lack of focus on BCTs linked to the emotion domain of the theoretical domains theory (TDF). The need to explicitly incorporate these BCTs within the exercise program to address the complexity of depression and to align with the needs of women with depression was identified. Stage 2: the behaviour change counselling manual encompassed 32 BCTs, including emotion based BCTs (e.g., inform about positive emotional consequences, monitor emotional consequences).

Conclusion: This study demonstrates how systematic reverse coding using the BCIO can characterise the content of an existing community-based exercise program, identify missing but relevant BCTs, and inform the development of enhanced intervention components. This approach provides a template for researchers seeking to evaluate and strengthen existing behaviour change interventions to maximise effectiveness.

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I-P-N.19

Correlated Changes in Health Behavior and Mental Health

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Purpose: To investigate correlated changes in mental health (MH) and health behavior (HB). It is hypothesized that positive changes in health behaviour (e.g. increasing physical activity) will be related to positive changes in well-being (e.g., increase in life satisfaction or decreases in depressiveness).

Methods: The data are from Estonian National Mental Health Study, a population based study (Laidra et al., 2023) in 3 waves of data collection (2021-2022). The analyses are based on 3277 participants who provided responses in at least 2 waves. The analysis of change scores is based on latent change score modelling.

Results: Changes in depression are negatively correlated with changes in sleep duration (-0.29;-0.38), physical activity (-0.21; 0.46) and positively with disordered eating (0.35; 0.27). Changes in well-being are weakly but significantly correlated with changes in sleep duration (0.05; 0.05) and physical activity (0.07-0.05) but mostly unrelated to changes in disordered eating. The two numbers in parentheses refer to standardized covariance parameters from latent change score model - corresponding respectively to changes from January to May 2021, and from May 2021 to January 2022. For all variables, there was negative autoregression of change scores: i.e., any change in the first time period was likely to be followed by the opposite change in the second time period.

Conclusion: Changes in mental health and three domains of health behaviour (sleep, PA, disordered eating) are significantly correlated. Most importantly, changes in depression symptoms are correlated with changes in sleep duration and disordered eating. The negative autoregression coefficients can be explained by a „bounce-back“ effect (falling back to the initial level after a temporary change).

I-P-N.20

Effectiveness of the Health4Me Text Message Intervention to Improve Adolescent Mental Health Outcomes: Secondary Analysis of a Randomised Controlled Trial

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Purpose: The shared protective factors for mental health and non-communicable diseases, including good nutrition and regular physical activity, deserve greater attention. Evidence shows that digital health interventions targeting these behaviours have potential to improve adolescents' mental health. However, high-quality evidence is limited. This secondary analysis of a randomised controlled trial assessed whether the Health4Me text message intervention improved adolescent mental health outcomes over six months compared with usual care.

Methods: Virtual randomised controlled trial (RCT, 1:1, intervention: control) among adolescents (n=390; 12-18-years; living in Australia). Intervention received 6-month co-designed, semi-personalized behaviour change text message intervention (4-5 texts/week). Primary outcomes: change in moderate to vigorous physical activity (MVPA) min/day (collected via GeneActiv accelerometers) OR change in proportion of participants meeting vegetable intake guidelines (>3 serves/day, collected via Australian Child and Adolescent Eating Survey). Secondary outcomes: mental health (collected via self-report validated surveys) including health-related quality of life (CHU-9D), anxiety symptoms (GAD-7), depressive symptoms (CESD-10) and psychological distress (K6). At 6 months, continuous outcomes were compared between groups using unadjusted tests (independent t-tests or ANOVA for normally distributed data, and Wilcoxon rank-sum tests for skewed data). The primary analysis used ANCOVA, adjusting each 6-month outcome for its baseline value. Analyses followed the intention-to-treat principle. Trial registration: ANZCTR N12622000949785.

Results: Baseline demographic data was available for 365/390 participants (mean age±SD=16±1). 70% (250/357) were female, 17% (62/357) spoke a language other than English. 73% (251/346) lived in major cities. 85% (309/365) completed 6-month follow-up. At 6-months, there was a positive impact on vegetable intake and maintenance of physical activity, but neither primary outcomes were statistically significant. A significant decrease in depressive symptoms was observed at 6-month follow-up (mean difference -1.56 [95% CI -2.96, -0.16], p<0.05). There were no significant differences in health-related quality of life, anxiety symptoms, or psychological distress.

Conclusion: Although Health4Me did not significantly improve the primary behavioural outcomes (nutrition/physical activity), it reduced depressive symptoms, suggesting value for supporting adolescent mental wellbeing. Future studies should explore refining the intervention with a stronger focus on mental health outcomes.

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I-P-N.21

Appetitive Trait Profiles and Body Image among Adults: A Latent Profile Analysis

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Purpose: Appetitive traits are predispositions toward foods that interact with environmental factors to influence eating behaviors, dietary patterns, and weight trajectories. Research using latent profile analysis (LPA) to examine various appetitive traits – including food approach traits (i.e., hunger, food responsiveness, emotional overeating, enjoyment of food) and food avoidance traits (i.e., satiety responsiveness, emotional undereating, food fussiness, slowness in eating) –among adults remains scarce. Furthermore, little research has examined how appetitive traits relate to body image.

This research aimed to investigate whether and how adults' appetitive traits relate to key dimensions of body image, including body esteem (defined as the positive appreciation and evaluation of one's body) and body dissatisfaction (defined as the perceived discrepancy between one's current and ideal body).

Methods: A cross-sectional sample of 441 French-Canadian adults ($M = 38.7$ years; $SD = 6.2$; 74.8% women; 95% White) completed questionnaires assessing appetitive traits, body esteem, and body dissatisfaction. LPA was conducted to identify homogeneous subgroups of participants based on their appetitive trait scores. Differences in body esteem and body dissatisfaction across profiles were examined using analysis of covariance (ANCOVA), controlling for age and BMI.

Results: A three-profile solution was retained based on statistical indicators and existing literature: (1) *Typical eating* (47.8%), characterized by near-average levels across both approach and avoidance traits; (2) *Low-approach eating* (34.1%), marked by similar levels of food avoidance traits as those observed in the Typical profile and the lowest levels of food approach traits across profiles; and (3) *Avid eating* (18.1%), defined by the highest food approach traits and the lowest levels of two food avoidance traits (i.e., satiety responsiveness and emotional undereating) across profiles. Participants in the *Avid eating* profile reported lower body esteem and higher body dissatisfaction compared with those in either the *Typical* or *Low-approach eating* profiles, which did not significantly differ from each other.

Conclusion: These findings highlight meaningful heterogeneity in adults' appetitive traits, suggest that individuals with higher food approach tendencies could be more vulnerable to negative body image, and provide directions for future research and interventions in nutrition and eating psychology.

I-P-N.22

Patient Preferences for the Integration of Exercise for Depression into Mental Health Care

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Purpose: Exercise is an evidence-based treatment for depression, yet it is rarely integrated into mental health care. Many U.S. mental health providers acknowledge the value of exercise for depression, and U.S. patients are interested in exercise for depression. However, patient perspectives on its incorporation into mental health care are not well understood.

Methods: Participants were 457 U.S. adults with depression who reported current or past receipt of mental health care and completed an online survey assessing their past experiences with exercise integration within mental health care and preferred level of exercise integration, each measured using parallel three-level ordinal scales. Related samples Wilcoxon signed-rank tests compared experienced versus preferred levels of exercise integration. Multivariable ordinal logistic regression examined predictors of preferred exercise integration.

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Results: 22.5% preferred no discussion of exercise in mental health care, 56.5% preferring general education and encouragement around exercise in mental health care, and 21.0% preferring structured exercise goal setting in mental health care. Participants preferred significantly greater exercise integration than they had experienced ($Z = 6.8, p < .001$). In multivariable analyses, prior experience with exercise being integrated into mental health care and greater belief in exercise's antidepressant effects were associated with higher preferred integration, whereas current antidepressant use and physical health conditions limiting exercise were associated with lower preferred integration. Preference for integration of exercise into mental health care was unrelated to depression severity or physical activity level.

Conclusion: U.S. adults with depression prefer greater integration of exercise into mental health care than they currently receive, but most prefer limited integration. These findings highlight the importance of flexible, patient-centered approaches to exercise integration into mental health care.

II-P-N.01

Association between Physical Activity and Perceived Health among Women of Reproductive Age in the United States: Insight from the National Health and Nutrition Examination Survey 2021–2023

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Purpose: Physical activity (PA) plays a crucial role in promoting physical and psychological well-being. Despite its importance, U.S. national evidence on how PA influences self-rated health, a key indicator of perceived health (PH) status and future morbidity risk among women of reproductive age, remains limited. This study examined the association between PA and perceived health using data from NHANES 2021–2023.

Methods: Data were drawn from the 2021–2023 NHANES, dataset a nationally representative cross-sectional survey of the U.S. population. The analytic sample included women aged 20–44 years ($n \approx 1,500$). PA was defined as participation in any moderate/vigorous activity during a typical week, while perceived health was categorized as good/very good/excellent versus fair/poor. Covariates included pregnancy status, age, race/ethnicity, education, income, smoking, and sedentary time. All analyses accounted for NHANES' complex survey design and were conducted using weighted descriptive statistics and survey-weighted logistic regression to examine the association between PA and PH.

Results: Weighted analyses indicated that 86.8% (95% CI: 84.3–89.3%) of women engaged in some form of PA, and 87.2% (95% CI: 85.0–89.4%) reported good/very good/excellent PH. A higher proportion of physically active women reported good perceived health compared to inactive women (90.1% vs. 68.7%, $p < .01$). In survey-weighted logistic regression models, PA was associated with higher odds of perceived good health (AOR = 2.50, 95% CI: 1.29–4.83, $p = .016$). Higher educational attainment was also positively associated with perceived health (AOR = 2.68, 95% CI: 1.24–5.79, $p = .022$), whereas age was inversely related (AOR = 0.97, 95% CI: 0.95–0.996, $p = .032$). Pregnancy status and smoking were not significantly associated with Perceived Health. The overall model explained approximately 18% of the variance in PH (pseudo- $R^2 = 0.18$), indicating a moderate model fit typical of population-based behavioral studies.

Conclusion: Women who reported any level of PA were more than twice as likely to perceive their health positively compared to inactive women. These findings highlight the importance of promoting even modest PA to enhance perceived well-being and reduce health disparities among women of reproductive age.

II-P-N.02

Testing a Group-based Physical Activity Intervention on Psychosocial Outcomes in Queer Women: A Proof-of-concept Study

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Purpose: Queer women engage in the lowest levels of physical activity (PA) behaviours compared to all other non-heterosexual communities, translating to disproportionately adverse health outcomes. These low levels of PA are likely owing to a particular set of barriers (e.g., homophobia, sexism, overt discrimination) which uniquely intersect and limit the engagement and enjoyment of PA for queer women and prevent such individuals from reaping the plethora of health benefits associated with regular PA engagement. Despite calls to address these inequities, there

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have been no documented interventions designed to dismantle the specific barriers experienced by queer women in PA. As such, the present study aimed to i.) examine the feasibility and acceptability of a group PA intervention for queer women, and to ii.) establish preliminary evidence of the effectiveness of this intervention in improving basic psychological needs, perceived social support, hypervigilance, and body appreciation in this population.

Methods: Self-identified queer women ($N = 11$; $M_{\text{age}} = 24.73$) engaged a 6-week co-designed queer-led physical activity intervention. Psychological assessments were administered at baseline, post-intervention and at 3-month follow-up and explored using paired t-tests. Adherence, attrition, acceptability, and program enjoyment was assessed post-intervention, alongside focus groups for in-depth exploration of experiences using reflexive thematic analysis.

Results: Engagement in an intentionally queer-inclusive physical activity program held in a private space supported queer women's experiences, enjoyment, and retention of physical activity behaviours. Participants reported improved psychological outcomes ($t_{\text{PNSE}} = -1.40, p = 0.13$; $t_{\text{SSQ-6}} = -2.30, p < 0.05$; $t_{\text{HV}} = 3.78, p < 0.05$; $t_{\text{BAS}} = -2.75, p < 0.05$) and the program was acceptable ($M_{\text{TAQ}} = 36.5$) and feasible to implement ($M_{\text{adherence}} = 86.5\%$; Attrition = 18%).

Conclusion: This proof-of-concept study is the first PA intervention that aimed to provide queer women with an opportunity to engage in safe and accessible PA that is removed from traditionally heteronormative fitness environments. This study has identified novel factors, considerations, and insights (e.g., queer-identified leadership, cultural sensitivity, intentionally inclusive language, resisting heteronormativity) which can support the development and implementation of effective physical activity interventions for queer women in broader contexts.

II-P-N.03

The Effects of Intermittent Fasting on Eating Behaviors and Appetite in Adolescents and Adults with Overweight and Obesity: A Systematic Review and Meta-analysis

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Purpose: Intermittent Fasting (IF) improves cardiometabolic health, yet the impact of different types of IF on eating behaviors and appetite is poorly understood and is an important consideration for mental health and wellbeing. This review aims to determine how different types of IF impact eating behaviors and appetite for adolescents and adults with overweight and obesity.

Methods: This systematic review and meta-analysis is being conducted in accordance with PRISMA guidelines and was preregistered with PROSPERO (CRD420251106320) and the Open Science Framework. Five databases (including clinical trial registries) were searched to July 1, 2025, with no language or date restrictions. Eligibility criteria were: randomized controlled trials (RCTs), participants aged ≥ 10 years with overweight/obesity; any IF intervention with a duration of ≥ 4 weeks (including time restricted eating (TRE), modified alternative day fasting (MADF), 2:5 diet, religious fasting, intermittent energy restriction); measured eating behaviors and cognitions (e.g., dietary restraint, food reward, emotional/external eating) or appetite (self-reported hunger/fullness and measured hormones e.g., ghrelin, CCK, leptin) before and after the intervention. Random effects meta-analysis will be used to combine outcome data, and the differential impact of IF types on outcomes will be evaluated. The primary outcome will be standardized mean difference in eating behaviors and appetite. Results will be compared by age group (adolescent/adult). Risk of bias will be assessed using the JBI critical appraisal tool for RCTs.

Results: The search retrieved 2,971 records. After deduplication, 1,487 title/abstracts were screened by two independent reviewers, leaving 740 full texts. The most frequent reason for full-text exclusion was not including eating/appetite outcomes ($n=205$). Of 54 included studies, 51 were in adults and 3 were in adolescents. TRE was the most common intervention ($k=26$), followed by MADF ($k=12$). Eating behaviors were assessed in 20 studies, subjective appetite was assessed in 25 studies, and hormones were measured in 29 studies.

Conclusion: As IF is a popular diet strategy, this review is timely and will provide a comprehensive assessment of the effect of different types of IF on eating behaviors and appetite outcomes, in addition to comparing effects in adolescents and adults.

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II-P-N.04

Beyond Food Access: The Protective Effect of Adult and Peer Connection on Mental Wellbeing in Food Insecure Adolescents

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Purpose: While food insecurity has been consistently linked to adverse mental health outcomes among adolescents, little is known about its relationship with positive aspects of mental wellbeing crucial for resilience, or the role of social connection. This study investigates the association between food insecurity and adolescents' mental wellbeing, including whether connectedness with adults and peers moderates this association.

Methods: Cross-sectional population-based self-report surveys were conducted during the 2024-2025 school year with 18,846 Canadian adolescents attending grades 6-8 in public schools. Surveys assessed food insecurity, negative (depressive symptoms, anxiety) and positive (optimism, satisfaction with life) indicators of mental wellbeing, adult connection, and peer belonging. Linear mixed effect models nested by school examined differences in mental wellbeing by food insecurity status (food insecure vs. secure), adjusting for grade, gender, and ethnic background. Moderation analyses tested the effect of adult connection and peer belonging in modifying these associations.

Results: Compared to food secure adolescents, food insecure adolescents reported greater anxiety (1.92 vs. 2.45 [range:1-4], β :0.53) and depression (3.05 vs. 3.61 [range:1-5], β :0.56), and lower optimism (3.47 vs. 2.95 [range:1-5], β :-0.52) and satisfaction with life (3.52 vs. 2.91 [range:1-5], β :-0.62; $p<0.001$ for all). Greater adult connection was associated with lower anxiety to a larger extent for food secure (β :-0.32) than food insecure adolescents (β :-0.24; $p=0.006$). Greater adult connection was also associated with lower depressive symptoms among food secure (β :-0.48) versus food insecure adolescents (β :-0.27; $p<0.001$). Similar patterns across the negative mental wellbeing indicators were found by peer belonging ($p<0.001$ for all). Greater peer belonging was associated with higher optimism to a larger extent for food secure (β :0.44) than food insecure adolescents (β :0.38; $p=0.004$); no difference was found by adult connection ($p=0.211$). The effect of food insecurity on satisfaction with life was not significantly moderated by adult connection ($p=0.759$) or peer belonging ($p=0.474$).

Conclusion: Food insecure adolescents reported poorer mental wellbeing than food secure adolescents, and although social connection had a protective effect, the effect was stronger among food secure adolescents. These findings suggest that comprehensive interventions for food insecure adolescents are needed which build and sustain supportive relationships as part of broader mental health initiatives.

II-P-N.05

“Cuidem-nos” Programme to Promote Healthy Lifestyles Habits for Professionals in Osonament

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Purpose: “Cuidem-nos” is a programme that began in 2022 to promote healthy lifestyle habits in the workplace and foster the well-being of professionals from Osonament. The main objective was to increase physical activity, reduce sedentary behaviour, improve nutritional patterns, and enhance emotional management. The programme is reviewed and updated every six months based on the feedback received.

Methods: The project includes three lines of intervention—physical activity, nutrition, and emotional well-being—and is coordinated by four professionals (two sport scientists, a dietitian-nutritionist, and a psychologist). The actions are carried out through different health promotion spaces: I) ‘Open room’: spaces into the working day for practicing physical activity (yoga, Pilates and strength training); II) Pills: weekly information capsules with recommendations on the three lines of intervention; III) Annual training activities focused on the three areas of action.

Results: Since the programme began, 162 ‘Open Room’ physical activity sessions have been held, benefiting 46 professionals (66% of whole professionals). Regarding the pills, 119 capsules have been published, with 6106 views (average of 18.7 annual views per professional), focusing on promoting an active and healthy lifestyle. The satisfaction survey (43% participation; $n=30$) shows an overall rating of 8.3/10 for the programme. Some objectives to be achieved, such as the improvement in awareness of healthy habits or the promotion of a positive attitude towards the three

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lines of action, have obtained average scores between 8.2 and 8.6. In relation to annual training activities, we carried out eight, talking about healthy eating, lower back pain, physical activity contraindications and emotional wellbeing, among others, with an average attendance of 18 to 34 professionals per training activity.

Conclusion: “Cuidem-nos” programme has impacted positively on the health of professionals, encouraging them to reduce sedentary lifestyles, increase physical activity and adopt healthy eating habits. It has also helped to consolidate a culture of wellbeing and self-care in the workplace, being an effective strategy for promoting the overall health of workers.

II-P-N.06

Promoting Intuitive Eating through Social Media: Insights from a One-year Experimental Study

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Purpose: The aim of the present study was to examine the impact of one year of exposure to online positive content on specific dimensions of intuitive eating in the general population. The main hypothesis was that individuals exposed to the four online awareness campaigns over the course of one year would demonstrate a significant improvement in intuitive eating compared to the control group.

Methods: A total of 324 participants were recruited online. The sample consisted primarily of women (N = 284) with a mean age of 33 years (M = 33.5, SD = 10.9). Participants were randomly assigned to either an experimental or a control group. Participants in the experimental group were exposed to online content created by ÉquiLibre, a French-Canadian community organization. This content included four awareness campaigns designed to challenge appearance-related pressures and promote positive eating behaviors such as intuitive eating. This experimental study was conducted over one year with five measurement time points: one pre-test assessment and one assessment following each of the four awareness campaigns. Repeated-measures analyses of variance (ANOVAs) were conducted.

Results: Participants in the experimental group showed a more significant increase than the control group regarding confidence in their hunger and satiety cues after the first campaign ($F(1,72) = 7.596, p = .007$), as well as a marginally significant cumulative effect across the overall study (T0 to T5, $F(1,72) = 3.748, p = .057$). They also showed a more significant increase regarding the congruence between bodily needs and food intake ($F(1,72) = 5.340, p = .024$) after the second campaign (which specifically focused on the “No Diet Week”). No significant differences from the control group were observed for the unconditional permission to eat and the tendency to eat for physiological rather than emotional reasons.

Conclusion: To conclude, even though the differences that were observed were small, positive content on body image and intuitive eating on social media can serve as a pathway to foster a healthier relationship with food. Its wide accessibility allows it to reach a large portion of the population at low cost and in a short period of time.

II-P-N.07

Municipal Capacity Building: Exploring Systemic Capacity for Youth Wellbeing in Faaborg-Midtfyn Municipality - The Thriving Communities Lab

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Purpose: The purpose of this study, which is part of a larger system-oriented initiative, Thriving Communities, is to explore how key stakeholders involved in local partnerships across three Intervention Areas (sleep, timely actions and leisure time activities) in Faaborg-Midtfyn Municipality, Denmark, perceive and develop their capacity to adopt a systemic approach to youth wellbeing. The Thriving Communities initiative applies a Collective Impact framework and a systems approach to foster systemic thinking and action. The study seeks to identify factors influencing stakeholders' ability to build and sustain systemic capacity within municipal structures and partnerships. The concept of capacity building is guided by the World Health Organization's definition, emphasizing knowledge, skills, structures, systems and leadership to enable effective health promotion across individual, organizational, and community levels.

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Methods: The study employs a qualitative design using focus groups with municipal stakeholders in each intervention area. Each focus group will include 6-7 participants representing diverse sectors and roles within each intervention area. Three rounds of focus groups will be conducted between 2025-2029: a baseline and two follow-ups to capture potential changes over time. This evaluation consists of two main components: (1) readiness for systemic change using the Community Readiness Model, and (2) mechanisms and outcomes informed by the project's Theory of Change and organizational capacity literature. This combination allows for an in-depth exploration of how systemic capacity is perceived, developed, and sustained within a complex municipal context. Data will be analyzed thematically, with particular attention to shifts in readiness, collaboration patterns, and systemic understanding over time. Data will be analyzed thematically, based on an operationalisation of capacity building with particular attention to organizational capacity to think and act systemically.

Results: Preliminary analyses are expected to highlight varying levels of readiness and capacity development across the Intervention Areas. Emerging findings are anticipated to reveal key facilitators and barriers to systemic capacity building. At the conference, data from the baseline assessment will be presented.

Conclusion: This study will contribute to a deeper understanding of how municipalities can strengthen systemic capacity to promote youth wellbeing and guide future strategies for sustainable health promotion and complex interventions in local government contexts.

II-P-N.08

Exploring How Disordered Eating Behaviors and Attitudes Relate to Sexual Motivations

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Purpose: Pathological eating behaviors and attitudes, as seen in eating disorders, have been associated to multiple difficulties in the sphere of sexuality, yet only one study has examined their relationship with sexual motivations. Results from that study showed that individuals exhibiting disordered eating engaged in sexual contacts for self-validation, emotional coping, intimacy and partner approval. However, no study to date has specifically explored how distinct eating disorder behaviors and attitudes (such as dietary restriction, weight concerns, shape concerns, and binge eating) relate to these motivations. Therefore, the present study aims to address this gap.

Methods: Participants were 634 female adults aged between 18 and 71 years old ($M = 37.36$; $SD = 11.21$), reporting eating disorder symptoms (e.g.: restriction of daily food intake, loss of control over eating, and/or compensatory behaviors) in the past five years. Participants were recruited through social media posts and emails from non-profit organizations/clinics offering eating disorder or body image treatment in the province of Quebec. They responded to a self-reported online questionnaire evaluating various aspects of sexuality and eating behaviors. Descriptive analyses and bivariate correlations were performed.

Results: Behaviors and attitudes related to eating disorders were associated to a variety of sexual motivations. In particular, dietary restriction ($r = .243$, $p < .001$), shape concerns ($r = .332$, $p < .001$) and weight concerns ($r = .334$, $p < .001$) were linked with engagement in sexual contacts to feel like a good sexual partner. Binge eating was the only behavior associated with the motivation to experience affection ($r = .142$, $p = .005$). Vomiting to control one's weight was associated with the motivation of feeling similar to other people ($r = .185$, $p < .001$). Specific themes emerging from the associations between the different disordered eating attitudes and behaviors and sexual motivations were observed.

Conclusion: Different behaviors and attitudes related to eating disorders seem to be associated to distinct sexual motivations. These sexual motivations tended to reflect the need to please the partner, or to feel normal when compared to others, rather than the need to experience sexual pleasure.

II-P-N.09

Early Childhood Temperament, Parental Eating Behaviours and Adolescent Eating Competence

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Purpose: This study investigated associations between children's temperament and parents' eating behaviours, both assessed before school age, and eating competence measured in early adolescence.

Methods: The data for this study were drawn from the ongoing Steps to Healthy Development follow-up study, which began in 2007. Information was obtained from questionnaires completed by adolescents and their parents. Children's temperament was assessed at the age of three using the Child Behavior Questionnaire (CBQ) completed by parents. The CBQ included three dimensions: surgency, negative affectivity, and self-regulation. Parental eating behaviours were measured with the Index of Diet Quality (IDQ) and the Food Neophobia Scale (FNS), both completed by parents at child 6 years of age. Eating competence was assessed at ages 11-13 with the Satter Eating Competence Inventory (ecSI 2.0; theoretical range 0-48) completed by adolescents, and categorized either as either good (≥ 32) or poor. Associations were examined using logistic regression models.

Results: Of the 1797 study participants, 453 (50% girls; 74% from families with advanced education; and 50 % from families with high income) completed ecSI 2.0. The mean eating competence score was 35.5 (SD = 7.9), and 70% of adolescents were classified as having good eating competence. Higher child self-regulation was associated with increased odds of good adolescent eating competence (OR = 1.66; 95% CI: 1.20-2.31), whereas higher negative affectivity was associated with lower odds (OR = 0.68; 95% CI: 0.51-0.90). Child surgency was not associated with eating competence. Higher parental diet quality was associated with higher odds of good adolescent eating competence (mothers: OR = 1.20; 95% CI: 1.07-1.36; fathers: OR = 1.16; 95% CI: 1.00-1.35), whereas maternal food neophobia was inversely associated with eating competence (OR = 0.96; 95% CI: 0.94-0.98). No significant associations were observed between paternal food neophobia and adolescent eating competence.

Conclusion: Our findings demonstrate that child self-regulation and parental health-promoting eating behaviours are positively associated with adolescent eating competence. Early interventions supporting child self-regulation and promoting healthy parental eating behaviours may foster positive eating outcomes later in life.

II-P-N.10

Eating Competence and Mental Health in University Students in Brasilia, Brazil

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Purpose: This study aimed to evaluate eating competence (EatC) and its association with symptoms of depression, anxiety, and stress among university students in Brasília, Brazil.

Methods: A cross-sectional study was conducted with 184 university students (21.8 ± 2.4 years; 63.0% women), mainly enrolled in Medical School (78.3%). Participants completed an online questionnaire including sociodemographic information; self-reported weight and height; self-perceived satisfaction with body weight; eating competence assessed using the Brazilian version of the Satter Eating Competence Inventory 2.0™ (ecSI2.0™BR); and psychological symptoms measured using the Depression, Anxiety and Stress Scale (EADS-21). Data were non-normally distributed (Shapiro-Wilk test), so non-parametric tests (Mann-Whitney and Spearman correlation) were used. Chi-square or Fisher's exact tests were used for categorical associations, and odds ratios (OR) with 95% confidence intervals (CI) were calculated. A p-value < 0.05 was considered statistically significant.

Results: The mean ecSI2.0™BR score was 32.5 ± 8.7 , with 51.1% of students classified as competent eaters (ecSI2.0™BR ≥ 32). The mean EADS-21 score was significantly higher among non-competent eaters, indicating greater levels of depressive, anxiety, and stress symptoms (all $p < 0.001$). The odds of being categorized as non-competent were significantly greater among students dissatisfied with their body weight (OR = 6.71, $p < 0.001$) and among those presenting symptoms of depression (OR = 7.82, $p < 0.001$), stress (OR = 5.55, $p < 0.001$), and anxiety (OR = 2.49, $p = 0.018$). Analyses used validated categorical cutoffs for EatC and psychological symptoms. Higher ecSI2.0™BR scores were negatively correlated with stress ($r = -0.51$, $p < 0.001$), depression ($r = -0.48$, $p < 0.001$), and anxiety ($r = -0.36$, $p < 0.001$). Depression, anxiety, and stress were positively intercorrelated (all $p < 0.001$), suggesting shared psychological vulnerabilities.

Conclusion: Higher EatC was inversely associated with psychological distress among university students of higher socioeconomic status. Interventions targeting EatC may offer a feasible approach to reduce stress, anxiety, and depressive symptoms. These findings support integrating behavioral nutrition frameworks into the university curriculum to bridge nutrition education and mental health care.

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II-P-N.11

Eating Competence Improvement in Adults with Metabolic Syndrome Is Related to Improvement in Mindfulness, Stress, Health-related Quality of Life, and Depressive Symptoms

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Purpose: Examine change in eating competence (EatC) over 2y in persons with metabolic syndrome participating in a lifestyle intervention trial; compare with changes in self-report measures of mental health and well-being.

Methods: Participants from 5 locations (USA) participated in a 2y randomized clinical trial focused on lifestyle interventions (Clinical Trial NCT04036006). Eligibility requirements included meeting diagnostic criteria for metabolic syndrome, absence of safety risks, psychiatric and serious illness, with demonstrated motivation for improving lifestyle. Self-report measures of EatC (ecSI 2.0), mindfulness (Five Facet Mindfulness Scale), stress (Cohen Perceived Stress), health related quality of life (HRQL; SF-36), and depressive symptoms (PHQ-8) were collected at baseline, 6 months, 15 months, and 24 months. The ecSI 2.0 changes were analyzed with GLM repeated measures corrected for non-sphericity, controlling for baseline mental health and well-being measures, sex, and intervention group i.e., monthly mailings of educational material (education) vs. 6-month small group habit-based lifestyle program (lifestyle). Changes in mindfulness, stress, depressive symptoms, HRQL and EatC were compared using Pearson correlation with Bonferroni correction for multiple comparisons.

Results: Of 618 study participants, 466 (76% female, 62% college educated, 70% white, mean age 55.9 ±10.6 y) completed ecSI 2.0 at all 4 time points. The ecSI 2.0 scores increased from 30.1 (SE 0.3) to 32.1 (SE 0.4) (P<0.001). Pattern of change differed by intervention group (P=0.006) with rapid increase for the intensive lifestyle group (n=227) vs gradual increase in the self-directed group (n=239). Except for stress, changes continued to be significant when controlling for baseline measures of mental health and well-being. Change in EatC from baseline to 6 months and to 24 months were significantly related to changes in HRLQ (P<0.001), mindfulness (P<0.001) and negatively related to changes in depressive symptoms (P<0.01) and stress (P<0.001).

Conclusion: Findings suggested that the ecSI 2.0, a validated, brief measure of EatC can be a marker of changes in mental health and HRQL over a 2y period. Further research is needed to understand the causal and/or consequential relationship between EatC and mental health, well-being status and HRQL.

II-P-N.12

Assessing the Relationship between Food Insecurity and Psychological Distress among College Students

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Purpose: Basic needs insecurity is a significant barrier to student health, well-being, and academic success. However, the relationship of food insecurity to dimensions of mental health, specifically flourishing and psychological distress, needs to be examined.

Methods: Using data from the Spring 2024 administration of the American College Health Association National College Health Assessment (ACHA-NCHA) at San Francisco State University, this study examined associations between validated measures of food insecurity, overall health, flourishing, and psychological distress among students (n=1354 students). Descriptive statistics and regression analyses were used to examine associations between levels of food insecurity and mental health outcomes.

Results: Results indicated that the majority of the students in the sample were female (61.7%), under 24 years of age (70%), and undergraduates (81.5%). The sample was representative of the diversity of students, with 34.6% Latinx, 23.3% Asian, 15.5% White, along other backgrounds. The majority of the students (62%) faced food insecurity. With regards to mental health variables, students experiencing any level of food insecurity reported poorer health and lower flourishing than food-secure peers. A gradient of psychological distress was also observed, with the most

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severe food insecurity associated with the highest distress.

Conclusion: These results highlight the need for comprehensive and targeted campus strategies to address both material and psychological dimensions of student well-being. By integrating basic needs programming with counseling and wellness resources, campuses can more effectively promote student flourishing, reduce inequities, and support retention and graduation.

II-P-N.13

Active Breaks and Well-being across the Lifespan: An Umbrella Review of Systematic Reviews with or without Meta-analysis

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Purpose: Short bouts of physical activity, or active breaks, are proposed as a way to reconfigure daily routines by embedding movement into otherwise sedentary contexts, potentially influencing multiple dimensions of well-being. While several systematic reviews have examined the effects of active breaks, a comprehensive synthesis of these reviews has not yet been conducted. The purpose of this umbrella review is to synthesize and critically evaluate existing systematic reviews on the effects of active breaks on subjective, psychological, and emotional well-being across diverse populations and settings, identify gaps in the literature, and highlight implications for practice and future research.

Methods: An umbrella review was conducted in accordance with PRIOR guidelines. A comprehensive search was performed in PubMed, Scopus, Web of Science, and Consensus from database inception to February 24, 2026. Systematic reviews with or without meta-analysis examining the effects of active breaks on subjective, psychological, or emotional well-being were included, in any age population. The primary outcomes were measures of well-being, including but not limited to stress, mood, psychological well-being, vitality, or quality of life. Study selection and data extraction were conducted using Rayyan.ai. Data were synthesized descriptively, reporting frequencies and key findings across reviews. Methodological quality of the reviews included was assessed using AMSTAR-2 and overlap was calculated in order with MoOR guide and reporting Corrected Covered Area. PROSPERO-ID: CRD420261325800

Results: Of a total of 65 studies, 9 were selected. Results show positive/mixed effects of active breaks on psychological well-being outcomes. In school-aged populations, reported outcomes included improvements in self-efficacy, emotional regulation, and perceived quality of life. Among adolescents, findings suggested benefits for vitality and school engagement. In workplace settings, micro-break interventions were associated with higher vigor and reduced fatigue. Across settings, reviews reported improvements in mood and perceived stress, although variability in intervention characteristics and contextual factor, such as autonomy in break-taking, appeared to influence effectiveness.

Conclusion: Active breaks may represent a feasible approach to support psychological and emotional well-being in sedentary contexts. However, heterogeneity in intervention design and outcome assessment limits comparability across studies. Future research should prioritize standardized reporting and examine implementation-related factors to inform scalable well-being promotion strategies.

II-P-N.14

Adherence to the 24-hour Movement Guidelines and Adolescents' Health-related Quality of Life and Wellbeing

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Purpose: Movement behaviors play an important role in adolescents' health-related quality of life (HRQoL) and wellbeing. Most studies highlight the benefits of adherence to all movement guidelines, however the prevalence remains low. This study examines the associations of adherence to the movement guidelines with HRQoL and wellbeing in adolescents, with a particular focus on partial adherence.

Methods: This cross-sectional study included 979 Czech adolescents aged 10–18 years (55% girls). Physical activity

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(PA) and sleep were assessed using a wrist-worn accelerometer, screen time (ST) was self-reported. The PedsQL 4.0 was used to assess HRQoL, and subjective wellbeing was measured using the WHO-5 questionnaire. Associations between adherence to the movement guidelines and HRQoL (overall, physical and psychosocial dimensions) and wellbeing were examined using multivariate mixed-effects linear regression models.

Results: Nearly 41% of participants did not meet any movement guidelines. Compared with this group, those who adhered to the ST guideline had higher HRQoL ($\beta=4.3$, 95% confidence interval [CI]: 1.5–7.0) and higher wellbeing ($\beta=4.6$, 95% CI: 0.2–9.1). Adherence to the PA and ST guidelines was positively associated with HRQoL ($\beta=6.1$, 95% CI: 0.7–11.4) and wellbeing ($\beta=11.4$; 95% CI: 5.2–17.7). Higher HRQoL by 3.7 units (95% CI: 0.7–6.8) was observed among participants who adhered to PA and sleep guidelines. A significant association between adherence to the ST and sleep guidelines and HRQoL was also observed ($\beta=5.2$, 95% CI: 2.1–8.3). Participants who adhered to all movement guidelines had higher HRQoL by 13.2 units (95% CI: 8.0–18.3) and wellbeing by 11.5 units (95% CI: 0.7–22.3). The associations were generally similar across both dimensions of HRQoL.

Conclusion: Adherence to the movement guidelines was associated with better HRQoL and wellbeing. Although the highest scores were observed among adolescents adhering to all three guidelines, significant associations were also observed for individual guidelines. This implies that targeting individual behaviours, particularly ST, may represent a feasible starting point for increasing overall adherence to the guidelines and improving adolescents' HRQoL and wellbeing.

II-P-N.15

Compliance with the 24-hour Movement Behavior Guidelines and Mental Health in Brazilian Adolescents: Data from ActTeens Program

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Purpose: Mental illnesses are a growing concern in the field of public health, affecting large numbers of adolescents. Physical activity (PA), screen time (ST), and sleep duration (SLP) have been identified as modifiable behaviors that can improve adolescent mental health. Recognizing that the “whole day matters”, the Canadian 24-hour Movement Behavior Guidelines (24-HMB) provides recommendations on what a balanced day looks like. The purpose of the present study was to examine the associations between meeting the 24-HMB guidelines with anxiety, depression and stress symptoms among Brazilian adolescents.

Methods: A total of 1,151 adolescents (49% males, age 13.5±1.0 years old) participated in this cross-sectional study. PA, ST, and SLP were assessed through self-reported questionnaires. Depressive, anxiety, and stress symptoms were assessed using the DAS-21. Associations were tested using Generalized Linear Models, adjusted by age, sex, and BMI percentile.

Results: Concerning adherence to the 24-HMB guidelines, 21.5% of adolescents met the PA recommendation, while 25.2% met the ST, and 32.2% the SLP recommendations. Overall, 2.5% of the participants met the three 24-HMB guidelines, while 44.5% did not meet any. Adolescents who did not meet any of the recommendations presented highest symptoms of anxiety (11.5±10.6), depression (13.9±12.1), and stress (15.6±11.4) compared with their pairs who met some of them. Not meeting the PA recommendation was associated with higher depression symptoms ($\beta=1.18$; 95%CI=1.02-1.36), while not meeting the ST recommendation was associated with higher anxiety ($\beta=1.20$; 95%CI=1.05-1.38), depression ($\beta=1.19$; 95%CI=1.04-1.37), and stress symptoms ($\beta=1.21$; 95%CI=1.08-1.37). Finally, not meeting the SLP recommendation was associated with higher depression ($\beta=1.26$; 95%CI=1.12-1.42) and stress symptoms ($\beta=1.12$; 95%CI=1.01-1.24).

Conclusion: Meeting all three 24-HMB guidelines is associated with mental health benefits among Brazilian adolescents, and meeting specific ones is better than not meeting any. Therefore, programs should be created to raise awareness and encourage adolescents to adhere to public health guidelines.

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II-P-N.16

The Association of Physical Activity and Muscular Strength with Adaptive and Cognitive Functioning in Adults with Down Syndrome. Preliminar Findings from the CogDown Study

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Purpose: Adults with Down syndrome (DS) typically engage in lower levels of physical activity (PA) and present reduced muscular strength compared with the general population. DS is also associated with a high risk of Alzheimer’s disease-related cognitive impairment, making modifiable lifestyle factors relevant. In the general population, higher PA and greater muscular strength are consistently linked to better cognitive performance and functioning; however, evidence in adults with DS remains limited. Therefore, this study aimed to examine the associations of PA and muscular strength with adaptive and cognitive functioning in adults with DS.

Methods: Cross-sectional data from the CogDown study were collected in 2025–2026 from 31 adults (12 women) with DS (37.1 ± 6.9 years). PA was assessed using the short-form International Physical Activity Questionnaire (IPAQ-short form) completed by a proxy respondent (parent/caregiver). Muscular strength was measured via handgrip strength using a handheld dynamometer. Adaptive functioning was proxy-rated using the Adaptive Behavior Assessment System (ABAS-II). Cognitive functioning was assessed with the Modified Cued Recall Test (mCRT; total recall) and the Cambridge Cognitive Examination (CAMCOG; total score). Associations were examined using multiple linear regression models adjusted for age and sex. Standardized regression coefficients (β) and corresponding p-values are reported. Statistical significance was set at $p < 0.05$.

Results: Proxy-reported PA (walking, moderate PA, and total PA MET-min) was not associated with adaptive functioning (total score $p \geq 0.542$) or memory performance (mCRT total recall; all $p \geq 0.457$). Higher muscular strength showed a borderline association with adaptive functioning total score ($\beta = 0.542$, $p = 0.062$) and was positively associated with global cognitive performance (CAMCOG total score: $\beta = 0.501$, $p = 0.029$). PA metrics were not significantly related to CAMCOG (all $p \geq 0.078$).

Conclusion: In this preliminary cross-sectional sample, muscular strength showed stronger associations with global cognition than proxy-reported PA, with a trend for adaptive functioning. These findings suggest further investigation in larger samples and longitudinal follow-up to clarify the role of fitness and physical activity in this population.

II-P-N.17

Is Our Programming Consistent with the Satter Eating Competence and Feeding Dynamic Models? Development of the Rubric to Frame the Response

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Purpose: Describe a rubric used in program and nutrition education planning to guide and/or foster adherence to the Satter models of eating competence (ecSatter) and feeding dynamics (fdSatter). These evidence-based models present challenges for nutrition educators because they are nuanced and not congruent with standard nutrition recommendations, but rather emphasize structured availability of personally preferred food and trust in the effectiveness of biopsychosocial processes to guide nutritional status and body weight.

Methods: A narrative review of seminal publications on ecSatter, fdSatter, and research utilizing tools to measure adherence to these models informed the structure of the rubric. Detailed items, especially pertaining to inconsistencies in model usage, were formulated from clinical observations. The tenets of the models provided the rubric’s organization.

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Informal pilot testing with nutrition educators supported efforts toward further refinement and testing.

Results: A rubric is available to assess fidelity of interventions to ecSatter and fdSatter. The 110 Items are grouped according to 1) ecSatter tenets and components of Attitudes, Context, Food Acceptance, and Internal Regulation (43 items), fdSatter's division of responsibility in feeding of child autonomy and parent leadership for children younger than 12 years and 12 or older (19 items), identification of parent education practices inconsistent with ecSatter and fdSatter (9 items), nutrition education practices (25 items) and nutrition education actions inconsistent with ecSatter and fdSatter (14 items). The inclusion of model-consistent and inconsistent practices offers an opportunity for education. The current iteration of the rubric is formatted as a checklist with binary (yes/no) responses for model consistency. Items are phrased to encourage self-reflection and decisive responses.

Conclusion: The rubric is widely available at no cost and has been well-received as a valuable tool for developing ecSatter- and fdSatter-consistent materials and programming, as well as evaluating existing interventions and literature model adherence. The rubric offers potential to clarify ecSatter and fdSatter for educators, clinicians, and policy makers and ensure that research findings are correctly interpreted when ascribed to a Satter model.

II-P-N.18

Characterizing Diet-related Strategies for Pain Self-management in Endometriosis

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Purpose:

Endometriosis affects approximately 10% of women of reproductive age and is frequently associated with chronic pain. Although medical treatments aim to control symptoms, pain relief is often partial or temporary, leading many women to adopt self-management strategies. Dietary changes have been associated with improved pain perception and quality of life; yet, little is known about how women integrate diet into everyday pain management. This study explores women's perspectives and experiences of managing endometriosis-related pain, and characterizes diet-related strategies used for pain self-management.

Methods: A qualitative interview study is underway (N=8 of an expected 15 adult women with a confirmed diagnosis of endometriosis and having implemented dietary changes following diagnosis). Semi-structured interview topics include endometriosis-related psychological and physical symptoms, self-management practices, healthcare support, and dietary changes, including perceived barriers and facilitators. A body-mapping exercise is used as an elicitation tool to document pain location, and to prompt discussion about its impact. Sociodemographic data are collected for sample characterization. Interviews are audio recorded, body maps digitalized, and interviews transcribed verbatim and thematically analyzed in MAXQDA (v22.8.0). Ethical approval was granted by the Lisbon Academic Medical Center Ethics Committee (No. 279/25).

Results: Preliminary findings indicate chronic pelvic pain as the predominant symptom, often accompanied by pain in the lower back, legs and head. Pain contributed to psychological distress, particularly through fear and anticipation of symptom flares. Participants commonly use localized heat, breathing techniques, meditation, and dietary tracking to identify symptom-triggering foods as self-management strategies. Early healthcare experiences were frequently described as invalidating; however, once referred to endometriosis-specialized care, participants described improved support from multidisciplinary teams. Most participants reported shifting toward an anti-inflammatory dietary pattern. Perceived barriers included lack of food options and social support, while key facilitators were encouragement and to feel recognized and understood by others.

Conclusion: This study will provide insight into women's experiences with endometriosis management and underscores diet as a meaningful element of pain self-management. Findings will inform patientcentered guidance and support the development of tools to assist women in managing endometriosis-related pain.

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Population Attributable Fractions of Common Mental Disorders Due to Suboptimal Diet and Other Lifestyle Behaviours: A Systematic Review

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Purpose: Population attributable fractions (PAFs) quantify the proportion of a disease that could be prevented if a particular risk factor were eliminated and provide an interpretable metric for prevention planning. While PAFs exist estimating the proportion of depression and anxiety (the common mental disorders; CMDs) preventable by targeting suboptimal lifestyle behaviours, published estimates for behaviours such as suboptimal diet, physical inactivity, poor sleep, and tobacco smoking, are scattered and methodologically variable. We used a systematic review to synthesise these studies and to critically appraise the methodological approaches used to generate them.

Methods: A systematic search of MEDLINE Complete, EMBASE, PsycINFO, Global Health, and Health Policy Reference Centre was conducted from inception to 05 February 2026 for studies estimating PAFs (or equivalent metrics meeting the PAF definition) for depression and/or anxiety attributable to suboptimal diet, physical inactivity, poor sleep, and/or tobacco smoking in adults. Two reviewers independently screened titles/abstracts and full texts and extracted data; discrepancies were resolved with a third reviewer. Study quality was assessed using the Newcastle–Ottawa Scale and a PAF-focused appraisal tool. Due to substantial heterogeneity, findings could not be meta-analysed.

Results: The search yielded 1,585 records; 12 studies met inclusion criteria. Studies were conducted in high-income settings (including Australia, France, Canada, Norway, Sweden, the UK, the US, and a multi-country European sample), with sample sizes ranging from 218 to 170,726. Across all included estimates, CMD PAFs attributable to lifestyle behaviours ranged from -17.2% (95%CI: -34.6, -5.3) to 22% (95%CI: 3, 41), with marked variability in exposure and outcome definitions, covariate adjustment, and PAF estimation methods. Six studies were rated good quality, one fair, and five poor. Reporting of core inputs for PAF validity was often incomplete (e.g., formula used, exposure prevalence), limiting interpretability.

Conclusion: Few rigorous, transparently reported PAF estimates exist for CMDs attributable to suboptimal lifestyle behaviours. Despite variability, good quality estimates support the value of targeting lifestyle behaviours as prevention targets for CMDs. However, our study underscores the need for methodologically robust, standardised, and fully reported PAF analyses to better inform population-level CMD prevention and investment decisions.

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Depression and Anxiety Attributable to Dietary Risk Factors: A Global Burden of Disease Lifestyle and Mental Disorders Taskforce (GLAD) Burden of Proof Study

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Purpose: The Global Burden of Disease (GBD) quantifies cause-specific health burden across countries and over time, and attributes burden to risks through comparative risk assessment using standardised exposure definitions. Diet is a major, actionable risk factor in the GBD for non-communicable diseases. Yet it is not currently included as a contributor to depression and anxiety (common mental disorders; CMDs) burden largely due to a lack of studies assessing these relationships using GBD-defined dietary categories. The Global burden of disease Lifestyle And mental Disorders (GLAD) Taskforce was established to generate harmonised, GBD-aligned lifestyle-CMD risk outcome estimates needed for inclusion in the GBD study by coordinating international cohorts to implement a common protocol using GBD-defined dietary exposures and CMD outcomes. The next stage is to conduct a meta-analysis to synthesise existing estimates of associations between GBD-defined dietary risks and CMD outcomes using the GBD Burden of Proof methodology.

Methods: This meta-analysis includes (i) GLAD member studies implementing the harmonised GLAD protocol and (ii) externally identified studies from systematic searches. Exposures are GBD-defined dietary risks, including low intake of fruits, vegetables, legumes, whole grains, nuts and seeds, milk, fibre, calcium, seafood omega-3, polyunsaturated

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fats, and high intake of red meat, processed meat, sugar-sweetened beverages, trans-fatty acids, and sodium. Outcomes are GBD-defined major depressive disorder and anxiety disorders. Records are screened and extracted using harmonised templates. Meta-analyses will apply the GBD Burden of Proof framework to estimate dose-response risk curves and derive conservative burden-of-proof risk (BPRF) functions and 1–5-star evidence ratings, accounting for outliers, heterogeneity, and small-study effects.

Results: Searching, screening, and harmonised data extraction are underway. The presentation will summarise study characteristics and provide preliminary BPRFs and evidence ratings.

Conclusion: This work will provide the first GBD-aligned Burden of Proof synthesis of dietary risks for depression and anxiety, integrating harmonised GLAD cohort analyses with systematically identified evidence. By standardising exposure and outcome definitions and applying Burden of Proof dose-response modelling, GLAD is designed to produce comparable, policy-relevant estimates to inform prevention-focused guideline development and future GBD risk attribution.

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The Association between Sleep Quality and Adaptive and Cognitive Functioning in Adults with Down Syndrome. Preliminary Findings from the CogDown Study

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Purpose: Adults with Down syndrome (DS) frequently experience sleep disturbances, particularly sleep fragmentation and obstructive sleep apnoea, often under-recognised despite their impact on daytime functioning and health. DS is also associated with a very high lifetime risk of Alzheimer’s disease, making identification of modifiable correlates of cognitive outcomes relevant. Emerging evidence in non-demented adults with DS suggests that poorer sleep (e.g., reduced sleep efficiency) relates to Alzheimer’s disease pathology and worse cognitive performance. Thus, the main aim of this study was to examine the association of subjective sleep quality and adaptive and cognitive functioning in adults with DS.

Methods: This preliminary cross-sectional analysis used data from the CogDown study collected in 2025–2026. A total of 31 adults (12 women) with DS participated (37.1 ± 6.9 years). Sleep quality was assessed with the Pittsburgh Sleep Quality Index (PSQI) completed by a proxy respondent (parent/caregiver). Adaptive functioning was measured using the Adaptive Behavior Assessment System (ABAS-II), also proxy-completed. Cognitive functioning was evaluated directly using standardized assessments, including the Modified Cued Recall Test (mCRT; memory) and the Cambridge Cognitive Examination (CAMCOG; global cognition). Associations of sleep quality and adaptive and cognitive functioning were examined using multiple linear regression models adjusted for age and sex. Significance was set at p<0.05.

Results: Sleep quality was not associated with adaptive functioning (ABAS-II total score: $\beta=-0.057$, p=0.816). Poorer sleep quality (higher scores indicating poorer sleep) was associated with lower memory performance on the mCRT ($\beta=-0.600$, p=0.008), whereas the association with global cognitive performance was not significant (CAMCOG total score: $\beta=-0.190$, p=0.479).

Conclusion: In this preliminary cross-sectional analysis from the CogDown study, greater sleep disturbances were associated with poorer memory performance, but not with adaptive or general cognitive functioning in adults with DS. These findings support further investigation in larger samples and longitudinal follow-up to clarify the role of sleep in cognitive health in DS.

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Intuitive Eating and Psychological Indicators among College Students

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Purpose: To determine whether intuitive eating was associated with psychological indicators among young adults.

Methods: A sample of 144 undergraduate students completed an anonymous online survey. Several validated scales were included in the survey to measure the study variables. Intuitive eating was assessed using three subscales of the Intuitive Eating Scale-2: *physical rather than emotional eating*, *hunger and satiety cues reliance*, and *body-food choice congruence*. Psychological indicators assessed included: *wellbeing* (8-item Flourishing Scale), *stress* (Perceived Stress Scale, PSS-10), *anxiety risk* (Generalized Anxiety Disorder screener, GAD-2), and *depression risk* (Patient Health Questionnaire, PHQ-2). Linear regression models were used to test associations between intuitive eating scores and wellbeing and stress scores; and logistic regression was used to test their association with anxiety and depression risk. Models were adjusted for gender and race/ethnicity. Statistical significance was set at <0.05 .

Results: Mean ($\pm$ SD) scores for physical rather than emotional eating, hunger and satiety cues reliance, and body-food choice congruence subscales were: 2.98 (0.88), 3.39 (0.96) and 3.56 (0.95), respectively. Eighty-five (60.3%) were categorized as at risk of anxiety and 53 (37.6%) fell in the at risk of depression category. Intuitive eating subscale scores were significantly associated with each psychological indicator.

Physical rather than emotional eating was positively associated with wellbeing ($p=0.004$) and negatively associated with stress ($p<0.001$). A similar pattern was observed for hunger and satiety cues reliance (wellbeing: $p=0.010$ and stress: $p=0.023$) and body-food choice congruence (wellbeing: $p<0.001$ and stress: $p=0.002$, respectively). A 1-point increase in physical rather than emotional eating score was associated with reduced odds of risk of anxiety (Odds ratio: 0.64, 95% Confidence Interval: 0.42, 0.97), but its association with risk of depression was not statistically significant. Scores in the other intuitive eating subscales were not significantly associated with any of the two dichotomous outcomes either.

Conclusion: Findings suggest that including an intuitive eating approach in health promotion interventions for college students (or young adults) may support their psychological wellbeing, while also promoting a healthy relationship with food.

