

International consensus meeting on wearables for measuring mobility in aging populations

November 25 & 26, 2024
Burlington, Ontario, Canada

Presented by



**UNIVERSITY OF
BIRMINGHAM**



**Institute for
Research on Aging**



TABLE OF CONTENTS

Land Acknowledgement	2
Our Vision	3
Defining Mobility	4
Agenda	5-6
Host Biographies	7-8
Attendee Biographies	9-18
Recommended Resources	19
Additional Resources	20-22
Facilitation Team	23-25
Event Venues and Accommodation	26

LAND ACKNOWLEDGEMENT

We begin this consensus meeting by first acknowledging that we meet on the Treaty Lands of the Mississaugas of the Credit First Nation as well as the Traditional Territory of the Haudenosaunee, Huron-Wendat and Anishinabek. We would like to acknowledge that the land on which we gather is part of the Treaty Lands and Territory of the Mississaugas of the Credit.

The territory is mutually covered by the Dish with One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy, the Ojibway and other allied Nations to peaceably share and care for the resources around the Great Lakes.

November marks Indigenous Peoples Awareness Month, an opportunity for us to celebrate the culture, traditions, and heritage of Indigenous Peoples and Communities while continuing on our journey of Truth and Reconciliation.

In stewardship with Mother Earth and the enduring Indigenous presence connected to these lands we acknowledge the Indigenous Nations of the past, present and future.



OUR VISION

BACKGROUND

The **McMaster Institute for Research on Aging** and the **University of Birmingham's School of Sport, Exercise and Rehabilitation Sciences**, are coordinating this two-day international meeting focusing on use of wearable technology and the data, algorithms and outputs associated with mobility, physical activity and movement behaviours in older adults. A consortium of international researchers from Canada, the United States, Australia, the UK and Europe with expertise in wearable technologies, their data, and aging populations will come together for a two-day meeting in the charming water-front city of Burlington, Ontario, Canada.

PURPOSE

Our ultimate goal is to develop minimum standards that should be applied when using wearable devices to measure mobility and related behaviours, in the context of inclusivity and healthy aging. The meeting will also identify critical knowledge gaps and priorities for research to advance the field in this space.



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DEFINING MOBILITY

The following terminology and definitions of healthy aging and mobility will be used to ground our discussions throughout the two-day meeting.

Healthy aging

The World Health Organization defined Healthy Ageing as “the process of developing and maintaining the functional ability that enables well-being in older age” in their 2015 World Report on Ageing and Health (1).

Functional ability encompasses a person’s intrinsic capacity, the environment they interact with and the interaction between the two. Functional ability was further defined by identifying key domains or ‘abilities’ that are essential for older people to be able to do what they have reason to value:

- Ability to meet their basic needs;
- Ability to learn, grow and make decisions;
- Ability to be mobile;
- Ability to build and maintain relationships;
- Ability to contribute.

Ability to be mobile

In the 2015 report, the concept of mobility was developed from the definition provided by Satariano et al. in their 2012 paper on mobility and aging (2). From this point onwards, the WHO has referred to mobility as:

“Movement in all its forms, whether powered by the body (with or without an assistive device) or a vehicle. Mobility includes getting up from a chair or moving from a bed to a chair, walking for leisure, exercising, completing daily tasks, driving a car and using public transport. Mobility is necessary for doing things around the house; accessing shops, services and facilities in the community (such as parks); and participating in social and cultural activities.”

These definitions and conceptualization have been carried forward into the Decade of Healthy Ageing: Baseline Report (3) and the resulting Unified Framework for the Measurement of Mobility in Older Persons (4).

Proposed sub-domains of mobility

To guide the discussion on standards for wearable-derived measures of mobility and their associated collection methods, we proposed the WHO definition which encompasses the following five sub-domains of mobility: **1) postural, 2) walking, 3) physical activity, 4) transportation, and 5) life-space.**

We asked attendees to indicate if there were any sub-domains missing from the above list, and from the survey responses to this question, we added a sixth sub-domain, **6) transitions**, for inclusion in our discussion.

1. World Health Organization, 2015: World Report on Ageing and Health. Geneva, Switzerland.

2. Satariano WA, Guralnik JM, Jackson RJ, Marottoli RA, Phelan EA, Prohaska TR. Mobility and aging: new directions for public health action. Am J Public Health. 2012;102(6):1508-15.

3. Decade of healthy aging: baseline report. Geneva: World Health Organization; 2020. License: CC BY-NC-SA 3.0 IGO.

4. Beauchamp MK, Hao Q, Kuspinar A, Amuthavalli Thiyyagarajan J, Mikton C, Diaz T, et al. A unified framework for the measurement of mobility in older persons. Age Ageing. 2023;52(Suppl 4):iv82-iv5.



AGENDA

DAY ONE

- 8:30** Arrival at Spencer's on the Waterfront, light breakfast
- 9:00** Welcome and introductions
- 9:30** Context and goal setting for meeting
- 10:00** **Breakout 1**
Critical device-derived measures to characterize each subdomain of mobility in older people
- 12:00** Lunch
- 1:00** **Breakout 1 (continued)**
- 2:00** **Breakout 2**
Best practices and recommended methods for using wearable devices to measure mobility in older people
- 5:00** Meeting end
- 6:00** Group dinner at The Martini House



AGENDA

DAY TWO

- 8:00** Arrival at Spencer's on the Waterfront, light breakfast
- 8:30** Welcome and plan for Day 2
- 8:40** **Breakout 2 (continued)**
- 10:00** **Breakout 3**
Priorities for future research on wearable technology in aging populations
- 1:00** Lunch
- 1:30** **Next steps (research and collaborations)**
- 2:00** Summary and evaluation
- 3:00** Meeting end

OUR HOSTS

Marla Beauchamp



- Physical Therapist and Associate Professor in the School of Rehabilitation Science
- Scientific Director of the McMaster Institute for Research on Aging | Dixon Hall Centre
- Tier 2 Canada Research Chair in Mobility, Aging and Chronic Disease

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Marla Beauchamp is a Physical Therapist and Associate Professor in the School of Rehabilitation Science at McMaster University. She is also the inaugural Scientific Director of the McMaster Institute for Research on Aging | Dixon Hall Centre in Toronto – a partnership with a front-line social services agency supporting marginalized older adults in the community. Dr. Beauchamp holds a Tier 2 Canada Research Chair in Mobility, Aging and Chronic Disease and an Early Researcher Award from the Ministry of Colleges and Universities focusing on mobility and technology. The overarching aim of Dr. Beauchamp's research is to identify ways to keep older adults healthy and mobile in their homes and communities for as long as possible. She is the lead investigator on the McMaster Monitoring My Mobility (M3) study, a cohort of >1500 older adults with differing mobility levels who are being tracked every four months for two years using wearable technology. She also leads major interdisciplinary projects on fall risk assessment and prevention and on functional recovery after COVID-19 and respiratory infection. Internationally, she is contributing to mobility measurement initiatives for the WHO UN Decade of Healthy Ageing and leads the sex and gender working group for the World Falls Guidelines Initiative.



Afroditi Stathi

- School of Sport, Exercise and Rehabilitation Sciences
- Professor of Physical Activity and Community Health
- Community Health Lead - Centre of Urban Wellbeing

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Afroditi Stathi is a Professor of Physical Activity and Community Health at the University of Birmingham, UK. Professor Stathi is an expert in the field of active ageing and public health research, focussing on the development of scalable health behaviour interventions and the co-production of interventions that can help communities to become more activity friendly. She has secured major grants from all major UK funding agencies and the European Commission with a particular success in attracting funding by the NIHR and has published her research in world leading journals. She has led large, multidisciplinary randomised controlled trials including the successful Retirement in Action study which proved the effectiveness and cost-effectiveness of a group exercise and behavioural maintenance programme for older people with mobility limitations. She has contributed to policy development including the UK Chief Medical Officers' Physical Activity Guidelines. She currently leads the Health Inequalities theme of the Public Health REsearch for Health Consortium [PHRESH] funded by the NIHR School for Public Health, co-directs the UKRI funded ATTAIN network for promoting healthy ageing and tackling health inequalities and leads the Community Health theme in the Centre for Urban Wellbeing at the University of Birmingham.

OUR HOSTS



Bill McIlroy

- Principle Investigator, Neuroscience, Mobility and Balance Lab
- Professor, Kinesiology and Health Sciences

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Bill McIlroy is a Professor in Kinesiology and Health Sciences at the University of Waterloo. Dr. McIlroy completed his PhD in Neuroscience from the University of Guelph in 1992 and then completed a postdoctoral fellowship at the Centre for Studies in Aging at the Sunnybrook Research Institute. In 1996 he moved into a faculty position in the Department of Physical Therapy at the University of Toronto where he held a Canada Research Chair in Neurorehabilitation. In 2006 he moved to the Department of Kinesiology at the University of Waterloo where he has recently completed a 7-year term as Department Chair. As Principal Investigator of the Neuroscience, Mobility and Balance Lab (NiMBaL) at the University of Waterloo his research program is centred on fundamental and translational work to advance the development of new approaches to maximize safe independent mobility among older adults and those with neurologic disease/or injury. This work extends from a focus on fundamental understanding of how the central nervous system is able to control the remarkable challenge of maintaining upright stability and controlling bipedal mobility to the development and implementation of novel tools used to assess gait and balance. Most recently this includes the implementation of wearable technologies to assess mobility, sleep and activity in daily life. The latter is supported by partnership with the Ontario Neurogenerative Disease Research Initiative (ONDRI) where Dr. McIlroy co-leads both the Remote Monitoring Assessment and Gait/Balance platforms. These platforms under this major provincial initiative are focussed on advancing the assessment of movement and application of remote monitoring systems to improve outcomes for older adults and those with or at risk of neurogenerative disease.



Parminder Raina

- Professor, Department of Health Research Methods, Evidence, and Impact
- Raymond and Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging
- Scientific Director, McMaster Institute for Research on Aging
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Parminder Raina is a Professor in the Department of Health Research Methods, Evidence, and Impact at McMaster University. He is the founding Scientific Director of the McMaster Institute for Research on Aging, and the Labarge Centre for Mobility in Aging, and is the lead principal investigator of the Canadian Longitudinal Study on Aging. Dr. Raina is a fellow of the Canadian Academy of Health Sciences, holds a Canada Research Chair in Geroscience, and the Endowed Raymond and Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging and a Member of the Order of Canada in 2022 for his research in aging.

MEET OUR ATTENDEES



Nurudeen Adesina

- Lecturer in Public Health
- Faculty of Health, Education, Medicine and Social Care (FHMS)
- Co-Lead of Digital Research Group in the Centre for Health and Care Research

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Dr. Nurudeen Adesina is the Co- Lead, Digital Health Research- Centre for Health and Care Research at Anglia Ruskin University, UK. He has an extensive experience in the development of framework and modelling Human-Centred Digital health interventions to meet specific needs linked to selected conditions and care pathways. Nurudeen's recent research on usability and feasibility of health digital tool is pivotal in advancing the integration of user-friendly and scalable digital health technologies into healthcare systems for improved patient outcomes. He has established series of collaboration with different professionals including Cognitive Frailty Network (CFN).



Lisa Alcock

- Senior Research Associate, Translational and Clinical Research Institute
- Gait Laboratory Lead, Clinical Ageing Research Unit, Campus for Ageing and Vitality
- Faculty of Medical Sciences

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Dr Lisa Alcock is a Senior Research Associate within the Translational and Clinical Research Institute at Newcastle University, UK. Her primary research interest involves characterising mobility impairment in ageing and pathology to understand the impact on daily function and relevance to clinical events such as falls. Dr Alcock also leads the Gait Laboratory at the Clinical Ageing Research Unit; a translational clinical research facility specialising in clinical trials developing early assessment and intervention strategies targeted at age-associated degenerative conditions. She has significant expertise in the design of novel protocols, delivery of complex clinical trials and validation of digital health technologies in a range of patient cohorts (Parkinson's disease, Chronic Obstructive Pulmonary Disease, Spinocerebellar ataxia, dementia and multimorbidity).

MEET OUR **ATTENDEES**



Matthew Ahmadi

- National Heart Foundation Research Fellow at the University of Sydney's Charles Perkins Centre in the Faculty of Medicine and Health
- Deputy Director of the Mackenzie Wearables Research Hub

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Dr. Matthew Ahmadi is a National Heart Foundation Research Fellow at the University of Sydney's Charles Perkins Centre in the Faculty of Medicine and Health and the Deputy Director of the Mackenzie Wearables Research Hub. He is a member of the executive board for the International Society of Physical Activity and Health, and is on the editorial board for the International Journal of Behavioural Nutrition and Physical Activity, the Journal for the Measurement of Physical Behaviour, the Journal of Physical Activity and Health, and Journal of Sports Medicine Australia Plus. He is a Working Group member for the Prospective Physical Activity, Sitting, and Sleep Consortium (ProPASS) and the wearables lead for the Australia DETECT Cohort. Matthew's research focuses on wearables-based research from development to application in population-based cohorts. He applies wearables-based techniques to measure physical activity, posture, and sleep, and their relationship with cardiovascular disease throughout the lifecourse.



Clemens Becker

- Lead Unit Digital Medicine for Older Persons, University Medical Centre

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Clemens Becker is leading a unit to develop and evaluate novel digital solutions for the medical care of older persons and patients. This includes assessment tools and digital TX. From 2019 until June 2024 he has also worked as the lead of the clinical validation study of the Mobilise-D consortium. His group is now interested to repurpose the findings to other target groups including community dwelling cohorts. A particular interest to evaluate the use of DMOs for intervention studies.



Aiden Doherty

- Professor, Nuffield Department of Population Health

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Aiden is a Wellcome Trust Senior Research Fellow and Professor of Biomedical Informatics at the University of Oxford. His group of ~20 researchers develop reproducible methods to analyse wearable sensor data in very large health studies to better understand the causes and consequences of disease. His team has played an important role in the collection of wearable sensor data in ~150,000 research participants in the UK and China.



Alan Donnelly

- Full Professor, Health Research Institute

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Professor Alan Donnelly is Director of the Health Research Institute at the University of Limerick, having previously established the Physical Activity for Health Research centre there. He was a founding member and current President of the International Society for the Measurement of Physical Behaviour (ISMPB). His research focuses on device-based measurement of physical activity and sedentary behaviour in children, adults and older adults. He leads the WEALTH European Joint Programme Initiative project, which aims to improve measurement methods for surveillance of Physical activity, including by employing machine learning algorithms to process accelerometer data.



Dale Eslinger

- Reader in Digital Health, School of Sport, Exercise, and Health Sciences

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My research focuses on the skilled deployment of novel digital health technologies (e.g., wearables) to quantify the dose-response relationship between physical activity, sedentary behaviour, and health. I aim to robustly measure the dense phenotypes of study populations with a view to developing novel therapeutic paradigms for chronic lifestyle diseases. My research intersects traditional Exercise and Health Science disciplines with Medicine, Computer Science, and Engineering. Accelerometry Advisor to NatCen UK, the Framingham Heart Survey, the Canadian Health Measures Survey, and UK Biobank Physical Activity; Member of the International Children's Accelerometry Database (ICAD); Member of the CMO's Physical Activity Surveillance Group.

MEET OUR ATTENDEES



Sally Fenton

- Associate Professor of Lifestyle Behaviour Change
- National Institute for Health Research Advanced Fellow
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Dr. Sally Fenton's research is focused on the development, delivery and evaluation of theory-based interventions to promote physical activity, with an emphasis on ageing and clinical populations. These include patients awaiting liver transplant, with lung cancer and people living with Arthritis. She also has expertise in the application of device-based assessments of physical activity and sedentary behaviour (e.g. accelerometers, commercial wearables) as intervention tools, and as a means to evaluate intervention efficacy.



Daniel Fuller

- Associate Professor, Community Health and Epidemiology

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Daniel Fuller is an Associate Professor in Community Health & Epidemiology at the University of Saskatchewan. His interdisciplinary research is focused on using wearable technologies to study physical activity, transportation interventions & equity in urban spaces. He has an M.Sc. in Kinesiology from the University of Saskatchewan & a Ph.D. in Public Health from Université de Montréal. Dan is a Principal Investigator on the INTERventions, Research, & Action in Cities (INTERACT) team, CapaCITY/É and is involved in AI for Public Health training initiatives.



Judith Garcia-Aymerich

- Research Professor, Barcelona Institute for Global Health
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Judith Garcia-Aymerich graduated in Medicine at the Universitat de Barcelona (UB) in 1996, and obtained her doctorate in Public Health and Biomedical Research Methodology at the Universitat Autònoma de Barcelona (UAB) in 2002. Her research delves into the role of physical activity in the development and prognosis of chronic obstructive pulmonary disease (COPD), and the impact of socioenvironmental factors in this relation. Her work also expands to the broader characterization of gait and mobility, to related health determinants such as diet and body weight and composition, and to other allergic, respiratory and chronic diseases.

Central to her research is a robust emphasis on methodological rigor. This encompasses the development and validation of assessment tools (e.g., activity monitors, patient-reported outcomes), the use of hypothesis free methods to define and characterise diseases, the use of counterfactual-based methods to estimate causal effects, and the life course approach. Dr Garcia-Aymerich has been principal investigator in numerous national and international multi-centre cohort and clinical trial studies, both population- and clinical-based. She has published more than 300 scientific articles (H-index 68, February-2023) and has supervised 12 PhD theses and 7 postdoctoral researchers. Her pioneer research in physical activity and COPD has been recognised by several national and international awards and was the basis to redefine lifestyle recommendations in clinical COPD guidelines.

She also serves in multiple experts' committees and advisory boards, has developed tools for patients and health professionals, and is engaged with regulatory authorities. She is Secretary General (elected by votation) of the European Respiratory Society (2022–2025) and Professor at Universitat Pompeu Fabra, where she teaches research methods, epidemiology, statistics and chronic diseases at under and postgraduate level.



Katie Hesketh

- Assistant Professor in Exercise Prescription, School of Sport, Exercise and Rehabilitation Sciences

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Dr. Katie Hesketh is a Lecturer in Clinical Exercise Physiology at the University of Birmingham, specialising in exercise prescription for clinical populations. Her research often integrates technology, such as wearable devices and mobile health platforms, to enhance exercise adherence and promote physical activity in at-risk populations. She has led projects targeting individuals with chronic diseases like diabetes, using tech-driven solutions to improve health outcomes.



Melvyn Hillsdon

- Associate Professor of Physical Activity and Population Health
- Public Health & Sports Sciences

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Dr. Hillsdon's research focuses on physical activity epidemiology and public health. He has published a number of articles and systematic reviews on exercise promotion and has been involved in the evaluation of a number of large community exercise interventions. His current research is directed towards the precise measurement of patterns of physical activity accumulation and their association with healthy ageing. He has been a member of the Chief Medical Officer's Physical Activity Expert Group that revised the UK's physical activity guidelines.



Jeffrey Hausdorff

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Prof. Jeff Hausdorff leads a research team that aims to better understand, evaluate, treat, and prevent alterations in gait and mobility associated with aging and disease. Their studies focus on motor control and brain function, particularly gait variability, freezing of gait, fall risk, and Parkinson's disease. They have conducted pioneering studies using wearable sensors to quantify mobility in clinical and 24/7 (unsupervised) community and home settings. Prof. Hausdorff's innovative research has garnered significant recognition, including the Gerontological Society of America's Excellence in Rehabilitation of Aging Persons Award and the Aufzien Foundation Prize for established researchers in Parkinson's disease. With over 94,000 citations, he ranks among the most influential scientists.



Stephanie Prince Ware

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Dr. Stephanie Prince Ware is a Research Scientist with the Centre for Surveillance and Applied Research at the Public Health Agency of Canada and an Adjunct Professor in the School of Epidemiology and Public Health at the University of Ottawa. She is also an Associate Editor with the International Journal of Behavioural Nutrition and Physical Activity. Dr. Prince Ware's research is focused on the measurement of health behaviours (e.g., physical activity and sedentary behaviour) with an emphasis on national surveillance, determinants of health behaviours and health, and built environments including the evaluation of natural experiments.

MEET OUR ATTENDEES



Jennifer Schrack

- Director, Center on Aging and Health
- Professor of Epidemiology & Medicine
- MPI, National Health and Aging Trends Study

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Jennifer Schrack, PhD, MS is a Professor of Epidemiology and the Director of the Center on Aging and Health at the Johns Hopkins University. Her research focuses on the intersection of movement & health, with the goal of maintaining mobility and functional independence with aging. She holds a Masters in Kinesiology from the University of Michigan & a PhD in Epidemiology from the Johns Hopkins Bloomberg School of Public Health. She is MPI of the National Health and Aging Trends Study, a platform for studying late life disability, as well as the PI/MPI of two R01s from that NIA to study the intersection of movement & brain health in older adults.



Emmanuel (Manos) Stamatakis

- Professor of physical activity and population health
- NHMRC Leadership Fellow
- Theme Leader for physical activity and exercise at Charles Perkins Centre (CPC)
- Director of the Mackenzie Wearables Research

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Emmanuel (Manos) Stamatakis is a Professor of physical activity and population health; an NHMRC Leadership Fellow; Theme Leader for physical activity and exercise at Charles Perkins Centre (CPC), and Director of the Mackenzie Wearables Research, University of Sydney. He received his PhD from the University of Bristol in 2003 and did a post-doctoral in epidemiology at University College London. He leads a program of research examining the health effects of physical activity and sleep using cohort studies and international consortia of studies with wearable device data. Emmanuel established and leads the Prospective Physical Activity, Sitting and Sleep consortium (ProPASS), a British Heart Foundation /NHMRC/Cancer Research UK funded international collaboration involving over 30 cohorts with wearables-based data. He has published over 450 peer reviewed papers and was named in Clarivate's Highly Cited Researchers list in 2019, 2020, 2021, and 2023 and 2024 – a distinction awarded to approximately 1 in 1000 researchers worldwide. He was named Field Leader in the Sports Medicine category of Australia's Top Researchers 2024. Emmanuel chaired WHO's Physical Activity and Sedentary Behaviour Guidelines Development Group in 2020; and led the subcommittee that developed physical activity recommendations for adults. Between 2016–20 Emmanuel served as of the four Editors of the British Journal of Sports Medicine; and the Editor-in-Chief of BMJ Open Sport & Exercise Medicine. He is currently a Senior Adviser to the British Journal of Sports Medicine.

MEET OUR ATTENDEES



Tom Wainwright

- Professor of Orthopaedics
- Deputy Head of Orthopaedic Research Institute
- Clinical Researcher in Orthopaedics, University Hospitals Dorset NHS Foundation Trust
- Visiting Professor, Lanzhou University, Lanzhou, China.

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Tom Wainwright, PhD PT, is a Professor of Orthopaedics at Bournemouth University and a physiotherapist specializing in musculoskeletal research. He is internationally recognized for his work on Enhanced Recovery after Surgery (ERAS) protocols, leading global initiatives to improve patient outcomes after joint replacement. With over 100 peer-reviewed publications, Tom's current research focuses on utilising wearables to monitor activity post-surgery, contributing to the development of standards in wearable technology for aging populations. He has led major orthopaedic trials, securing over £5M in research funding, influenced clinical practice globally, and is passionate about healthcare innovation and inclusivity.



Karen Van Ooteghem

- Research Assistant Professor, Department of Kinesiology and Health Sciences

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Karen Van Ooteghem has a background in behavioral neuroscience with training at the University of Waterloo and Toronto Rehabilitation Institute. She aims to develop methods and tools to help older adults maintain their capacity for safe, independent mobility. For the last several years, she has focused on the application of wearable technology to remote assessment of health-related behaviours. She is particularly interested in using feedback derived from wearable technology as an intervention to support self-management of mobility and health. Her work has included co-leading the remote measurement platform of the Ontario Neurodegenerative Disease Research Initiative (2018-2023) and serving as a site lead for a multi-center trial of exceptional cognitive aging.

MEET OUR ATTENDEES



Amal Wanigatunga

- Assistant Professor of Epidemiology

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Amal A. Wanigatunga PhD, MPH is an Assistant Professor of Epidemiology at the Johns Hopkins Bloomberg School of Public Health (JHBSPH), core faculty of Center on Aging and Health (COAH) at Hopkins and Adviser to the Healthy Aging Branch of the Centers for Disease Control and Prevention. His primary research focus is investigating the intersection of physical activity and aging. He has extensive experience working with wearables including research grade devices (e.g., Actigraph) and commercial wearables/phones (e.g., Apple Watch) to collect free-living patterns of physical activity across diverse populations of older adults. He is currently the PI of an NIH-funded K01 Career Award, conducting a randomized controlled trial to examine two novel approaches aimed at reducing accelerometer-measured sedentary time in prefrail older adults.



Max Western

- Associate Professor of Behavioural Science, Centre for Motivation and Behaviour change, Department for Health

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Max is a Behavioural Scientist who is interested in improving the quality of life for an ageing population and the role that digital technologies play in measuring and facilitating lifestyle behaviours such as regular physical activity. He has experience in validating research grade and commercial wearable technologies, and using such tools to evaluate behaviour in complex interventions.

MEET OUR ATTENDEES



Paul Blazey

Observer & methodologist

- Research Manager and Physiotherapist

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Paul is a dual-qualified Physiotherapist with 16-years of post-graduate experience (UK and Canada) with experience in the clinical application of wearable technology. He has a Masters from UBC in Rehabilitation Science and currently works with Professor Karim Khan (Director of the Canadian Institute of Health Research – Institute for Musculoskeletal Health and Arthritis).

His research has focused on consensus methods, specifically looking at how to develop rigorous consensus recommendations. This work led to him being invited to co-lead on the ACCORD (Accurate Consensus Reporting Document) reporting guideline with colleagues at Oxford University (UK).

Paul is also an editor for two leading sports medicine journals and co-author of two sports medicine textbooks.



Hetty Mulhall

observer CIHR-IMHA

- Associate Scientific Director, CIHR Institute of Musculoskeletal Health and Arthritis

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Dr. Hetty Mulhall is Associate Scientific Director at CIHR-IMHA. She holds a degree in Veterinary Medicine (VetMB) and an MA in Natural Sciences (Zoology and Human Psychology), both from the University of Cambridge, UK. Hetty was previously Senior Account Manager in Communications and Public Relations with clients across animal and human health, biotechnology, sustainability and pharmaceuticals. Her clinical training and role fuelled a passion for public health and knowledge translation; it was evident that animal health and welfare often mirrored the status of human health. Hetty is interested in an interdisciplinary approach to human health research facilitation, drawing on tools from a broader range of professions, and maintaining a one health lens. Hetty first came across wearable technologies in dairy cattle, with applications such as increasing productivity, sustainability, welfare and herd health. She is looking forward to exploring the challenges and opportunities of digital health interventions for people living in Canada.

RECOMMENDED RESOURCES

Using a combination of systematic searches in Medline, reference list screening, and consultation with experts, the following papers emerged as highly relevant for guiding our consensus meeting.

Chung J, Sargent L, Brown R, Gendron T, Wheeler D. **GPS Tracking Technologies to Measure Mobility-Related Behaviors in Community-Dwelling Older Adults: A Systematic Review.** J Appl Gerontol. 2021 May;40(5):547-557. doi: 10.1177/0733464820979801. Epub 2020 Dec 24. PMID: [33356769](https://pubmed.ncbi.nlm.nih.gov/33356769/).

Pulsford, R.M., Brocklebank, L., Fenton, S.A.M. et al. **The impact of selected methodological factors on data collection outcomes in observational studies of device-measured physical behaviour in adults: A systematic review.** Int J Behav Nutr Phys Act 20, 26 (2023). <https://doi.org/10.1186/s12966-022-01388-9>

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MEET OUR FACILITATORS



Erik Lockheart

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Erik Lockhart is the Associate Director of the Queen's Executive Decision Centre and the Founder of Lockhart Facilitation Inc. Mr. Lockhart designs and facilitates meetings using group decision support technology and other more traditional meeting processes in both face to face and virtual modes. He has led over 3450 sessions for multi-stakeholder groups undertaking strategic plans, community consultations, environmental scans, budgets, risk planning, organization redesign, and focus groups. Prior to joining the Executive Decision Centre, Mr. Lockhart was a management consultant in the Vancouver Office of Andersen Consulting. Mr. Lockhart has degrees from U.B.C. (BComm) and Queen's University (MBA).



Julie Richardson

meeting chair
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- Professor Emeritus, Rehabilitation Science, Faculty of Health Sciences
- Member - McMaster Institute for Research on Aging (MIRA)
- Member - Department of Health Research Methods, Evidence & Impact

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Julie Richardson is a Professor Emeritus in the School of Rehabilitation Science. Her research involves interventions to promote mobility and lower-extremity functioning in older adults; risk factor assessment for mobility decline and functioning with aging and functional health transitions with associated comorbidities. Julie is focused on identifying persons at risk for functional decline and rehabilitation interventions to maintain their health for persons with chronic illness. She works with family physicians and older adults around the assessment of preclinical disability, how to avoid falls and maintain their mobility. Julie's recent work has involved clinical trials examining complex rehabilitation interventions in primary care.

FACILITATION TEAM



Kit Beyer

Research Associate, University of Waterloo


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My current research focuses on 1) advancing wearable sensor analytics to quantify and monitor real-world behavioural and physiological outcomes across multiple domains including movement, mobility, activity, sleep, and cognition; 2) investigating the relationship between these outcomes and aging, spanning both health and disease; and 3) improving the accessibility and clinical utility of wearable sensor technology to support personalized healthcare.



Cody Cooper

Software Developer, , MacM3 Study/CLSA, McMaster University


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I specialise in building custom software for wearable technologies, enhancing data collection, reporting, and usability for MacM3 and CLSA.



Ben Cornish

PhD Candidate, University of Waterloo


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I am a PhD candidate with an interest in using wearable sensors to assess human walking and mobility. My research focuses on advancing the methodological and analytic approaches for these tools with aims to improve quantification and applicability of gait analysis in both clinical and free-living settings.



Cassandra D'Amore

Postdoctoral fellow, McMaster University


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My current research focuses on physical activity, aging, mobility, and fall prevention. I am particularly interested in strategies that promote independence and enhance quality of life as we age, with an emphasis on preventative approaches centered around movement behaviours. My Ph.D. dissertation, based on the Canadian Longitudinal Study on Aging (CLSA), explored usual physical activity levels and their determinants in middle-aged and older Canadian men and women.



Renata Kirkwood

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I am a physical therapist with a PhD in biomechanics and a strong interest in statistical analysis. My current research focuses on age-related changes in mobility and their impact on health and well-being.


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EVENT VENUES & ACCOMODATIONS

Spencer's At The Waterfront

1340 Lakeshore Rd

Burlington, ON

(905) 633-7494

Wi-Fi: Spencers-guest

The Pearl Hotel

3 Elizabeth St

Burlington, ON

(905) 340-0590

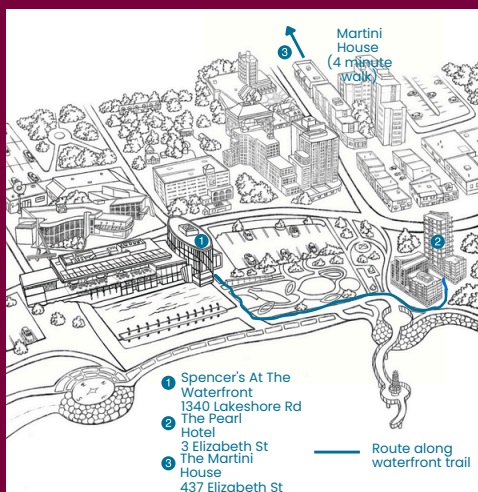
The Martini House

Dinner at 6 PM Monday, November 25

437 Elizabeth St

Burlington, ON

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