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**WORKSHOP
HANDBOOK**

SEPARATING THE SIGNAL FROM THE NOISE

DIGITAL HEALTH & PHYSICAL ACTIVITY

Workshop May 2nd & 3rd, 2024

Vancouver, BC



CIHR
IRSC | Institute of Musculoskeletal
Health and Arthritis
Institut de l'appareil
locomoteur et de l'arthrite

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EVENT VENUES



May 1st

THE GALLERY PATIO &
LOUNGE

6133 University Blvd 4th
floor, Vancouver, BC
V6T 1Z1

May 2nd & 3rd

SAGE RESTAURANT &
CATERING

6331 Crescent Rd,
Vancouver, BC
V6T 1Z1



WORKSHOP PROGRAM

TIME	SESSION	SPEAKER(S)
Arrival to Vancouver: May 1st, 2024		
1700 to 1900	Welcome Reception @ The Gallery Patio and Lounge	
Day 1 @ Sage Restaurant: May 2nd, 2024		
0800 to 0845	Breakfast & Registration	
0845 to 0850	Opening Remarks from CIHR-IMHA	Dr. Karim Khan
0850 to 1020	Keynote Presentations	
	World Health Organization: Moving from self-reported data to measurements from wearables	Dr. Fiona Bull
	Signal or Noise? The (brief) past, present, and immediate future of wearable devices in cohort studies	Dr. Emmanuel Stamatakis
	One Weird Trick For Digital Health Equity: A Design Approach to Clinical Research	Alex Haagaard
1020 to 1040	Break	
1040 to 1100	Two decades of measuring physical activity using accelerometry among Canadians – what have we learned and where are we going?	Dr. Rachel Colley
Theme 1: Hardware & Software Device-based Measurement, Data, & AI		Theme Lead: Dr. Sam Liu Co-Facilitators: Dr. Clare Ardern & Dr. Linda Truong
1100 to 1200	What research-grade hardware and software tools are available to measure physical activity?	Dr. Sam Liu
	Real-world experience with wearable sensor data collections: Lessons from the wild	Dr. Chris Napier
	Standardization across devices & applications to public health	Dr. Daniel Fuller
	Can we use machine learning to predict cognitive performance from actigraphy data? Findings from the UK Biobank Study	Dr. Ryan Falck

WORKSHOP PROGRAM CONTINUED

TIME	SESSION	SPEAKER(S)
1200 to 1300	<i>Lunch – 60 minutes</i>	
Theme 2: Sub-Populations Measurements & Interventions		Theme Lead: Dr. Jane Thornton Co-Facilitator: Dr. Véronique Lowry
1300 to 1355	Learning from lived expertise: What do patients think about digital health interventions for physical activity prescription? Wearable technologies at CSEP Commercially available exercise-based mobile applications for mental health in high-stressed adults	Dr. Jane Thornton Zach Weston Dr. Eli Puterman
Theme 3: Population & Public Health Surveillance & Promotion		Theme Leads: Dr. Marla Beauchamp & Dr. Stephanie Prince Ware
1355 to 1500	National surveillance of movement behaviours: Considerations for device-based measurement Acquiring 24-hour activity behaviour to understand healthy aging: Canadian Longitudinal Study on Aging (CLSA) A multi-sensor approach combining accelerometry with GPS for comprehensively monitoring mobility in major cohorts of older Canadians Examples of Canadian population physical activity initiatives using wearables	Dr. Stephanie Prince Ware Dr. Teresa Liu-Ambrose Dr. Marla Beauchamp Dr. Guy Faulkner
1500 to 1530	<i>Break – 30 minutes</i>	
1530 to 1600	Research gaps in device-based measurement & physical activity – Is there scope for consensus?	Paul Blazey
1600 to 1645	Theme 1-3 Breakout Discussions (Topics TBD)	
1645 to 1730	Discussion Recap	
1730 to 1800	<i>Break – 30 minutes</i>	
1800 to 2000	<i>Dinner</i>	

WORKSHOP PROGRAM CONTINUED

TIME	SESSION	SPEAKER(S)
Day 2 @ Sage Restaurant: May 3rd, 2024		
0800 to 0900	Breakfast – 60 minutes	
0900 to 0930	Keynote Presentation The reality of implementing accelerometry in large scale population studies: The pitfalls and key learnings	Dr. Mark Hamer (Virtual)
Theme 4: Ethical & Equity Considerations <i>Data Privacy, Accessibility, & Digital Health Literacy</i>		Theme Lead: Dr. Clare Ardern Co-Facilitator: Eunice Lui
0930 to 1030	Learnings from Essential Digital Health for the Underserved (EDH4U) Ethical issues implementing wearables with young children: Parent use of infant sleep wearables as a case study Wearable devices: Potentials and pitfalls for shaping behaviours, societies, research and research practices Research data and technology in a broader pan-Canadian health data system	Dr. Kendall Ho, Dr. Clare Ardern, & Alex Haagaard Dr. Jill Dosso Dr. Andrea Bundon Dr. Kim McGrail
1030 to 1100	Break – 30 minutes	
Theme 5: Implementation Science & Behaviour Change <i>Intervention Sustainability & Fidelity</i>		Theme Lead: Dr. Carolyn Steele Gray Co-Facilitator: Dr. Linda Li
1100 to 1200	Implementing technology in complex systems: Using Implementation Science theory and methods to improve adoption and sustainability. Future solutions for facilitating physical activity inspired by behaviour change and implementation science Consumer technology implementation	Dr. Carolyn Steele Gray Dr. Véronique Lowry Dr. Linda Li
1200 to 1330	Lunch – 30 minutes Optional Q&A Session with Dr. Kim McGrail	
1330 to 1415	Theme 4 & 5 Breakout Discussion (Topics TBD)	
1415 to 1500	Discussion Recap & Open Discussion	
1500 to 1530	Next Steps	Dr. Karim Khan

WORKSHOP ATTENDEE BIOGRAPHIES

Dr. Matthew Ahmadi (he/him)
University of Sydney

Dr. Matthew Ahmadi is a 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 an incumbent member of the executive board for the International Society of Physical Activity and Health, and is on the editorial board of 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 novel wearables-based techniques to measure physical activity, posture, and sleep, and their relationship with cardiovascular disease throughout the lifecourse.



Dr. Kelly **Arbour-Nicitopoulos** (she/her) *University of Toronto*

Kelly Arbour-Nicitopoulos is an Associate Professor in Faculty of Kinesiology and Physical Education at the University of Toronto. She is also a Board Member of Outdoor Play Canada and an Associate Editor of *Adapted Physical Activity Quarterly*. Situated within the field of behavioural medicine, her research program aims to enhance the health and well-being of disabled children through the provision of equitable physical activity opportunities. She has been the Principal or co-Investigator on tri-council operating grants, and other national and provincial granting agencies and industry funders, yielding over \$12 million in research funding. Her dedication to knowledge translation has garnered over 140 peer-reviewed publications and contributions to over 250 academic and community talks. The research products that her research team has developed and disseminated include physical activity program training manuals and curricula for children and adults with disabilities, health professional training resources to support physical activity in disability populations, and tools to enhance individuals' awareness of physical activity programs and policies.



Dr. Clare Ardern (she/her) *University of British Columbia*

Dr Clare Ardern is a physiotherapist and Assistant Professor in the Department of Physical Therapy at UBC. Her research team works to bring researchers, patients, clinicians and health policy makers together to design digital health interventions for musculoskeletal problems. Dr Ardern is the editor-in-chief for the *Journal of Orthopaedic & Sports Physical Therapy (JOSPT)* and *JOSPT Open*. She hosts the popular weekly *JOSPT Insights* podcast, which reaches over 16,000 regular listeners.



Dr. Marla Beauchamp (she/her)
McMaster University

Marla Beauchamp is a physical therapist and Associate Professor in the School of Rehabilitation Sciences at McMaster University. She is also the inaugural Associate Scientific Director of the McMaster Institute for Research on Aging | Dixon Hall Centre in Toronto. 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 mobile and healthy in their homes and communities for as long as possible. She is leading several major interdisciplinary projects on fall risk assessment and prevention, wearable technology for mobility monitoring, and studies on recovery after COVID-19 and respiratory infection.

Paul Blazey (he/him)
University of British Columbia

Paul is a dual-qualified (UK and Canada) Physiotherapist. Since 2007 he has gained experience across multiple settings including clinical (public, private and sports), research, regulatory and education settings.

His clinical experience includes the application of wearable technology to support deeper patient insights. He has a masters in Rehabilitation Science and post-graduate training in knowledge translation.

His masters work focused on rigorous consensus development.



Dr. Andrea Bundon (she/her)

University of British Columbia

Dr Bundon is an Associate Professor in the School of Kinesiology at the University of British Columbia. Her research area is the sociology of sport and exercise. Dr. Bundon is interested in how individuals are using digital technologies in sport and exercise contexts and how these technologies shape sport and exercise culture. Additionally, Dr. Bundon has explored how researchers - particularly those working within qualitative paradigms and methodologies - are engaging with digital technologies as part of their research practice and how these changes practices might led to new insights into the lived experiences of athletes and exercisers. She is currently working with Dr. Victoria Goodyear (University of Birmingham) to co-edit the Routledge Handbook of Digital Research in Sport, Exercise and Physical Education forthcoming in 2025.

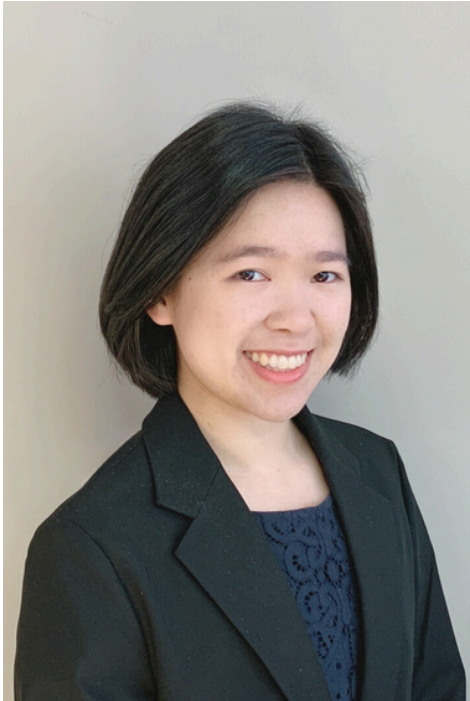


Dr. Rachel Colley (she/her)

Statistics Canada



Dr. Rachel Colley is an experienced health researcher with over 20 years of experience working in academic and government settings. Her broad research interest is examining the relationships between movement and health across the lifespan with specific expertise in the measurement of physical activity and sedentary behaviour using objective measurement tools and self-report surveys. Dr. Colley developed analytical procedures and published numerous methodological papers using the nationally representative accelerometer data from the Canadian Health Measures Survey. Since 2007, Dr. Colley has published 95 peer-reviewed scientific publications that have garnered over 10,000 citations. Dr. Colley is currently leading a program of research examining the relationships between movement and health as a Senior Research Analyst in the Health Analysis Division at Statistics Canada in Ottawa, Ontario. After completing her PhD in 2007 at the Queensland University of Technology in Brisbane, Australia, Dr. Colley worked as a Postdoctoral Fellow and Research Scientist with the Healthy Active Living and Obesity Research Group at the Children's Hospital of Eastern Ontario (2007 to 2013).



Amelia Choy (she/her) *University of British Columbia*

Amelia is a biology major graduate from UBC with four years of health-related work/research experience. As a research assistant at the Centre for Aging SMART, she provides project management assistance for the 6th edition of Brukner and Khan's Clinical Sports Medicine (CSM) book publication. Her past research includes a published evaluation that examines the utility of engagement methods to initiate change to Canadian wildfire smoke communication plans using the RE-AIM framework and PRISM contextual domains. Also, she has a multimethod research manuscript under peer review that combines a Vancouver Coastal Health (VCH) asthma and chronic obstructive pulmonary disease (COPD) literature review and a VCH environmental scan to use VCH as a case example to improve the understanding of healthcare access in the diverse geographic regions of Canada. She has created approachable research figures that are still included in presentations that advocate for asthma and COPD care service improvement in rural VCH communities. In the community, she is a Marketing and Communications Director for a local non-profit, Empower The Future, which connects secondary students with post-secondary students to encourage personal, academic, and professional growth

Dr. Vince DePaul (he/him) *Queen's University*

Vince DePaul is physiotherapist and an Associate Professor in the School of Rehabilitation Therapy at Queen's University. His research focuses on the development, testing, and translation of strategies for the recovery of walking and mobility function and promotion of mobility-related physical activity in older adults and individuals with stroke, other neurological conditions. Research includes exploring how individuals optimally learn and re-learn gait and other motor skills after stroke. He is co-lead on the Oasis Project, a community-based participatory research project evaluating an older-adult driven program designed to promote social connections, physical activity and healthy nutrition in naturally occurring retirement communities such as apartment buildings (www.oasis-aging-in-place.com). In each of these lines of research, wearables are used to describe typical physical and sedentary behaviour patterns, and the impact of interventions on participation patterns.



Dr. Jill Dosso (she/her) *University of British Columbia*

Jill Dosso, PhD, is an NSERC Postdoctoral Fellow in Neurology in the Neuroscience, Engagement, and Smart Tech (NEST) Lab at the University of British Columbia and BC Children's Hospital. In her patient experience work, she investigates how real users perceive and interact with smart, social health technologies such as social robotics, health wearables, and generative AI. Her mixed-methods work particularly focuses on the experiences of children with pediatric anxiety and older adults living with dementia, as well as their families. Dr. Dosso holds a PhD in Neuroscience from UBC and a MA in Psychology from Toronto Metropolitan University.



Dr. Ryan Stanley Falck (he/him) *University of British Columbia*

Dr. Ryan Falck is a postdoctoral fellow in the School of Biomedical Engineering at the University of British Columbia. As a Michael Smith Health Research BC postdoctoral fellow trainee, his research examines how the 24-hour activity cycle (i.e., physical activity, sedentary behaviour, and sleep) impacts cognitive health and risk for dementia. His research also examines how different lifestyle factors (e.g., exercise training, pet ownership, etc.) can impact physical, mental, and cognitive health. He uses a combination of 1) innovative methodologies for observing physical activity, sedentary behaviour and sleep; 2) state-of-the-art structural and functional neuroimaging analyses for exploring the effects of these behaviours on brain health; and 3) novel analytic approaches (e.g., artificial intelligence and machine learning) for exploring how physical activity, sedentary behaviour, and sleep are related to cognitive health.



Prof. Guy Faulkner (he/him)
University of British Columbia

Guy Faulkner is a Professor and Chair in Applied Public Health in the School of Kinesiology, University of British Columbia. Broadly, his research has focused on two inter-related themes: the development and evaluation of physical activity interventions; and physical activity and mental health.

Dr. Daniel Fuller (he/him)
University of Saskatchewan

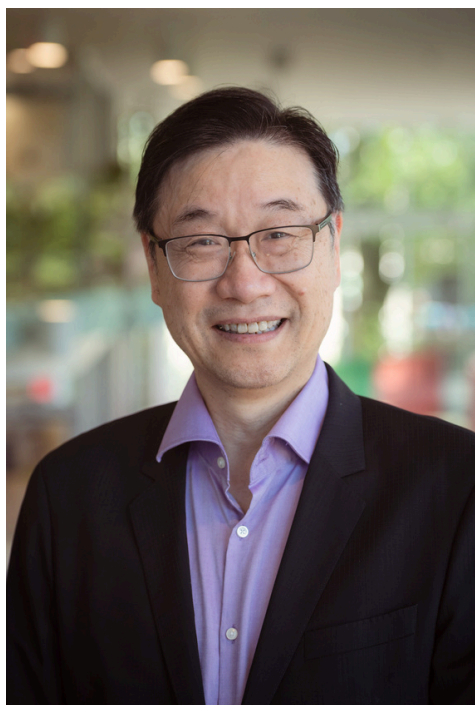
Daniel Fuller is a Principal Investigator on the INTERACT team and Associate Professor in Community Health and Epidemiology at the University of Saskatchewan. His research is focused on using wearable technologies to study physical activity, transportation interventions, and equity in urban spaces. Dan has an MSc in Kinesiology from the University of Saskatchewan, a PhD in Public Health from Université de Montréal. Dan is the Neighbourhood Factors Team co-lead of the Canadian Urban Environmental Health (CANUE) Research Consortium.



Alex Haagaard (they/them)

User Design Expert and Patient Partner

Alex Haagaard is a design strategist living in so-called Kingston, Ontario. Their work specializes in digital accessibility, community engagement, and disability and health justice. They have lived with chronic pain since early childhood and this experience informs their interest in designing and advocating for system-level changes to how healthcare services are conceptualized, planned and delivered. Alex is currently a member of Pain BC's Putting the Pieces Together conference steering committee, and co-chair of the Chronic Pain Network's Knowledge Mobilization and Implementation Science Committee.



Dr. Kendall Ho (he/him)

University of British Columbia

Professor of Emergency Medicine at UBC Faculty of Medicine
Lead, Digital Emergency Medicine

Dr. Kendall Ho is an emergency medicine specialist, Professor at the University of British Columbia (UBC) Faculty of Medicine, and Lead the Digital Emergency Medicine Unit. He is the medical director of the BC Ministry of Health HealthLink BC virtual physician program, and collaborates with provincial partners on implementing and evaluating the BC Real Time Virtual Support provincial virtual care services.

His digital health research in BC and internationally focuses on virtual care, wearables and sensors, data science, and multicultural engagement in digital health literacy to support patient transition between emergency departments and the community. His research and education in digital health has received awards and recognition of the BC Medal of Good Citizenship.



Dr. Karim Khan (he/him)

CIHR-IMHA & University of British Columbia

Karim Khan, MD, PhD, MBA, FCAHS is a professor at the University of British Columbia, Vancouver, Canada and Scientific Director of the Canadian Institutes of Health Research (CIHR)-Institute of Musculoskeletal Health and Arthritis (2017-2025). He is recognized for research in sports injuries in athletes and the role of physical activity for health among older people. Professor Khan has coauthored over 350 peer-reviewed publications with 50,000 citations (H-index >110).

Karim was Editor-in-Chief of the British Journal of Sports Medicine (BJSM) from 2008-20 and the inaugural editor of BMJ Open Sport and Exercise Medicine (2015-19). He launched BJSM's social media platforms in the 2010s and these garnered well in excess of 10 million engagements. He is co-author of all 5 editions of the sport and exercise medicine textbook Brukner & Khan's Clinical Sports Medicine. He was profiled for service to sports medicine in The Lancet in 2012. He received Honorary Doctorates from The Norwegian Sports University (NIH) (2018) and The University of Edinburgh (2019). He was appointed an Officer of the Order of Australia (AO) for distinguished service to sport and exercise medicine, and to the promotion of physical activity for community health (2019). He was made a Fellow the Canadian Academy of Health Sciences in 2021.

Rabaab Khehra

CIHR-IMHA

Rabaab Khehra is currently serving as the Events and EDI Lead at IMHA. Rabaab is finishing up their Bachelor of Arts in International Relations at UBC. Rabaab is dedicated to integrating inclusivity into all sectors of research and health advocacy. They have served on the UBC Anti-Racism Task Force as well as on the UBC Student Equity Advisory Committee. Outside their work, you'll often find Rabaab exploring the beauty of nature, examining rocks, plants, and flowers, and embracing outdoor activities like biking and rock climbing.



Dr. Linda Li (she/her) *University of British Columbia*

Dr. Linda Li is Professor and Harold Robinson/Arthritis Society Chair in Arthritic Diseases at the Department of Physical Therapy, University of British Columbia, and Scientific Director for the BC SUPPORT Unit. She is also a Senior Scientist at Arthritis Research Canada where she leads the Arthritis & Implementation Science Program. Her research focuses on the integration of wearables and apps to support health professionals in promoting physical activity and chronic disease self-management. Her work in implementation science includes studying strategies for engaging people with lived experiences in the research process. Dr. Li held a Canada Research Chair in Patient-oriented Knowledge Translation in 2014-2024. She is a recipient of the American College of Rheumatology – Association of Rheumatology Professionals (ARP) Distinguished Scholar Award (2015) and the ARP Distinguished Educator Award (2022), recognizing her leadership in both arthritis research and education.



Prof. Teresa Liu-Ambrose (she/her) *University of British Columbia*

Dr. Teresa Liu-Ambrose, PhD, PT, Professor, is a physical therapist and a Tier 1 Canada Research Chair in Healthy Aging at the University of British Columbia, Department of Physical Therapy. She leads the Canadian Longitudinal Study on Aging (CLSA) Data Collection Site at UBC, the CLSA Neuroimaging Working Group, and the CLSA COVID-19 Brain Health Study. Dr. Liu-Ambrose also co-leads the CLSA Healthy Brains, Healthy Aging initiative. Dr. Liu-Ambrose's research focuses on understanding the role of exercise, and other lifestyle interventions, in promoting cognitive and mobility outcomes in older adults.



Dr. Sam Liu (he/him)

University of Victoria

Sam Liu is an Associate Professor in the School of Exercise Science, Physical and Health Education, and the Director of the Digital Health Lab at the University of Victoria, Canada. His research focuses on two main areas: 1) developing and evaluating the effectiveness of digital communication technology (e.g., mobile phones, social media) to promote physical activity and well-being, 2) finding innovative ways to monitor and predict behaviours and health outcomes using big data in order to better target and personalize digital health interventions. Dr. Liu is a Michael Smith Health Research Scholar focused on using innovative digital technology to promote healthy lifestyle and prevent obesity and chronic diseases. He is also a co-founder of Pathverse mobile health platform, which help researchers and clinicians leverage mobile and wearable technology to improve health outcomes.

Dr. Véronique Lowry (she/her)

Université de Sherbrooke

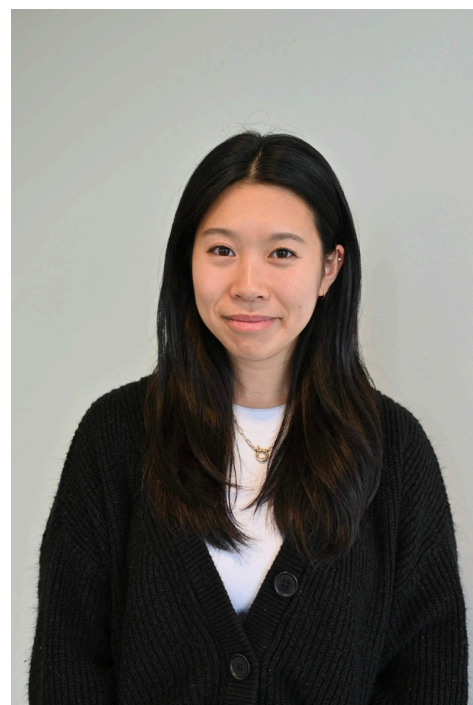
I am a physiotherapist and postdoctoral fellow at the University of Sherbrooke. During my PhD in rehabilitation sciences, I developed a knowledge mobilization intervention aiming to improve shoulder pain management in primary care. I thus developed a strong interest in knowledge mobilization and implementation science. Being myself very enthusiastic about physical activity, especially running, I became interested in the fact that physical activity is a crucial element in the treatment and prevention of several chronic diseases. In this context, I am working on understanding how life and healthcare trajectory of adults living with chronic diseases have affected their physical activity behaviours. Understanding the factors affecting physical activity behaviours will allow to develop targeted strategies for improving physical activity levels for this population.



Eunice Lui (she/her)

CIHR-IMHA

Eunice Lui is a Project Manager at CIHR-IMHA, overseeing the physical activity and digital health portfolios. She holds a Bachelor of Kinesiology, specializing in the health sciences stream, and Master of Management from the University of British Columbia. Since joining IMHA, and in her previous role as a research assistant for rural obstetrics care, Eunice developed an interest for making healthcare more accessible and equitable. This has led her to pursue a Master's degree in Public Health at University College London where she hopes to dive deeper into the various applications of digital health tools that improve health outcomes in Canada and internationally.



Tianna Magel (she/her)

CIHR-IMHA

Tianna Magel is the Projects and Initiatives Analyst at CIHR-IMHA. She recently completed her MSc in Population and Public Health at the University of British Columbia, researching depression and anxiety among people receiving injectable opioid agonist treatment. Tianna also contributed to the Program of Outcomes Research on Treatment with Injectables for Addiction (PORTIA) study and BC-EP ME study for individuals living with Myalgic Encephalomyelitis in British Columbia, affiliated with UBC and BC Women's Hospital and Health Centre, respectively. Tianna has long been interested in experiences of mental and physical health, and how "health" intersects many areas of research including public policy, substance use disorder, and chronic diseases, to name a few. While new to digital health, she is looking forward to learning more about how it can be harnessed to improve the lives of Canadians.



Dr. Kim McGrail (she/her)
University of British Columbia

Kimberlyn McGrail is a Professor in the UBC School of Population and Public Health and Centre for Health Services and Policy Research, and Scientific Director of Population Data BC and Health Data Research Network Canada. Her research interests are quantitative policy evaluation and all aspects of population data science. She has been and continues to be involved in a number of data-related advisory committees. She holds a PhD in Health Care and Epidemiology from the University of British Columbia, and a Master's in Public Health from the University of Michigan.

Dr. Heather McKay (she/her)
University of British Columbia

Professor McKay is Professor, Faculty of Medicine, UBC. Her research investigates how best to design, implement and scale-up health promoting interventions to enhance health at key time points: childhood and later life. Currently, she is studying the positive role of lifestyle factors (physical activity) on older adult physical health, mobility and social connectedness. Through an implementation science and equity lens, she advances concepts, implementation strategies and evaluation methods that support scale-up of effective interventions. She leads the Active Aging Research Team which is currently scaling-up (100 community-engaged organizations; 8000 older adults) and has sustained (9 years) an effective health promoting innovation for older adults called Choose to Move. Professor McKay is known for building interdisciplinary teams of scholars and community partners to move research findings into action. Currently, she leads a large, international, interinstitutional, cross-sectoral Implementation Science Team (IST) in Healthy Aging. Her implementation science team was awarded two highly competitive 6-year grants as part of the Canadian Institutes for Health and Public Health Agency of Canada, Healthy Cities Initiative. Only one IST in healthy ageing was funded across Canada. Professor McKay has been awarded grant funding in excess of \$70M. She was inducted as a Fellow into the Canadian Academy of Health Sciences (2018).



Dr. Hetty Mulhall (she/her)

CIHR-IMHA

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.



Dr. Chris Napier (he/him)

Simon Fraser University

Chris is an Assistant Professor in the Department of Biomedical Physiology & Kinesiology at Simon Fraser University and Director of the SFU Run Lab. As Research Lead at the Human Performance Lab at Simon Fraser University's WearTech Labs—a state-of-the-art motion capture and wearable technology lab based in Surrey, BC—his research focuses on biomechanics and training load factors in running-related injury, using lab- and field-based measures. As a clinician, Chris has worked as a sport physiotherapist at all levels of sport from weekend warrior to professional level. He also actively practices at Restore Physiotherapy in downtown Vancouver where he specializes in the treatment of running injuries. Chris obtained his Master of Physiotherapy degree in 2003, his Diploma of Sport Physiotherapy in 2007, and went on to complete his PhD in Running Biomechanics and Injury Prevention at UBC in 2018. He is a physiotherapist for Athletics Canada and has been a member of the medical team for World Championships, Pan Am Games, Commonwealth Games, Winter Olympics, and Summer Olympics. He is the author of the bestselling book "Science of Running" and currently serves on the Executive Board of the International Federation of Sports Physical Therapy.





Dr. Stephanie Prince Ware (she/her)

Public Health Agency of Canada

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. When not at work she enjoys being active including walking her dog, playing hockey and ringette, skiing, and spending time with her two sons.

Dr. Eli Puterman

University of British Columbia

Dr. Eli Puterman, PhD, is an Associate Professor in the School of Kinesiology at the University of British Columbia in Vancouver, British Columbia, Canada. He is the Canada Research Chair in Physical Activity and Health since 2015 and was recently elected as a Member to the Royal Society of Canada College of Scholars, Artists and Scientists. His research develops, evaluates, and disseminates physical activity initiatives and programs among unsuccessfully reached populations and highly stressed individuals. More broadly, his work seeks to determine the impact of cumulative life stress on mental and physical health, and determine ways to improve health through physical activity.



Prof. Emmanuel Stamatakis (he/him)

University of Sydney

Emmanuel (Manos) is a Professor of physical activity and population health; an NHMRC Leadership 2 Fellow; Theme Leader for physical activity and exercise at Charles Perkins Centre (CPC), and Director of the Mackenzie Wearables Research Hub@CPC. 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 cohorts 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 20 cohorts with wearables-based data. He had published over 400 peer reviewed papers and was named in Clarivate's Highly Cited Researchers list in 2019, 2020, 2021, and 2023. He was named Field Leader in the Sports Medicine category of Australia's Top Researchers 2024, published in The Australian (NewsCorp). Emmanuel co-chaired WHO's Physical Activity and Sedentary Behaviour Guidelines Development Group; and led the subcommittee that developed physical activity recommendations for adults. Between 2016-20 Emmanuel served as one 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.



Dr. Kevin Stanley (he/him)

University of Victoria

Kevin Stanley is a Professor and Chair of Computer Science at the University of Victoria. He is a member of the INTERACT research team, and has a research interest in measuring and modelling human spatial behaviour, particularly in a health context.



Dr. Carolyn Steel Gray (she/her) *University of Toronto*

Carolyn Steele Gray, MA, PhD holds a Tier 2 Canada Research Chair in Implementing Digital Health Innovation. She is a Scientist at the Science of Care Institute and in the Lunenfeld-Tanenbaum Research Institute at Sinai Health, and an Associate Professor in the Institute for Health Policy, Management and Evaluation at the University of Toronto in Canada. Dr. Steele Gray's program of work focuses on the role of digital health in supporting integrated and person-centred care delivery for patients with complex care needs, applying implementation science theory and approaches, along with evaluation methods to uncover to how best to embed technology into novel delivery models. Key to her transformational work is her international leadership in the areas of digital health and integrated care, notably through her work as a Senior Associate with the International Foundation for Integrated Care (IFIC), and a member of the Executive board with IFIC Canada, where she co-leads a Special Interest Group in Digital Health and Data Enabling Integrated Care. She is also the Canadian lead for Open Digital Health, non-profit organization seeking to drive accessibility and spread of digital health solutions to improve care delivery, and the co-lead and co-founder of the International Goal-Oriented Care Learning Collaborative, an academic consortium seeking to advance adoption of person-centred goal-oriented care.



Prof. Roger Tam (he/him) *University of British Columbia*

Roger Tam obtained his Ph.D. in computer science in 2004 from the University of British Columbia in the research areas of computational geometry, shape modelling, and visualization. He joined the UBC Department of Radiology as a faculty member in 2007. In 2018, he became a founding member of the UBC School of Biomedical Engineering. His technical interests centre on image analysis, machine learning, and personalized medicine, while his clinical interests include neurodegeneration, obstructive lung disease and lung cancer, and cardiac arrhythmia and heart failure.

Dr. Jane Thornton (she/her)

University of Western Ontario

Dr. Jane Thornton is a Sport and Exercise Medicine Physician and Clinician Scientist specializing in long-term athlete health and physical activity in the prevention and treatment of chronic disease. She is a Canada Research Chair and Assistant Professor in the Department of Family Medicine, with cross appointments in the Department of Epidemiology & Biostatistics and Department of Kinesiology at Western University in London, Canada.

She is President elect of the Canadian Academy of Sport and Exercise Medicine (CASEM), and a senior editor of the British Journal of Sports Medicine (BJSM). She is also a member of the Board of Directors for ParticipACTION.

Dr. Thornton represented Canada for over a decade in the sport of rowing, becoming both a World Champion (2006) and Olympian (2008). She now treats athletes and active individuals of all ages and abilities and advocates for movement as medicine.



Dr. Linda Truong (she/her)

University of British Columbia

Dr. Truong is an aspiring clinician-scientist (PT) who graduated with a PhD in Rehabilitation Sciences from UBC in 2023. Her doctoral research delved into the influence of 'non-physical' factors, particularly social support, on the recovery of sport-related knee injuries. She is deeply committed to translating research findings into tangible improvements in clinical care, with a specific focus on enhancing access to and navigation of healthcare systems for individuals with musculoskeletal injuries in Canada. Presently, she is engaged in post-doctoral work under the mentorship of Dr. Clare Ardern.



Zach Weston (he/him)

Canadian Society for Exercise Physiology

Zach Weston is the CEO of the Canadian Society for Exercise Physiology (CSEP) and has been certified with both CSEP and ACSM as a Clinical Exercise Physiologist for 25+ years. He has worked in all areas of the health system including the emergency department, inpatient and outpatient cardiopulmonary diagnostics, outpatient rehabilitation, primary care, public and private community rehabilitation. He has worked extensively in cardiac rehabilitation and trained athletes for numerous sports including the NHL, OHL, Olympics, Paralympics, Triathlon World Championships and Namibia Ultramarathon. He previously managed the regional cardiology, orthopaedic, ophthalmology, chronic disease prevention and management services, physiotherapy, stroke program, critical care services and annual Hospital program planning (\$650M) for the Waterloo Wellington Local Health Integration Network. A hobbyist educator, he has taught 80+ undergraduate courses at Wilfrid Laurier University and the University of Waterloo teaching courses in human anatomy, nutrition, physiology, fitness assessment, advanced exercise prescription, entrepreneurship, business model development, organizational behaviour and business model execution.



Dr. James Wrightson (he/him)

University of British Columbia

I am a senior researcher in the Faculty of Medicine, UBC. My research focuses on the use of machine learning and artificial intelligence to measure and improve how people with musculoskeletal pain use the health system in British Columbia.



Cassandra D'Amore (she/her) *McMaster University*

Cassandra D'Amore is a PhD candidate at McMaster University in the School of Rehabilitation Science. In her dissertation work, Cassandra focused on describing physical activity behaviour and its determinants in middle-aged and older adults. Much of this work used data from the Canadian Longitudinal Study on Aging. Cassandra's research interests include physical activity, mobility, participation, and healthy aging. Before starting graduate studies, Cassandra worked in rehabilitation clinics as a registered massage therapist with an undergraduate degree in Kinesiology.

Dr. Laura Churchill (she/her) *University of British Columbia*

Dr. Laura Churchill is a Physiotherapist and Research Associate with the Active Aging Research team, co-led by Dr. Heather McKay and Dr. Joanie Sims Gould, at University of British Columbia. Laura completed a MSc and a combined MPT (Master of Physical Therapy) and PhD at Western University in London, Ontario, Canada. Her PhD research focused on the development and evaluation of resources to improve the quality of care for individuals with knee osteoarthritis. Most recently, Laura completed a post-doctoral fellowship in the Physical Therapy Program at the University of Colorado with Dr. Jennifer Stevens-Lapsley, where she studied evidence based and technology-enabled solutions for older adults and individuals undergoing total knee replacement, including the evaluation of a digital health tool that can predict personalized recovery trajectories after orthopaedic surgery. Since 2017, Laura has also practiced clinically as a physiotherapist (with a focus on sport medicine), helping athletes and active community members get back to doing what they love.

With the Active Aging Research Team, Laura combines her clinical and research experience to lead the adaptation of a choice-based physical activity and social connectedness model- "Choose to Move", for clinical populations including those with hip and knee osteoarthritis.



GUEST PRESENTATION BIOGRAPHIES

Dr. Fiona Bull PhD, MBE

World Health Organization

Dr. Fiona Bull is head of the Physical Activity Unit in the Department of Health Promotion at the World Health Organization (WHO) Headquarters in Geneva, Switzerland. Dr Bull leads a team working on supporting countries to increase participation in physical activity through active transport, sport and every-day activities through advancing science, policy and practice. Dr Bull led the development of the WHO Global Action Plan on Physical Activity 2018-2030: More active people for a healthier world, the new Global guidelines on physical activity and sedentary behaviors 2020 and the recent 1st Global Status Report on Physical Activity 2022. Prior to joining WHO in 2017, Dr Bull was Professor of Public Health and Director of Research Centre on Built Environment and Health at the University of Western Australia and between 2004-2012 Professor of Physical Activity and Director of the National Centre of Physical Activity in the UK.



Dr Bull is a Visiting Professor at University of Edinburgh and Member of the IOC Medical and Scientific Commission and Sustainability and IOC Sustainability and Legacy Commission. Dr Bull was President of the International Society of Physical Activity and Health from 2014-2016 and has co-authored over 240 scientific publications. Fiona remains actively involved in scientific research and in 2020, 2021 and 2023 received recognition as highly cited academic by Clarivate in various fields. Fiona continues to contribute to applications of innovative technologies and advancement of science, policy and practice of enabling more people to be more active and healthier. To stay active, she is a keen swimmer, cyclist, hiker and dog walker.



Dr. Mark Hamer

University College London

Mark Hamer is Professor in Sport and Exercise Medicine, UCL Faculty Medical Sciences, and UCLH Biomedical Research Centre Obesity theme lead. He has a PhD in Exercise Physiology and undertook post-doctoral training at UCL department Epidemiology and Public Health. His research focuses on physical activity and population health, especially in relation to cardio metabolic disease and obesity. He is involved with a number of world leading cohort studies including Whitehall II Study, the 1970 British Cohort Study. He is part of the senior leadership of Prospective Physical Activity, Sitting and Sleep Consortium, an international research collaboration platform focused on cohorts using thigh and wrist-worn accelerometry devices. He has authored over 500 original scientific papers on physical activity, lifestyle factors and health, and recognised as a Clarivate Highly Cited Researcher for past six years.

FACILITATOR GUIDE

The designated facilitators will:

Provide structure and leadership in discussions

- Guide the group through the breakout session using the aim and prompts.
- Manage timing while remaining flexible (some prompts may result in more discussion than others, and you may choose not to limit a particular point to 10 minutes).
- Encourage use of notepads, sticky notes, and other aids to promote collaboration.
- Indicate that members of the group may text the IMHA team during the sessions for additional support or to discreetly raise a concern: 604-655-3821
- To avoid groupthink, use strategies such as giving several minutes for individuals to note their ideas before being influenced by the wider group and allowing each group member to contribute to the discussion.
- Use a “parking lot” to help the group move forward in the discussion while keeping track of ideas. Ask the notetaker to capture ideas that should be recorded but are outside of the scope of the Breakout Session aim and prompts.
- Redirect comments and questions to the group to encourage group participation and reflection.
- Summarize what has been discussed to help the group build upon the conclusions they have already made.

Promote inclusivity and a positive working environment for the group

- Help ideas flow freely without criticism.
- Allow each group member to contribute individually, mitigating the risk that a select few dominate the discussion.
- Ensure each group member is listened to and treated respectfully. Recognize the value of each team member and remind the group if helpful.
- Pay attention to the group dynamics and navigate conflicting ideas so that the discussion remains productive.
- Acknowledge different perspectives and help the group consider a problem/topic from multiple angles.
- Help the group find common ground among different opinions.

RECOMMENDED RESOURCES

Click on the title to access the resources recommended by the workshop attendees.

Academic Papers

Hardware & Software

[Why Machine Learning \(ML\) has failed physical activity research and how we can improve](#)

[Systematic Review of the Reliability and Validity of Commercially Available Wearable Devices for Measuring Steps, Energy Expenditure, and Heart Rate](#)

[Predicting lying, sitting, walking, and running using Apple Watch and Fitbit data](#)

[Accuracy of Fitbit Devices: Systematic Review and Narrative Syntheses of Quantitative Data](#)

[Move more, move better: A narrative review of wearable technologies and their application to precision health](#)

[Multimodal biomedical AI](#)

[BenchMD: A Benchmark for Unified Learning on Medical Images and Sensors](#)

[Assessing real-world gait with digital technology? Validation, insights and recommendations from the Mobilise-D consortium](#)

Sub-Populations

[Connecting real-world digital mobility assessment to clinical outcomes for regulatory and clinical endorsement—the Mobilise-D study protocol](#)

[Monitoring mobility in older adults using a Global Positioning System \(GPS\) smartwatch and accelerometer: A validation study](#)

[Digitisation of emergency medicine: opportunities, examples and issues for consideration](#)

[Real-time virtual supports improving health equity and access in British Columbia](#)

[From Today to Tomorrow: Leveraging Digital Health to Move toward Health for All](#)

[Early mobility after fragility hip fracture: a mixed methods embedded case study](#)

[Rehabilitation Treatment Specification System: Methodology to Identify and Describe Unique Targets and Ingredients](#)

[Advancing Stroke Recovery Through Improved Articulation of Nonpharmacological Intervention Dose](#)

[Association of wearable device-measured vigorous intermittent lifestyle physical activity with mortality](#)

[Brief bouts of device-measured intermittent lifestyle physical activity and its association with major adverse cardiovascular events and mortality in people who do not exercise: a prospective cohort study](#)

[Effects of 12 Weeks of At-Home, Application-Based Exercise on Health Care Workers' Depressive Symptoms, Burnout, and Absenteeism: A Randomized Clinical Trial](#)

[COVID-19 Pandemic and Exercise \(COPE\) trial: a multigroup pragmatic randomised controlled trial examining effects of app-based at-home exercise programs on depressive symptoms](#)

RECOMMENDED RESOURCES

Population & Public Health

[How can global physical activity surveillance adapt to evolving physical activity guidelines? Needs, challenges and future directions](#)

[Effectiveness of wearable activity trackers to increase physical activity and improve health: a systematic review of systematic reviews and meta-analyses](#)

[Are we ready for wearable-based global physical activity surveillance?](#)

[Device-measured physical activity and cardiometabolic health: the Prospective Physical Activity, Sitting, and Sleep \(ProPASS\) consortium](#)

[Top 10 International Priorities for Physical Fitness Research and Surveillance Among Children and Adolescents: A Twin-Panel Delphi Study](#)

[Prioritizing a research agenda on built environments and physical activity: a twin panel Delphi consensus process with researchers and knowledge users](#)

Ethical & Equity Considerations

[Essential Digital Health for the Underserved](#)

[The Disappearance of the Sick-Man from Medical Cosmology, 1770-1870](#)

[Designing and tool to support patient and public involvement in research project: the Involvement Matrix](#)

[Participation of people living with disabilities in physical activity: a global perspective](#)

[Training wicked scientists for a world of wicked complex problems](#)

[Reflections on patient engagement by patient partners: how it can go wrong](#)

[Learning from 'lived expertise': engaging athletes and patients in sport and exercise medicine research and policy](#)

Implementation Science & Behaviour Change

[Implementation science: What is it and why should I care?](#)

[Making implementation science more real](#)

[Implementation science made too simple: a teaching tool](#)

[The Updated Consolidated Framework for Implementation Research Based on User Feedback](#)

[Long-term usage of a commercial mHealth app: A "multiple-lives" perspective](#)

[How should family physicians provide physical activity advice? Qualitative study to inform the design of an e-health intervention](#)

[An Evaluation of a Commercialized mHealth Intervention to Promote Physical Activity in the Workplace](#)

[Commercial app use linked with sustained physical activity in two Canadian provinces: a 12-month quasi-experimental study](#)

[What we know about the actual implementation process of public physical activity policies: results from a scoping review](#)

[Effectiveness of physical activity promotion interventions in primary care: A review of reviews](#)

RECOMMENDED RESOURCES

Other

Guidelines

[WHO Guidelines on Physical Activity and Sedentary Behaviour](#)

[Canadian 24-Hour Movement Guidelines](#)

[WHO Recommendations on digital interventions for health system strengthening](#)

Tools

[CIHR-IMHA Patient Engagement Training Modules](#)

[Institute for Better Health Learning Health Systems \(LHS\)](#)

[Sport Data Makerspace](#)

[Pathverse](#)

Reports & Blogs

[Interoperability Saves Lives](#)

[The Politics of Pain](#)

[No Health, No Care: The Big Fat Loophole in the Hippocratic Oath](#)

GETTING AROUND UBC



See and Do at UBC

There's always so much going on at the Vancouver campus, from arts and culture, to sports and recreation, to gardens and beaches. Here are some of the IMHA team's recommendations:

- Nitobe Memorial Garden
- Pacific Spirit Park
- Museum of Anthropology
- Belkin Art Gallery
- Tower Beach
- Acadia Beach

Hop on the #4 or #44 bus to Downtown Vancouver to explore more of this West Coast city.

Eat and Drink at UBC

Dining options on campus run from breakfast cafés to restaurants serving fine West Coast cuisine. Here are some of our favourite spots:

- Browns Crafthouse
- Kokoro Tokyo Mazesoba
- Jamjar
- Steve's Poké Bar
- Harvest Market & Deli
- Mercante Pizza
- Great Dane Coffee
- Loafe Café
- JJ Bean
- Blue Chip Café
- Body Energy Club
- Rain or Shine Ice Cream

There are plenty of restaurants just a short bus ride away on Broadway and West 4th Avenue. Hop on the #99 or #84 bus to explore a variety of cuisines.



TEXT THE TEAM

The CIHR-IMHA event team can be reached throughout the two-day program.

In-person: Dr. Karim Khan, Dr. Hetty Mulhall, Rabaab Khehra, Tianna Magel & Eunice Lui

To discreetly request assistance, signal a concern, or ask for an acronym explainer, please **text** our team:

604-655-3821

We will do our best to respond or provide assistance within five minutes of receiving your message.

To contact the team outside of the event dates and times, email:

IMHA-IALA@cihr-irsc.gc.ca

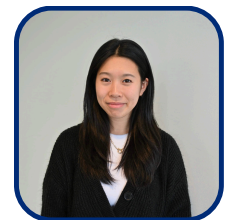
Note that logistical queries can continue to be directed to Eunice Lui by email.



Dr. Karim Khan
Scientific Director



Dr. Hetty Mulhall
Associate Scientific
Director



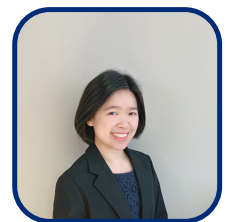
Eunice Lui
Project Manager



Rabaab Khehra
Events and EDI Lead



Tianna Magel
Projects and Initiatives
Analyst



Amelia Choy
Research Assistant

THANK YOU

The event planning committee would like to extend our gratitude to all attendees of the Separating the Signal from the Noise Workshop.

With special thanks to Dr. Emmanuel Stamatakis and Dr. Fiona Bull; to all the theme leads, program speakers, and notetakers.