INTERNATIONAL SOCIETY OF POSTURE & GAIT RESEARCH

ISPGR 2022 World Congress

Sunday, Jul 03: St Laurent 5 **08:30 AM - 11:30 AM**

WS.1 – Univariate and bivariate fractal methods for movement science

PRE-REGISTRATION REQUIRED

St Laurent 5 pre-congress

In movement science, time series data are often noisy. For example, spatiotemporal parameters measured while walking or maintaining upright posture often vary considerably over several minutes of observation. Traditional linear statistics such as the mean and standard deviation often fail to capture these time varying properties. A key feature of biological signals such as heart rate, neural activity, and human walking is that they entail coordination across many timescales. These scales range from milliseconds (I.e., Neurons) to the multiple minutes that make up bouts of walking. Thus, analytical methods capable of addressing the multiscale nature of human movement and physiological …

Sunday, Jul 03 **08:30 AM - 11:30 AM**

WS.2 – A primer on low-cost, customisable technology and software for posture and gait research: From measuring forces and balance with bathroom scales and the Wii to muscle excitation with EMG

PRE-REGISTRATION REQUIRED

online workshop pre-congress

This workshop will provide hand-on experience with some of the simple to make, low-cost yet valid and scientifically robust sensor systems that are now available. This workshop is designed for everyone from novice users to experienced technicians. We will provide working examples for participants to trial, and access to the open-source code to tweak settings and explore how the systems work. We will go over how to create, customise and use: Bathroom scales as force platforms with simple rewiring and addition of an Arduino microcontroller with only a few lines of code. This opens the door for home-based systems such …

Sunday, Jul 03: St Laurent 6 **08:30 AM - 11:30 AM**

WS.3 - Real-world monitoring of gait: easier said than done

PRE-REGISTRATION REQUIRED

St Laurent 6 pre-congress

Please click here to access the workshop linkOrganiser: Claudia Mazzà, University of Sheffield, GBR Real- world monitoring of gait is enabled by wearable devices including inertial measurement units (IMUs) that allow to quantify digital mobility outcomes (DMOs). While these devices and the associated DMOs are adopted more and more frequently, there is still limited awareness of how complex it is to ensure their validity and what could hinder comparability of data obtained during such assessments. In this workshop we will aim at raising this awareness by sharing the experience we gained as part of Mobilise-D, a project funded by the …

Sunday, Jul 03: St Laurent 5 **12:30 PM - 03:30 PM**

WS.4 – The job seeker's toolkit: what you need to effectively manage your career search both in and outside of academia

PRE-REGISTRATION REQUIRED

St Laurent 5 pre-congress

The learning and tools provided in this workshop will appeal to many that are job seeking both inside and outside of academia. Of the nearly 400 student members, the majority of those are PhD candidates — eligible for internships or interviewing for post graduate paths. The presenters are representative of the broad research areas that ISPGR student members associate with — aging, balance control, and emerging tech. While the presenters are all currently employed in the US, many are from elsewhere or left the US along their academic journeys; we hope that these diverse backgrounds and experiences resonate with many …

Sunday, Jul 03: St Laurent 6 **12:30 PM - 03:30 PM**

WS.5 – Perturbations-based fall-risk assessment and training

PRE-REGISTRATION REQUIRED

St Laurent 6 pre-congress

Discuss current and relevant literature utilizing various perturbations across participant populations Understand how perturbations applied dynamically in a virtual reality environment can uncover gait deficiencies and how to train towards improvement Discover unique methods and implementations of perturbations relevant to various participant populations with a focus on both static balance and gait Discuss best practices for perturbation implementation across participant populations

Sunday, Jul 03: Montreal 6-7-8 **02:00 PM - 03:30 PM**

ISEK – ISPGR Joint Symposium: Neural control of trunk muscles in healthy and clinical conditions

Montreal 6-7-8 pre-congress

Background: Trunk muscles are critical to perform daily activities involving volitional movements, maintaining static postures or regulating the control of balance. Most human movements combine postural, balance and volitional elements of trunk control that complexifies their research in humans. It is often assumed that brainstem networks are mainly involved in automatic control (e.g. posture and balance) whereas cortical networks are mainly involved in volitional control of trunk muscles. However, neural networks involved trunk control are spread across the central nervous system and may be involved in both automatic and volitional movement. The neural control of trunk muscles can be tested …

Sunday, Jul 03: Montreal 4-5 **04:30 PM - 05:30 PM**

Keynote I: Why use mobile brain imaging to study human movement?

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 keynote live stream ON DEMAND

Daniel Ferris
Professor, University of Florida

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screenI used to be, and am still, skeptical of mobile brain imaging tools. How can mobile brain imaging increase our understanding of principles governing human movement? Does information about increased/decreased brain blood flow or increased/decreased electrocortical spectral power in certain areas of the brain give insight into why people move the way they do? Will it help clinicians diagnose or treat individuals with motor disorders? In 2008, I spent 6 months on sabbatical in the Swartz Center …

Monday, Jul 04: Montreal 4 **08:30 AM - 10:00 AM**

O.1 – Parkinson's Disease

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 live stream oral presentation

Anouk Tosserams
PhD-candidate, Radboudumc

Bert Coolen
R&D Engineer / PhD, Vrije Universiteit Amsterdam

Christopher Hurt
Assistant Professor, University of Alabama at Birmingham

Moran Gilat
Assistant Professor, KU Leuven

Sommer Amundsen-Huffmaster
Research Associate, University of Minnesota

To review individual abstracts, go to the Abstracts section 🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen O.1.1 - White matter connectivity associations with postural control and freezing of gait in Parkinson's diseasePresenter: Moran Gilat, KU Leuven O.1.2 - Towards personalized gait rehabilitation in Parkinson disease: a prospective study on compensation strategies in 101 patientsPresenter: Anouk Tosserams, Radboudumc O.1.3 - Cortical correlates of compensation strategies for gait impairment in Parkinson's diseasePresenter: Anouk Tosserams, Radboudumc O.1.4 - Pointing in the right direction: improvements in objective …

Monday, Jul 04: Montreal 1-2-3 **08:30 AM - 10:00 AM**

O.2 – Machine learning

To review individual abstracts, visit the abstracts section

Montreal 1-2-3 oral presentation

Assaf Zadka
Research student, Center for the Study of Movement, Cognition and Mobility, Neurological Institute, Tel Aviv Sourasky Medical Center and Tel Aviv University, Israel
David Engel
PostDoc, Philipps-Universität Marburg

Meghan Kazanski
Ph.D. Candidate, The Pennsylvania State University

Reza Ahmadi
Research assistant atDjavad Mowafaghian research center of intelligent neuro-rehabilitation technologies

Safa Jabri
PhD Candidate, University of Michigan

Xiaoping Zheng
PhD Candidate, University of Groningen, University Medical Center Groninige

To review individual abstracts, go to the Abstracts section O.2.1: Effects of Level of Central Sensitization on Physical Activity Patterns in Chronic Low Back Pain: Insights from A Machine Learning Approach Presenter: Xiaoping Zheng, University of Groningen, University Medical Center Groninige O.2.2: Training a deep convolutional neural network to evaluate postural instability in Parkinson's disease Presenter: David Engel, Philipps-Universität Marburg O.2.3: Automatic Machine Learning-Based Vestibular Gait Detection: Examining the Effects of IMU Sensor Placement Presenter: Safa Jabri, University of MichiganO.2.4: Probability of Instability: A New Statistic that Resolves the Margin of Stability ParadoxPresenter: Meghan Kazanski, The Pennsylvania State University O.2.5: …

Monday, Jul 04: Montreal 5 **08:30 AM - 10:00 AM**

O.3 – Neural I

To review individual abstracts, go to the Abstracts section

Montreal 5 oral presentation

Anjanibhargavi Ragothaman
Postdoctoral Scholar, Oregon Health & Science University

Coen Zandvoort
PhD student, Vrije Universiteit Amsterdam

Marzieh Borhanazad
PhD, Vrije Universiteit Amsterdam

Nicholas D'Cruz
Postdoctoral Assistant, KU Leuven

Rachid Ramadan
Ruhr University Bochum

Valeria Belluscio
Post Doc Fellow, University of Rome Foro Italico

O.3.1: A neuromuscular model of human locomotion combines stable walking with planned, goal-directed swing leg movements Presenter: Rachid Ramadan, Ruhr University Bochum O.3.2: Facilitating or disturbing? An explorative study to investigate the effect of auditory frequencies on cortical activity and postural sway Presenter: Valeria Belluscio, University of Rome Foro Italico O.3.3: Lateralized beta modulation is related to arm swing in human gait Presenter: Marzieh Borhanazad, Vrije Universiteit Amsterdam O.3.4: Independent walking is accompanied by cortico-synergy coupling Presenter: Coen Zandvoort, Vrije Universiteit Amsterdam O.3.5: Anatomically-constrained tractography reveals structural network connectivity differences between Parkinson's disease patients with and without Freezing of Gait …

Monday, Jul 04: St Laurent **10:00 AM - 12:30 PM**

Poster Session I

To review individual abstracts, visit the abstracts section

St Laurent poster session

All posters are available in virtual format and can be accessed via the Abstract section of the app and virtual platform at any time. Search for a specific poster via poster number or key word. If you have any questions for a presenter, you can initiate a 1:1 chat or send an email.If you're on-site in Montreal, head to the St Laurent room during this dedicated session to view the on-site posters.

Monday, Jul 04: Montreal 1-2-3 **02:00 PM - 03:30 PM**

S.1 – Understanding heterogeneity in PD for personalized rehabilitation of gait & balance

To review individual abstracts, go to the Abstracts section

Montreal 1-2-3 symposium

Caroline Paquette
Associate Professor, McGill University

Franziska Albrecht
Postdoc, Karolinska Institutet

Moran Gilat
Assistant Professor, KU Leuven

Chair and Moderator: Alice Nieuwboer, KU LEUVEN, BEL Presenters: Caroline Paquette[1], Franziska Albrecht[2], Moran Gilat[3] [1]McGill University, [2]Karolinska Institutet, [3]KU Leuven Gait disorders and postural instability are the leading causes of falls and disability in Parkinson's disease (PD). PD is a heterogeneous disorder, characterized by different clinical phenotypes. Clinical, genetic, neuroimaging, and pathological data support the idea that PD should rather be considered as a syndrome, divided into disease subtypes. This subtyping approach extends beyond the concept of clinical phenotyping as it is based on multimodal data emerging from clinical, motor, cognitive, and neuroimaging variables that may potentially better describe …

Monday, Jul 04: Montreal 4 **02:00 PM - 03:30 PM**

S.2 – Investigating the role of multisensory brain processes when walking in a virtual reality: How do we differ from virtual zombies in the Walking Dead?

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 | live stream | ON DEMAND | symposium

Chanel LoJacono
Assistant Professor, Missouri Southern State University

Daniel Jacobs
Temple University

Meir Plotnik
Sheba Medical Center

Meytal Wilf
Sheba Medical Center

To review individual abstracts, go to the Abstracts section🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screenChair: W. Geoffrey Wright, Temple University, USA Moderators: W. Geoffrey Wright, Temple University, USA & Meir Plotnik, Sheba Medical Center, ISR Presenters: W. Geoffrey Wright[1], Daniel Jacobs[1], Meir Plotnik[2], Meytal Wilf[2], Chanel LaJacono[3], Chris Rhea[4] [1]Temple University, [2]Sheba Medical Center , [3]Missouri Southern State University, [4]UNC-Grensboro Over the last decade, virtual reality (VR) technology has gone through an explosion of growth due to the gaming industry, which has driven …

Monday, Jul 04: Montreal 5 **02:00 PM - 03:30 PM**

S.3 - Is increasing muscle co-activation beneficial to balance control?

To review individual abstracts, go to the Abstracts section

Montreal 5 | symposium

Charlotte Le Mouel
post-doctoral researcher, University of Münster

Dorothy Barthélemy
Associate Professor, Université de Montréal

Friedl De Groote
Associate Professor, KU Leuven

Giovanni Martino
Postdoc, Emory University

Chair and Moderator: Lena H TingWH Coulter Department of Biomedical Engineering at Emory University and Georgia Institute of Technology, USA Presenters: Giovanni Martino[1], Friedl De Groote[2], Charlotte Le Mouel[3], Dorothy Barthélemy[41]Emory University, [2]KU Leuven, [3]University of Münster, [4]Université de Montréal MOTIVATION. Agonist-antagonist co-activation is considered a strategy to improve balance by increasing joint stiffness. Increased co-activation during standing has been observed during challenging or threatening conditions, and during postural perturbations feedforward and feedback adjustments can show co-activation patterns, contributing to the idea that the mechanical stiffening is beneficial for stability. Increased co-activation is often associated with individuals with impaired balance, …

Monday, Jul 04: Montreal 4-5 **04:00 PM - 04:30 PM**

Promising Young Scientist Award Talk

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 live stream

Kaylena Ehgoetz Martens
A/Prof, University of Waterloo

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screenFrom freezing to subtle prodromal gait impairments in Parkinson disease: What can be learned from going 'back to the future'? Walking upright is an astounding human ability that we often take for granted until it starts to decline, and mobility becomes challenged. Freezing of gait represents a fascinating yet debilitating phenomenon that robs individuals with Parkinson's disease (PD) of their mobility. Several decades of research has advanced our understanding of freezing of gait by characterizing the situations …

Monday, Jul 04: Montreal 4-5 **04:30 PM - 05:30 PM**

Keynote II: Inquiry and Impact in Posture and Gait Research: Towards a Healthy Balance

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 keynote live stream

Kathryn Sibley
Associate Professor, University of Manitoba

🔠 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screenThe pursuit of knowledge and understanding has long defined the human experience, and scientific inquiry offers great potential to positively impact society and our world. However, the extent to which the production of science-based knowledge has translated to societal impact has not been optimized due to a complex array of factors that influence contemporary research and evidence-informed decision-making. In this talk I will discuss some tensions between scientific inquiry and research impact, reflect on inquiry and impact …

Tuesday, Jul 05: Montreal 4 **08:30 AM - 10:00 AM**

S.4 – Clinical feasibility of reactive balance training: from the lab to community

🉑 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 | live stream | ON DEMAND | symposium

Avril Mansfield
Senior Scientist, KITE-Toronto Rehabilitation Institute, University Health Network

Jon Lurie
Dartmouth-Hitchcock Medical Center

Marissa Gerards
PT, PhD Candidate, Maastricht University Medical Center, Care and Public Health Institute (CAPHRI), Maastricht University
Yoshiro Okubo
NeuRA

To review individual abstracts, go to the Abstracts section🉑 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Chair and Moderator: Professor Stephen Lord, Neuroscience Research Australia, AUSPresenters: Avril Mansfield[2], Jon Lurie[3], Marissa Gerards[4], Yoshiro Okubo[1] [1]Neuroscience Research Australia, [2]University Health Network / University of Toronto, [3]The Dartmouth Institute, [4]Maastricht University A key feature of reactive balance training (RBT) is to intentionally expose participants with repeated mechanical perturbations to improve reactive balance. The effectiveness of RBT in reducing falls has been demonstrated in growing evidence. While …

Tuesday, Jul 05: Montreal 1-2-3 **08:30 AM - 10:00 AM**

S.5 – The future is already here – using dynamic neuroimaging methods to identify biomarkers for disease detection, disease progression and effectiveness of treatments

To review individual abstracts, go to the Abstracts section

Montreal 1-2-3 | symposium

Inbal Maidan
Dynamic neuroimaging, Tel Aviv Medical Center

Jasmine Menant
Neuroscience Research Australia, University of New South Wales

Martina Mancini
Assistant Professor, Oregon Health & Science University (OHSU)

Samuel Stuart
Vice Chancellors Senior Research Fellow, Northumbria University

Chair: Inbal Maidan, Laboratory of Early Markers of Neurodegeneration, Center for the Study of Movement, Cognition, and Mobility, Neurological Institute, Tel Aviv Sourasky Medical Center, ISRModerator: Prof. Anat Mirelman, Laboratory of Early Markers of Neurodegeneration, Center for the Study of Movement, Cognition, and Mobility, Neurological Institute, Tel Aviv Sourasky Medical Center, ISRPresenters: Inbal Maidan[1], Martina Mancini[2], Jasmine Menant[3], Sam Stuart[41]Tel-Aviv Sourasky Medical Center, [2]OHSU, [3]UNSW, [4]Northumbria University Gait is a complex function regulated and controlled by multiple brain networks. Yet, till recently, gait was only assessed through performance-based measures using wearable devices and accelerometers. In recent years, advancements in technology …

Tuesday, Jul 05: Montreal 5 **08:30 AM - 10:00 AM**

S.6 – Maintaining Energy: A potential transformative power to promote mobility in aging

To review individual abstracts, go to the Abstracts section

Montreal 5 symposium

Caterina Rosano
Professor, University of Pittsburgh

Jennifer Davis
Assistant Professor, University of British Columbia, Okanagan

Rebecca Ehrenkranz
University of Pittsburgh

Ryan Dougherty
Post-Doctoral Fellow, Johns Hopkins University

Teresa Liu-Ambrose
Professor, University of British Columbia

Chairs and Moderators: Professor Teresa Liu-Ambrose, University of British Columbia, CAD; Professor Caterina Rosano, University of Pittsburgh, USA Presenters: Teresa Liu-Ambrose[1], Jennifer Davis[2], Ryan Dougherty[3], Rebecca Enrenkranz[4], Caterina Rosano[4] [1]University of British Columbia, [2]University of British Columbia – Okanagan, [3]John Hopkins, [4]University of Pittsburgh Background and Relevance: Reduced energy is a hallmark feature of aging. Maintaining higher energy late in life may be critical in mitigating the challenges of aging and in promoting resilience. The lack of energy and presence of fatigue are often viewed as the same construct, and energy and fatigue are frequently considered opposite sides of the …

Tuesday, Jul 05: St Laurent **10:00 AM - 12:30 PM**

Poster Session II

To review individual abstracts, visit the abstracts section

St Laurent poster session

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Tuesday, Jul 05: Montreal 4 **02:00 PM - 03:30 PM**

O.4 – Aging

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 live stream oral presentation

Alejandro Lopez
Emory University

Hilmar Sigurdsson
Research associate, Newcastle University

Juntaro Sakazaki
physical therapist, Tokyo Metropolitan University

Lizeth Sloot
Heidelberg University

Nina Skjæret-Maroni
Associate professor, Norwegian University of Science and Technology

Shmuel Springer
Associate professor, Ariel University

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen O.4.1: Developing FDG-PET/MR imaging methodology to study gait in aging and neurodegenerative disease Presenter: Hilmar Sigurdsson, Newcastle University O.4.2: Effect of Backward and Forward Walking on Random Number Generation ? the Role of Aging Presenter: Shmuel Springer, Ariel University O. 4.3: Physical activity and health in nursing home residents Presenter: Nina Skjæret-Maroni, Norwegian University of Science and Technology O.4.4: Descending cortical modulation of spinal sensorimotor circuits is reduced in neurotypical older adults during postural and volitional muscle …

Tuesday, Jul 05: Montreal 1-2-3 **02:00 PM - 03:30 PM**

O.5 – Clinical I

To review individual abstracts, go to the Abstracts section

Montreal 1-2-3 oral presentation

Ashwini Sansare
PhD Candidate, University of Delaware

Jente Willaert
PhD student, KU Leuven

Joshua Cohen
PhD Candidate, Western University

Rakie Cham
University of Pittsburgh

Sean Lynch
Research associate, McGill University

Winfried Ilg
Researcher, Hertie Institute for Clinical Brain Research

O.5.1: Gait analysis in hereditary spastic paraplegia type 4 reveals characteristic, progressively increasing abnormalities in prodromal and early manifest stages of the disease Presenter: Winfried Ilg, Hertie Institute for Clinical Brain Research O.5.2: Stochastic resonance stimulation enables children with cerebral palsy to upweight proprioception for improving balance control during visually perturbed walking Presenter: Ashwini Sansare, University of Delaware O.5.3: Regional modulation of the ankle plantarflexors is attenuated following concussion Presenter: Joshua Cohen, Western University O.5.4: Gait in Sensory Challenging Conditions in Young Adults with Autism Spectrum Disorders Presenter: Rakie Cham, University of Pittsburgh O.5.5: Antagonistic muscle activity during reactive balance …

Tuesday, Jul 05: Montreal 5 **02:00 PM - 03:30 PM**

O.6 – Neural II

To review individual abstracts, go to the Abstracts section

Montreal 5 oral presentation

David Desmet
Ph.D. Candidate, Pennsylvania State University

Jason Moore
PhD Student, Northumbria University

Phuong Ha
PhD Student, University of British Columbia, Okanagan

Rish Rastogi
Research Engineer, Emory University

Stephanie Tran
PhD Candidate, University of Toronto

Taniel Winner
Graduate Research Assistant, Emory University and Georgia Institute of Technology

O.6.1: A data-driven, dynamical approach to identify individual-specific signatures of healthy and impaired gait Presenter: Taniel Winner, Georgia Institute of Technology and Emory University O.6:2: Vestibular-driven responses in the proximal upper limb during arm-supported balance control Presenter: Phuong Ha, University of British Columbia, Okanagan O.6.3: How Humans Adapt Stepping to Perform Lateral Maneuvers Presenter: David Desmet, Pennsylvania State University O.6.4: Ankle exoskeleton torque improves reactive standing balance capacity if delivered before physiological response Presenter: Rish Rastogi, Emory University and Georgia Institute of TechnologyO.6.5: Contextual gait analysis: Developing an environment classification tool Presenter: Jason Moore, Northumbria University O.6.6: Visual-vestibular integration in …

Tuesday, Jul 05: Montreal 4-5 **04:00 PM - 04:30 PM**

Emerging Scientist Award Talk

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 live stream ON DEMAND

Riona Mc Ardle

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Assessing mobility in dementia: the bridge between diagnosis and care Approximately 55 million people are living with dementia globally, with numbers set to rise to 74 million by 2030. Dementia is regarded as a global health priority, with global policymakers calling for earlier, more accurate diagnostic practices and improved post-diagnostic care. Assessing mobility, such as gait and physical activity, may contribute to improved diagnosis, as mobility impairments reflect cognitive decline and may be clinical markers of …

Tuesday, Jul 05: Montreal 4-5 **04:30 PM - 05:30 PM**

Keynote III: Standing up to our fear: the interaction of human balance and emotion

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 keynote live stream ON DEMAND

Mark Carpenter
Professor, University of British Columbia

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Emotions of fear and anxiety have been shown to be strongly related to balance instability and falls, as well as altered performance on other motor control tasks. While traditionally, fear and anxiety are considered negative outcomes of balance dysfunction, recent evidence has shown that these factors may also directly contribute to altered balance performance in both animals and humans. The short-term effects of fear and anxiety on balance have been investigated in healthy adults and individuals …

Wednesday, Jul 06: Montreal 4-5 **08:30 AM - 09:30 AM**

Keynote IV: Mobility Resilience in Older Age: A story of High Heels, Music, and Doughnuts

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 keynote live stream ON DEMAND

Caterina Rosano
Professor, University of Pittsburgh

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Some older adults function and move better than others even in the presence of similar locomotor risk factors and medical conditions, demonstrating mobility resilience. Work done by us and others suggests mobility resilience may be linked to distinct neurobiological characteristics. Most recently, the role of brain muscle-cross talk has been introduced as a driver of mobility resilience. Together, this evidence helps us tracing a logical link between long-term exposure to cardiometabolic and lifestyle factors, integrity of …

Wednesday, Jul 06: Montreal 4-5 **09:30 AM - 10:00 AM**

Honorary Member Presentation

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 live stream ON DEMAND

Emily Keshner
Temple University

Fay Horak
Professor, Oregon Health & Science University

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Wednesday, Jul 06: Montreal 1-2-3 **10:30 AM - 12:00 PM**

S.7 – Perception and self- evaluation of gait and balance performance

To review individual abstracts, go to the Abstracts section

Montreal 1-2-3 symposium

Elmar Kal
Lecturer in Physiotherapy, Brunel University London

Kara Patterson
Associate Professor, University of Toronto

Sjoerd Bruijn
Assistant professor, Vrije Universiteit Amsterdam

Chair: Kara Patterson, University of Toronto, CAD Moderator: Will Young, University of Exeter, GBRPresenters: Kara Patterson[1], Sjoerd Bruijn[2], Elmar Kal[3] [1]University of Toronto, [2]VU Amsterdam, [3]Brunel University London Improving walking and balance ability is paramount to independence and quality of life, both for healthy adults who engage in fall prevention exercise programmes as well as for people undergoing rehabilitation after a neurological injury. Motor (re)learning underlies the rehabilitation process as patients practice motor tasks repeatedly with the goal of improving performance and retaining those gains long term. Asking an individual to subjectively evaluate their own movement performance throughout practice or …

Wednesday, Jul 06: Montreal 4 **10:30 AM - 12:00 PM**

S.8 – Multisensory contributions to mobility in older adults

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 live stream ON DEMAND symposium

Berkley Petersen
Graduate Student, Concordia University

Bettina Wollesen
Prof. Dr., University of Hamburg

Ralf Krampe
Professor, KU Leuven

Robert Stojan

To review individual abstracts, go to the Abstracts section🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Chairs: Bettina Wollesen, University of Hamburg, DEU Moderator: Kim Delbaere, Neuroscience Research Australia, AUS Presenters: Bettina Wollesen[1], Ralf Krampe[2], Berkley Petersen[3], Claudia Voelcker-Rehage[1]University of Hamburg, [2]LU Leuven, [3]Concordia University, [4]University of Munester Multisensory contributions to mobility The detection of mechanisms of cognitive-motor interference while walking performance and daily life mobility is an emerging area of research. Multitasking is an integral part of our daily life. Driving a car …

Wednesday, Jul 06: Montreal 5 **10:30 AM - 12:00 PM**

S.9 – Emerging interventions for rehabilitation of mild neurocognitive disorders: Evidence from neuromodulatory and cognitive-motor training approaches

To review individual abstracts, go to the Abstracts section

Montreal 5 symposium

Brad Manor
Associate Professor, Harvard Medical School

Brooke Klatt
UPittsburgh

Joe Verghese
Albert Einstein College of Medicine

Tanvi Bhatt
Professor, University of Illinois at Chicago

Chair: Joyce Fung, PT, PhD, Associate Professor, School of Occupational and Physical Therapy, McGill University, CAD Moderator: Eric Anson, PT, PhD, Assistant Professor, Department of Otolaryngology, University of Rochester Medical Center, USA Presenters: Tanvi Bhatt[1], Joe Varghese[2], Brooke Klatt[3], Brad Manor[4]1University of Illinois at Chicago, [2]Albert Einstein College of Medicine, [3]University of Pittsburgh,, [4]Harvard Medical School, Beth Israel Deaconess Medical Center The incidence of mild neurocognitive disorders (NCD) is a term used by the American Psychiatric Association to include acquired mild cognitive impairment (MCI) disorders of all age groups diagnosed by using several cognitive criteria versus a single one. Typically, …

Wednesday, Jul 06: Montreal 1-2-3 **12:00 PM - 01:00 PM**

3MT® SESSION (HOSTED BY ISPGR)

Montreal 1-2-3

The Three Minute Thesis (3MT®) is an academic research communication competition developed by The University of Queensland (UQ), Australia. Graduate students present their research and its wider impact in 3 minutes or less to a panel of judges. The challenge is to present complex research in an engaging, accessible, and compelling way, using only one static slide. The 3MT® competition will provide ISPGR trainees with an opportunity to refine skills that can be transferred after graduation to diverse career paths. Distilling complex research into a clear form, without over-simplifying, and highlighting the wider implications of the research are important skills …

Thursday, Jul 07: Montreal 4-5 **08:30 AM - 09:30 AM**

Keynote V: Constantly seeking Negentropy: Understanding Anticipatory Locomotor Adjustments and how we might assess and intervene in them

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4-5 keynote live stream ON DEMAND

Bradford McFadyen
Professor, Cirris/U. Laval

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Locomotion is totally dependent on, in fact would not exist without, the physical environment which in turn can both sustain and threaten it. Without a continual effort to seek dynamic order, (i.e., negentropy), over body displacement mediated by a rich sensory interface, we become prone to mishaps such as slips, falls, and collisions with the potential for injury or worse. Proactive control is crucial to this negentropic endeavour allowing us to accommodate the parts of the …

Thursday, Jul 07: Montreal 4-5 **09:30 AM - 10:00 AM**

ISPGR AGM

Montreal 4-5 live stream ON DEMAND

2021 Minutes available for consultation here.

Thursday, Jul 07: St Laurent **10:00 AM - 12:30 PM**

Poster Session III

To review individual abstracts, visit the abstracts section

St Laurent poster session

All posters are available in virtual format and can be accessed via the Abstract section of the app and virtual platform at any time. Search for a specific poster via poster number or key word. If you have any questions for a presenter, you can initiate a 1:1 chat or send an email. If you're on-site in Montreal, head to the St Laurent room during this dedicated session to view the on-site posters.

Thursday, Jul 07: Montreal 1-2-3 **02:00 PM - 03:30 PM**

O.7 – Clinical II

To review individual abstracts, go to the Abstracts section

Montreal 1-2-3 oral presentation

Ishu Arpan
Senior Research Associate, Oregon Health & Science University

Itshak Melzer
Director of the Motion Analysis and Rehabilitation Lab, Ben-Gurion University

John Allum
Consultant, University of Basel

Kyra Theunissen
PhD Candidate, Maastricht University Medical Center

Shirley Handelzalts
Lecturer, Physical Therapy Department, Ben Gurion University Israel

Wouter Staring
PhD Student, Radboudumc

O.7.1: Impaired neuromuscular control of reactive stepping in people with chronic strokePresenter: Wouter Staring, Radboud University Medical Center O.7.2: What went wrong in the kinematics of the first reactive step in unsuccessful balance recovery resulted by unexpected balance loss in stroke survivors Presenter: Itshak Melzer, Ben-Gurion University Yaw, O.7.3: Pitch and Roll Plane Instability: Axis differences following acute Unilateral Vestibular Loss Presenter: John Allum, University Hospital Basel O.7.4: Using parameters of error to quantify lower extremity motor performance after stroke Presenter: Shirley Handelzalts, Ben Gurion University Israel O.7.5: Energetic cost of walking and gait parameters during the 6 minute walking …

Thursday, Jul 07: Montreal 5 **02:00 PM - 03:30 PM**

O.8 – Cognition

To review individual abstracts, go to the Abstracts section

Montreal 5 oral presentation

Andréanne Blanchette
Université Laval

Kirsty Scott
PhD Student, University of Sheffield

Lorenz Assländer
Acadamic Employee, Universität Konstanz

Lucas Billen
PhD candidate, Radboud University Medical Center

Valentin Lana
PhD student, Normandie Univ, UNICAEN, INSERM, COMETE, GIP Cyceron, 14000 Caen, France

Veerle de Rond
PhD Student, KU Leuven

O.8.1: Express visuomotor responses in hip abductor muscles: evidence for an intricate relationship between fast stepping and postural control Presenter: Lucas Billen, Radboudumc O.8.2: Dual-tasking reveals the attentional cost of resolving sensory conflict induced by perturbed optic flow during treadmill walking Presenter: Valentin Lana, Normandie Univ, UNICAEN, INSERM, COMETE, GIP Cyceron, 14000 Caen, France O.8.3: Contribution of lower back muscles with age during weight-shifting in single- and dual-task conditions Presenter: Veerle de Rond, KU Leuven O. 8.4: Validation of a multi-task protocol for simulating real-world walking speed in a lab setting Presenter: Kirsty Scott, University of Sheffield O.8.5: Age-related effect on …

Thursday, Jul 07: Montreal 4 **02:00 PM - 03:30 PM**

O.9 – Training / Treatment

🅀🅀 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 | live stream | oral presentation

Jana Seuthe
Christian-Allbrechts-University of Kiel

Junhong Zhou
Instructor in Medicine/Assistant Scientist II, Harvard Medical School

Lotte van de Venis
PhD Candidate, Radboud University Medical Center

Marie-Laure Welter
CHU Rouen, Brain Institute

Rachel Downey
PhD Candidate, Concordia University

Shani Batcir
PhD Student, Physical Therapist, Ben-Gurion University

To review individual abstracts, go to the Abstracts section🅀🅀 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen O.9.1: Effects of directional subthalamic deep brain stimulation on gait and balance in Parkinson Disease patients Presenter: Marie-Laure Welter, CHU Rouen, Brain Institute O.9.2: Augmented reality gait training does not improve gait adaptability in people with hereditary spastic paraplegia: results of a randomized controlled trial Presenter: Lotte van de Venis, Radboud University Medical Center O.9.3: The effect of split-belt treadmill training on anticipatory postural adjustments and first step …

Thursday, Jul 07: Montreal 1-2-3 **04:00 PM - 05:30 PM**

S.10 – Quantitative snobs no more! Integrating qualitative approaches into posture and gait research

To review individual abstracts, go to the Abstracts section

Montreal 1-2-3 | symposium

Andrew Sawers
Associate Professor, University of Illinois at Chicago

Kathryn Sibley
Associate Professor, University of Manitoba

Kristin Musselman
Assistant Professor/Scientist, University of Toronto/University Health Network

Chair: Andrew Sawers, University of Illinois at Chicago, USA Moderators: All presenters Presenters: Andrew Sawers[1], Kristin Musselman[2], Kathryn Sibley[3] [1]The University of Illinois at Chicago, [2]University of Toronto, [3]University of Manitoba Posture and gait research has long been dominated by quantitative methods. Here we suggest that largely ignored qualitative methods can enrich traditional lines of quantitative inquiry. Partnerships and engagement with key stakeholders including patients, their families, and care-givers to explore fall-related experiences can yield unique insights into factors that contribute to falls, as well as the assessment and treatment of balance deficits. Despite the opportunities presented by qualitative methods …

Thursday, Jul 07: Montreal 4 **04:00 PM - 05:30 PM**

S.11 – Gait speed and balance control

🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen

Montreal 4 | live stream | ON DEMAND | symposium

Amy Wu
Assistant Professor, Queen's University

Hendrik Reimann
Assistant Professor, University of Delaware

Jesse Dean
Associate Professor, Medical University of South Carolina

Sjoerd Bruijn
Assistant professor, Vrije Universiteit Amsterdam

To review individual abstracts, go to the Abstracts section🆀🅰 Q&A Instructions for virtual attendees: Please enter any questions you may have using the Zoom Q&A box at the bottom of the screen Chair and Moderator: Hendrik Reimann, University of Delawar, USA Presenters: Hendrik Reimann[1], Amy Wu[2], Jesse Dean[3], Sjoerd Bruijn[4] [1]The University of Illinois at Chicago, [2]University of Toronto, [3]University of Manitoba Walking with a stable gait is a complex task. The difficulty can be appreciated by looking at both ends of the age spectrum: toddlers fall regularly and get back up while gradually learning to walk. As people get …

Thursday, Jul 07: Montreal 5 **04:00 PM - 05:30 PM**

S.12 – Watch your step! – Fundamentals and clinical applications of walking adaptability

To review individual abstracts, go to the Abstracts section

Montreal 5 | ON DEMAND | symposium

Daniel Marigold
Associate Professor, Simon Fraser University

Melvyn Roerdink
Associate prof Tech in Motion, Vrije Universiteit Amsterdam

Vivian Weerdesteyn
Professor, Donders Institute, Radboud University Medical Center

William Young
Senior Lecturer in Rehabilitation Psychology, University of Exeter

Chair: Vivian Weerdesteyn, Radboud University Medical Center, Nijmegen & Melvyn Roerdink, Vrije Universiteit, Amsterdam, NLD Moderator: Kristen Hollands, University of Salford, GBR Presenters: Vivian Weerdesteyn[1], Melvyn Roerdink[2], Daniel Marigold[3], Will Young[41]Donders Institute, Radboud University Medical Center, [2]Vrije Universiteit, [3]Simon Fraser University, [4]University of Exeter Poor balance and gait are the number 1 modifiable risk factors for accidental falls and constitute a key target of fall-risk screening and intervention strategies. Traditional strategies typically include exercises that are performed under well-controlled and unperturbed conditions, yet it is increasingly recognized that these types of exercises do not adequately represent daily-life fall scenarios. In …