### Innovations in Balance, Mobility and Fitness:

**The Link to Clinical Practice**

November 23, 2018 | BMO Education & Conference Centre

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<tr>
<td>7:30 – 8:20</td>
<td>Registration and Continental Breakfast</td>
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<td>8:20 – 8:30</td>
<td>Opening Remarks</td>
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| 8:30 – 9:30| **Four Birds with One Stone: Reparative, Neuroplastic, Cardiorespiratory and Metabolic Benefits of Aerobic Exercise after Stroke**  
Michelle Ploughman BSc.PT, MSc., PhD  
Canada Research Chair (Tier II); Rehabilitation, Neuroplasticity and Brain Recovery  
Assistant Professor, Physical Medicine & Rehabilitation  
Faculty of Medicine, Memorial University of Newfoundland  
This presentation will discuss fitness levels of stroke patients and how fitness can impact neuroplasticity and neurological recovery. We will also discuss the practicalities of implementing aerobic training in stroke rehabilitation.  
**Learning Objectives**  
1. Describe how fitness contributes to a ‘neurorehabilitation ceiling’.  
2. Describe findings from animal models and clinical studies on the dosage of exercise required to affect brain repair, plasticity and recovery.  
3. Discuss activity levels and sedentary time in stroke rehabilitation and strategies to measure and improve activity. |
| 9:30 – 10:15| **Interactions between Hearing Loss and Mobility during Realistic, Everyday Challenges**  
Jennifer Campos, PhD  
Chief Scientist, Challenging Environment Assessment Laboratory (CEAL)  
Toronto Rehabilitation Institute - University Health Network  
Department of Psychology, University of Toronto  
This presentation will explore why it is that older adults with hearing loss have poorer mobility, poorer physical functioning and are at increased risk of falling compared to their normal-hearing peers. This is an important concern given that hearing loss is the third most prevalent chronic health condition affecting older adults. We have examined sensory factors (hearing, vestibular) and cognitive factors (e.g. listening load/effort) associated with this hearing-mobility link using realistic and challenging everyday tasks. Consideration will be given to how to apply this knowledge in practice.  
**Learning Objectives**  
1. Understand the different mechanisms through which hearing loss could affect mobility.  
2. Consider the role that cognitive factors may play in hearing loss-mobility interactions. |
3. Appreciate the benefits of expanding this research beyond traditional laboratory settings in order to evaluate perception and performance during realistic and challenging conditions.

10:15 – 10:45 Morning Nutrition Break

10:45 – 11:30 An Ounce of Prevention: The Use of an Innovative Resistance Training Program to Improve Physical Function in Functionally At-Risk Older Adults

Christina Prevett MScPT, CSCS, PhD (c)
Registered Physiotherapist/ Co-Owner, STAVE OFF

This presentation will provide an overview of the identification and management of older adults who are at risk for functional decline. Preventative exercise programs with an emphasis on functional strength training allows older adults to live longer, healthier lives in their homes, free of disability. A review of current evidence-based best practices will be presented. This presentation will then explore exercise selection and prescriptions that clinicians can use to increase physical reserve in their older adult clients.

Learning Objectives
1. Describe the specific assessments clinicians can use to identify clients who are at-risk for mobility decline and functional loss.
2. Describe the current state of the literature in regards to evidence-based exercise programs with an emphasis on key exercise selection and prescription principles that may improve the functional resiliency of older adults
3. Discuss the implications for the healthcare system and clinical practice for healthcare providers to be involved in preventative exercise programs focussing on building strength.

Innovations Showcase

11:30 – 12:00

Rapid Podium 1: Innovation to increase physical activity engagement in the older adult using an audio-visual multimedia technology
Fidelma Serediuk
Manager & Chief of Professional Practice-Physiotherapy, Clinical Manager - Sam & Ida Ross Memory Clinic, Baycrest Centre

Rapid Podium 2: Using Telehealth to Eliminate Barriers to Falls Prevention Education
Deanna Trzeciakowski CSEP-CEP, HBSc
Kinesiologist, Alberta Health Services

Rapid Podium 3: High-Intensity Interval Training after Stroke as an Opportunity to Promote Functional Recovery, Cardiovascular Health and Neuroplasticity: A Clinical Perspective
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| 12:00 – 12:20 | **Snapshot 1:** Cardiopulmonary exercise testing in stroke rehabilitation: perceived benefits and clinical utility by physiotherapists and individuals living with stroke  
Allison Sharpe BSc (Kin), MScPT  
*Neurological Physiotherapist, West Park Healthcare Centre*  
**Snapshot 2:** Remote monitoring for the assessment of mobility and sleep in people with neurodegenerative disorders: Results of an Ontario Neurodegenerative Disease Research Initiative (ONDRI) pilot study  
Kyle Weber, BSc Kinesiology  
*Ontario Neurodegenerative Disease Research Initiative and University of Waterloo*  
**Snapshot 3:** The Occurrence of Falls in the Subacute Phase of Spinal Cord Injury  
Olinda Habib Perez R. Kin, PhD  
*Toronto Rehabilitation Institute, University Health Network*  
**Snapshot 4:** Cognitive Augmented Mobility Program (CAMP): Preliminary Efficacy on Goal Attainment, Mobility, Balance & Transfer of Skills  
Katherine Dittmann BSc, MKin, MPT  
*St. John’s Rehab Research Program, Sunnybrook Research Institute*  
**12:20 – 12:30** | Q&A  
**12:30 – 1:15** | Lunch Break  

### Concurrent Sessions

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| 1:15 – 2:00 | **Resistance Training Prescription for Frail Individuals and for People following Stroke with Mobility Deficits**  
Christina Prevett MScPT, CSCS, PhD (c)  
*Registered Physiotherapist/ Co-Owner, STAVE OFF*  
**Susan Marzolini R.Kin, PhD**  
*Scientific Associate, Cardiovascular Prevention and Rehabilitation Program Rehabilitation Supervisor, Toronto Rehab/University Health Network’s Risk Factor Modification and Exercise Program following Stroke (TRI-REPS)*  
This presentation will provide an overview of the benefits of resistance  
**Implementing Aerobic Exercise with Clinical Populations: Where do I Start?**  
Lou Biasin BScPT  
*Clinical Resource Specialist, Mobility Innovations Centre; Physiotherapist, Stroke Rehab Service, Toronto Rehab – UHN; Lecturer (status only), Department of Physical Therapy, University of Toronto*  
**Liz Inness PT PhD**  
*Lead – Mobility Innovations Centre, Affiliate Scientist, Toronto Rehab-UHN Lecturer (status), Department of Physical Therapy, University of Toronto*  
**Ada Tang PT PhD**  
*Associate Professor, School of Rehabilitation Science, McMaster University* |
training for special populations and practical aspects of prescription.

Learning Objectives
1. Have an understanding of the benefits of resistance training for special populations
2. Understand the principles of resistance training prescription
3. Discuss the implications for clinical practice and understand how to apply and implement in the clinical setting

Despite the well-known benefits of aerobic exercise (AE) for many clinical populations, implementing AE with real-world rehabilitation settings remains challenging. Oft-cited barriers include concerns of cardiovascular risk, cognitive and physical impairments that may preclude safe exercise, or inadequate support and infrastructure. The aim of this presentation is to explore the evidence, known barriers and potential tools and processes of care that may support the implementation of AE in clinical practice. We will share our lessons learned in implementing AE in stroke rehabilitation practice settings, and discuss the application to other populations.

Learning Objectives
1. Describe the risks and benefits of aerobic exercise and physical activity, and discuss its relevance to rehabilitation within neurological and older adult populations
2. Understand how current exercise guidelines can be applied to the neurological and older adult population
3. Identify clinical tools and processes of care that will support the implementation of AE into practice

Facilitating Exercise Behaviour Change
Kerseri Scane, R.Kin., MSc.
Manager, Patient Engagement for Healthcare Improvement

This session will introduce provide an opportunity for attendees to explore their own beliefs about the behavior change process and learn about evidence based techniques that clinicians can learn

Innovations in Assessing & Training Balance Reactions
Cynthia Danells, BScPT, MSc
Clinical Resource Specialist, Mobility Innovations Centre, Brain and Spinal Cord Rehab Program, Toronto Rehabilitation Institute - UHN
Clinical Research Coordinator, SIMbL, Mobility Team, Toronto Rehabilitation Institute - UHN
and practice to help motivate and influence exercise behavior change with their clients.

**Learning Objectives**

1. Describe the role of the provider as a facilitator of health behavior change
2. Describe two theoretical models of behavior change that can guide conversations with patients
3. Describe and practice three motivational interviewing core skills to influence exercise behavior change

**Lecturer (Status Only), Department of Physical Therapy, Faculty of Medicine, University of Toronto**

**Avril Mansfield**

**Janelle Unger, PT, PhD(c)**

**Graduate Student, Rehabilitation Sciences Institute, University of Toronto**

**Learning Objectives**

1. Understand the components of balance control, specifically reactive balance control
2. Be able to assess reactive balance control and understand underlying impairments
3. Be able to develop a person-specific reactive balance training program

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<tr>
<td>2:50 – 3:05</td>
<td>Break</td>
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<tr>
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<td><strong>Personalized Rehabilitation to Enhance Balance, Mobility and Fitness: How Do We Get There?</strong></td>
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**Mark Bayley, MD, FRCPC**

*Professor, Division of Physiatry, Department of Medicine, University of Toronto; Medical Director, Brain and Spinal Cord Rehab Program, UHN- Toronto Rehab*

With the onset of better understanding of clinical, imaging and molecular biomarkers predictive value, there is increasing interest in how this could be used to tailor treatment to the individual patient. It has long been noted that some patients are more likely to respond to intervention than others. This presentation will review some examples of how these predictive algorithms can be used to tailor treatment in some populations like stroke and brain injury. The presentation will also provide clinicians with some insights how the process of development of treatment algorithms can be done. The next steps for enhancing research to address these questions will also be discussed.

**Learning Objectives**

1. Name some potential tools that could be used to predict outcome and tailor treatment to the individual patient
2. Discuss at least two examples of predictive algorithms that have been used in the neurorehabilitation population.
3. Describe the process for researchers and clinicians to develop more algorithms that may allow for personalizing rehabilitation.

3:45 – 4:25  **Optimizing Independent Mobility: Perspectives on the Use of Technology**

**William McIlroy, PhD (Neuroscience)**
*Professor and Chair, Department of Kinesiology, University of Waterloo*

This presentation will provide an overview of existing and emerging technologies that may impact the assessment and rehabilitation of independent mobility (balance, walking, and transitions). The presentation will further explore both the potential opportunities and challenges to successful implementation of technology in both clinical and community-based settings.

**Learning Objectives**
1. List the current and emerging classes and types of technology that are being used/or proposed to be used, to enhance assessment and rehabilitation of independent mobility.
2. Describe the opportunities and barriers to successful implementation of these technologies including a comparison of currently available commercial technology against gold-standard technologies.
3. Discuss the necessary steps and required elements to ensure successful implementation of new technology into usual care.

4:25 – 4:30  **Closing Remarks**