

Queen's and McGill  
Universities Present

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# Rehabilitation Colloquium Program 2021

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**MAY 11-12**

**#REHABCOLLOQUIUM2021**

RESILIENCE IN REHABILITATION

# REHABILITATION COLLOQUIUM

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# REHABILITATION COLLOQUIUM

## Welcome Message

On behalf of the planning committee, we welcome you to the first rehabilitation science research colloquium co-hosted by Queen's University and McGill University.

This year, Queen's and McGill made the decision to come together and create a virtual colloquium in order to allow their individual colloquiums to run instead of canceling more events. Representatives from both schools have been working hard to organize this two-day event.

Graduate students from across Canada will be presenting on their research. The theme for this year's colloquium is "*Resilience in Rehabilitation*" and we hope this theme highlights not only the resilience seen in our research but also highlights the adversity we have faced this past year and our achievements despite these hardships.

Thank you for coming to the Rehabilitation Colloquium. We are very excited to share this celebration of research trainees and collaboration with you. If you have any questions please contact us at [rehabresearchcolloquium21@gmail.com](mailto:rehabresearchcolloquium21@gmail.com)

~ The Colloquium Organizing Committee



# REHABILITATION COLLOQUIUM

## Meet Our Keynote Speakers



Dr. Linna Tam-Seto

Dr. Linna Tam-Seto is the inaugural Canadian Defence and Security Network Postdoctoral Research Fellow completing her fellowship at the Centre for International and Defence Policy (CIDP) at Queen's University. Linna holds a PhD in Rehabilitation Science and is a registered occupational therapist with experience working in the area of child, adolescent, and family mental health and supporting evidence-based professional practice. Linna's research interests include understanding the health and well-being of Canada's military members, veterans, public safety personnel, and their families with a focus on life transitions and changes. Linna's current work at the CIDP involves the development of a gender-informed, culturally competent mentorship program to support servicewomen within the Canadian Armed Forces.



Dr. Navaldeep Kaur

Dr. Navaldeep Kaur is a Postdoctoral Fellow in the Department of Physical Therapy at the University of Toronto, Canada. She trained as a physiotherapist and did her PhD in Rehabilitation Science from McGill University. Her doctoral research contributed evidence towards the role of cognitive reserve in protecting cognitive ability in people with HIV. She was mentored by Dr. Nancy Mayo, a seasoned epidemiologist, and acquired expertise in various research methodologies, including conducting meta-analyses and applying modern statistical methods for measuring brain health outcomes. The current focus of her research is on the adaptation of in-person, community-based exercise programs for virtual delivery for people with balance and mobility limitations.

# Schedule Day 1 (May 11)

Dr. Marcia Finlayson  
Dr. Linna Tam-Seto

Opening remarks: 9:00 - 9:05

Keynote – Dr. Linna Tam-Seto: 9:05 – 9:40

Break: 9:40-9:45

Presentation Session # 1 – Movement Rehabilitation:  
9:45 – 10:45

Azadah Barzideh

Reihaneh Ravari

Nithin Jacob

Félix Fiset

1. Why do some people exercise post stroke but not others?
2. Biomechanical Characteristics of Transfemoral Prosthetic Gait Before and After Osseointegration Surgery
3. Effects of high-intensity interval training on blood lactate levels in healthy adults: systematic review and network meta-analyses
4. Comparing the effects of body movements of another pedestrian on circumvention between healthy older to younger adults

Break: 10:45 – 11:00

Presentation Session # 2 – Academic Perspective on Rehabilitation: 11:00 - 12:00

Eliane Dionne

Paulina Finak

Kaitlynn Dewhirst

Deborah Francis

1. Academic challenges in Developmental Coordination Disorder: A systematic review and meta-analysis
2. A scoping review of the frameworks and models for guiding assessment of aided AAC
3. Queen's University Doctor of Science in Rehabilitation and Health Leadership: The journey of 3 students
4. Racialized students telling their stories through a critical race informed lens

Lunch: 12:00 – 1:00



# Schedule Day 1 Posters

Interactive Poster Session: 1:00-2:00 on Fourwaves

- |                           |   |
|---------------------------|---|
| Antony Predhep-<br>Shruti | 1. Usability of an assistive device for writing in children with writing difficulties   |
| Abirami Vijaykumar        | 2. Coping Mechanisms Among Youth and Young Adults with Autism Spectrum Disorder in Competitive Employment                         |
| Marco Zaccagnini          | 3. Features of scholarly practice in health care professionals: A scoping review  |
| Jalesa Martin             | 4. The Patient-Oriented Impact of Culturally Competent Care on Health Outcomes for Patients with COPD – A Scoping Review Proposal |
| Rose Elekanachi           | 5. Policies on childhood disabilities in Nigeria: A policy review   |
| Morgan Ticehurst          | 6. Interprofessional collaboration to serve children with autism spectrum disorder.: Morgan Ticehurst                             |
| Emily Lenet               | 7. Use of Digital Tracking Devices to Increase Physical Activity  |
| Morenike Ajidagba         | 8. Evaluation of the online peer network ‘Obesity Canada Connect’   |

# Schedule Day 1 Continued

## Presentation Session # 3 – Uniform-Connected

Rehabilitation: 2:00 – 3:00

Ashley Williams

1. Releasing Canadian Armed Forces members perspectives on health and health service access during transition to civilian life

Lauren Roberts

2. The Experiences of Family Members of Invictus Games Participants

Shannon Hill

3. Supporting the School Transitions of Military-Connected Adolescents in Canada: A Qualitative Study Protocol

Rachel Richmond

4. Exploring the Occupational Lifestyle Experiences of the Families of Public Safety Personnel

Break: 3:00-3:15

## Presentation Session # 4 – Influencing Factors in

Rehabilitation: 3:15-4:15

Rebecca Ataman

1. Understanding how newly implemented rehabilitation best practices are sustained: a realist review

Abigail Reid

2. The Perspectives of Informal Caregivers of Individuals with Parkinson's Disease on Conducting Difficult Conversations

Craig St. Jean

3. Toward the right message, at the right time, in the right context: Message framing in Audiology

Nikola Cuvalo

4. Exploring the Role(s) of Trait Emotional Intelligence and Personality in Help-Seeking Behaviour

Closing Remarks: 4:15 – 4:20

# Schedule Day 2 (May 12)

Dr. Isabelle Gélinas  
Dr. Navaldeep Kaur

Opening remarks: 9:00 - 9:05

Keynote – Dr. Navaldeep Kaur: 9:05 – 9:40

Break: 9:40-9:45

Presentation Session # 5 – Stakeholders in Rehabilitation: 9:45 – 10:45

1. Definitions and conceptualization of context- A scoping review
2. Co-Designing an Integrated Transitional Care Model to Address Alternate Level of Care and Promote Aging in Place
3. Stakeholders' Perspectives On The Impact of Patient Engagement In Rehabilitation Research
4. Using social network theory to explore nutritional risk in a novel aging-in-place program, Oasis Seniors Supportive Living

Break: 10:45 – 11:00

Presentation Session # 6 – Biomechanical

Assessment in Rehabilitation: 11:00 - 12:00

1. Postural control as a marker of neurodegeneration in Mild Cognitive Impairment
2. A systematic review and meta-analysis of exercise interventions and use of exercise principles to reduce fear of falling among community-dwelling older adults
3. A scoping review of outcome measures for pediatric upper extremity function and mapping to the International Classification of Functioning, Disability and Health
4. Effect of assessment position on female pelvic floor muscle function assessed through transperineal ultrasound imaging and intravaginal dynamometry

Catherine George

Jake Tran

Conchita Saldahna

Christine Mills

Lily Merovitz-  
Budning

Chengying Feng

Caroline Elfassy

Kaylee Brooks



# Schedule Day 2 Posters

Interactive Poster Session: 1:00-2:00 on Fourwaves

Shannon Hill

Julie Cameron

Rachel Richmond

Lauren Roberts

Prateek Gupta

1. Military and Veteran Family Research: Roots for Rehabilitation
2. Using Podcasting to Deliver Living Cases in Gerontology Education: An Outcome Evaluation of theGeroCast Study
3. The Impact of Sleep on the Health of Canadian Firefighters
4. How does a theoretical lens help us understand the experience of families involved with rehabilitation and recovery following life altering injury or illness acquired in early to mid-adulthood?
5. Mass Media and Physical Activity Promotion in Adults

# Schedule Day 2 Continued

## Presentation Session # 7 – Neurological

### Rehabilitation: 2:00 – 3:00

- |                    |  |
|--------------------|--|
| Ujjoyinee Barua    | 1. Internet-delivered Cognitive Behavioural Therapy for Persons with Mild Traumatic Brain Injury: A Multi-Method Feasibility Trial |
| Ahlam Zidan        | 2. Understanding the mechanisms of virtual reality to improve balance and gait in stroke rehabilitation: A realist review          |
| Yu-Tzu Wu          | 3. Brain mechanisms involved in identifying emotional gait patterns of virtual pedestrians: a neuroimaging study                   |
| April Christiansen | 4. Art-based Rehabilitation Therapy (ART) for Sensorimotor Recovery Post-Stroke: A Pilot Study                                     |

### Break: 3:00-3:15

### Award Ceremony: 3:15 – 4:00

### Closing Remarks: 4:00 – 4:05

# Abstracts By Session

## Movement Rehabilitation

Why do some people exercise post stroke but not others?

Azadeh Barzideh

Barzideh, A., PhD(c)<sup>1,2</sup>, Inness, L., PhD<sup>1,2</sup>, Jagroop, D., CSEP-CEP<sup>2</sup>, Devasahayam, A., J., PhD<sup>2</sup>, Danells, C., MSc<sup>2</sup>, Munce, S., PhD<sup>2</sup> & Mansfield, A., PhD<sup>1,2</sup>

<sup>1</sup>University of Toronto <sup>2</sup>Toronto Rehabilitation Institute

**Background:** Less than half of people with stroke participate in aerobic exercise (AE) during rehabilitation post stroke despite research repeatedly showing that AE improves cardiorespiratory fitness and helps to promote recovery in this population. In this study, we aim to understand the barriers and facilitators to AE participation following a stroke by combining perspectives of both physiotherapists and patients, while considering their interaction.

**Methods:** To collect the data, all participants will be interviewed one-on-one. Stratified purposeful sampling will be used to invite people with stroke to semi-structured interviews toward the end of their rehabilitation stay, or soon after discharge. Data collection from patients will continue until no new themes emerge. All treating physiotherapists will be invited to take part in the study. Chart-stimulated recall will be used for interviewing the physiotherapists to help us better understand their clinical decision-making process for their four most recently discharged patients. All interviews will be audio-recorded and transcribed verbatim. Data analysis will be performed using the framework method procedure.

**Results:** We expect that this study will provide an in-depth analysis of the barriers and facilitators to people with stroke participating in AE during rehabilitation.

**Impact:** Our aim is to close the gap between best practice guidelines and current practices to develop interventions that can increase participation in AE. This way, we will be able to help improve cardiorespiratory fitness, vascular health, and the quality of life of those living with a stroke.

**Key words:** Stroke, Aerobic exercise, Interview

Biomechanical Characteristics of Transfemoral Prosthetic Gait Before and After Osseointegration Surgery  
Reihaneh Ravari

Ravari, R., PhD (c)<sup>1</sup>, Lewicke, J<sup>2</sup>., Hebert, J. S., MD<sup>1,2</sup>

<sup>1</sup>University of Alberta <sup>2</sup>Glenrose Rehabilitation Hospital

**Background:** Transfemoral socket prostheses can restore walking function after amputation, but gait deviations and socket instability are common and can lead to inefficiencies in walking. Osseointegration (OI) surgery creates a direct connection between the bone and the prosthesis, potentially improving control and reducing gait deviations. In addition to standard outcomes that show differences in prosthesis use and mobility scores after OI, an understanding of biomechanical changes can be assessed through instrumented gait analysis with temporal-spatial, kinematic, and kinetic data.

**Aim:** To compare the gait analysis before transfemoral OI surgery using a socket prosthesis to 6 and 12 months after OI-surgery to assess whether gait pattern is similar to that of healthy subjects.

**Methods:** A case study of a 34-year-old female with left transfemoral amputation is presented. She was a high level ambulator (Amp Mobility Predictor 45/47) but having problems with socket tolerance for extended activities. Kinematics, kinetics, temporal-spatial, and EMG data were recorded by a motion analysis system at baseline with a socket prosthesis, and 6 and 12 months after OI surgery with the same prosthetic components. Functional outcome measures were recorded at all time points.

**Results:** Compared to baseline with the socket prosthesis OI prosthesis walking was slower. At 12 months there was improvement in the right toe off time indicating better symmetry and more stability in stance. Trunk lateral lean and rotation improved to normal at 6 and 12 months compared to baseline. Anterior pelvic tilt increased at 12 months, but the total range of pelvic motion decreased at each time point. Pelvic obliquity showed left side hip hiking at baseline, which resolved at 6 months. Pelvic rotation at 12 months was more symmetric compared to baseline and 6 months. Loading profiles showed low moments at the hip and high power generation at the right ankle with minimal change. There was no change in mobility scores, but based on Questionnaire for Persons with Transfemoral Amputation (Q-TFA), problem score decreased and physical and mental health improved.

**Discussions and Conclusions:** Walking with the OI prosthesis improved symmetry and pelvic and trunk motion, reflecting effective hip abductor stabilization likely related to the direct skeletal control. Functional outcome measures showed a ceiling effect with no change. Satisfaction and overall perceived health improved. These results reflect a single case study of a relatively high-functioning individual. The gait analysis added to the understanding of the improvements after OI surgery, that were not reflected in typical assessment measures. Instrumented gait analysis can help researchers to understand the potential benefits of OI for long term musculoskeletal health through assessment of biomechanics of walking.

**Acknowledgement:** We acknowledge the Glenrose Rehabilitation Hospital Syncrude Center for Motion and Balance and the University of Alberta Hospital Foundation.

**Key words:** Gait analysis, Kinematic, kinetics, temporal-spatial, EMG



# Abstracts By Session

## Movement Rehabilitation

Effects of high-intensity interval training on blood lactate levels in healthy adults: systematic review and network meta-analyses

Nithin Jacob

Comparing the effects of body movements of another pedestrian on circumvention between healthy older to younger adults

Félix Fiset

Jacob, N<sup>1</sup>., So, I<sup>1</sup>., Sharma, B<sup>1</sup>., Susan Marzolini, S., PhD<sup>1</sup>, Tartaglia, C., PhD<sup>2</sup> & Green, R., PhD<sup>1</sup>  
<sup>1</sup>KITE Research Institute <sup>2</sup>University of Toronto

**Background:** High-intensity interval training (HIIT) may confer cognitive benefits in healthy adults through a pathway involving lactate – an exercise metabolite. However, we have limited understanding of the HIIT parameters that evoke a peak blood lactate response in healthy adults, and the relationship between HIIT-induced blood lactate and cognitive performance.

**Objectives:** O1: Use network meta-analyses to compare the relative impact of different HIIT parameters (work interval durations, session volumes, and work-to-rest ratios) on post-HIIT blood lactate response in healthy adults. O2: Determine the relationship between HIIT-induced blood lactate and acute post-exercise cognitive performance.

**Methods:** Studies will be identified in healthy adults that measure blood lactate response following one HIIT session. Electronic searches will be performed in MEDLINE, EMBASE, CENTRAL, Sport Discus, and CINAHL+. Two reviewers will independently screen abstracts and full-texts, extract key outcomes variables, and complete risk of bias assessments. Disagreements will be discussed with and resolved by a third reviewer. The primary outcome is blood lactate concentrations (mmol/L). O1: Pairwise comparisons will be conducted to estimate the comparative effectiveness of each aforementioned HIIT parameter on average blood lactate levels. Data will be summarized using treatment rankings and surface under the cumulative ranking curve. O2: Meta-regression analyses will be performed to test the relationship between blood lactate changes and cognitive performance.

**Impact:** This network meta-analysis will provide evidence on how to structure a HIIT protocol that elicits peak blood lactate response in healthy adults, and increase our understanding of the relationship between HIIT-induced blood lactate response and the associated cognitive benefits.

**Key words:** High-intensity interval training; blood lactate; cognitive performance

Fiset, F<sup>1</sup>., Lamontagne, A., PhD<sup>1,2</sup> & McFayden, B.J., PhD<sup>3,4</sup>

<sup>1</sup>McGill University, <sup>2</sup>Centre for Interdisciplinary Research in Rehabilitation, <sup>3</sup>Centre for Interdisciplinary Research in Rehabilitation and Social Integration, <sup>4</sup>Université Laval

**Background:** From the little knowledge available, older adults (OA) show greater clearances and different body segment reorientations to circumvent other pedestrians. It is also known that limb movements of another pedestrian affect circumvention in young adults (YA) when the path is predictable.

**Objective:** To compare younger and older adults during the circumvention of another pedestrian with initially unpredictable path and different limb movements.

**Methods:** Nine healthy young adults and nine older adults (70+ yrs) living in the community were immersed in a virtual shopping mall. Participants circumvented a virtual agent (VA) who approached from straight ahead and continued or deviated to the side (catch trials to decrease predictability) with four different locomotor patterns: 1-Normal whole body locomotor movements; 2- No arm movements; 3- No leg movements; 4- No arm and leg movements. Circumvention deviation onset, minimum clearance, body reorientation timing and gaze behavior were analyzed.

**Results:** Across conditions OA deviated later than YA ( $p=0.002$ ), had smaller head yaw ( $p<0.001$ ) and looked at the VA for a greater percentage of time but did not change their minimum clearance. Both groups began circumvention earlier for no leg movements.

**Conclusions:** Longer planning and prolonged gaze on the pedestrian regardless of the pedestrian's limb movement in healthy OA group could be due to a greater amount of time needed to integrate the information from the pedestrian. This delay has no impact in collision risk in healthy OA, but could become significant in population at higher risk of falling and contribute to difficulties in community displacement.

**Key words:** Aging, Virtual reality, Gait, Circumvention, Obstacle avoidance

Academic  
challenges in  
Developmental  
Coordination  
Disorder: A  
systematic review  
and meta-analysis  
Eliane Dionne

A scoping review of  
the frameworks and  
models for guiding  
assessment of aided  
AAC  
Paulina Finak

# Abstracts By Session

## Academic Perspective on Rehabilitation

Dionne, E., PhD student<sup>1,2</sup>, Bolduc, M.E., PhD(c)<sup>1,2</sup>, Majnemer, A., PhD<sup>1</sup>, Beauchamp, M., PhD<sup>3</sup> & Brossard-Racine, M., PhD<sup>1,2</sup>

<sup>1</sup>McGill University Research Institute of the McGill University Health Centre <sup>3</sup>Universite de Montreal

**Introduction:** Developmental Coordination Disorder (DCD) is a chronic motor condition that affects motor coordination and impacts children's performance in daily life activities such as tying their shoes, riding a bike and using scissors. However, it is unclear how frequently and to what extent academic activities are affected in children with DCD. The objective of this review is to comprehensively summarize the current state of knowledge regarding the prevalence and extent of academic difficulties in school-aged children with DCD.

**Methods:** Original studies describing the academic difficulties of school-aged children with DCD were selected by two independent reviewers. When possible, a binary random-effects model was used to calculate the pooled prevalence for each academic difficulty identified. Moreover, a random-effects model using the standardized mean differences was calculated to estimate the extent of the academic difficulties by domain. Between-study heterogeneity was assessed using the I<sup>2</sup> statistic, and post-hoc analyses were used where needed.

**Results:** Twenty-four studies were included in the review. There was a pooled prevalence of 84.0% for handwriting difficulties and 89.53% for mathematical difficulties in children with DCD. When compared to controls, these children presented with poorer performance with large effect sizes in handwriting legibility ( $g=1.312$ ) and speed ( $g=0.931$ ), writing ( $g=0.859$ ), mathematics ( $g=1.199$ ) and reading ( $g=1.193$ ).

**Conclusion:** This review highlights the high frequency and severity of academic difficulties in children with DCD. This stresses the importance of assessing and intervening on academic difficulties when supporting these children, in order to promote better health-related quality of life.

**Key words:** Developmental Coordination Disorder, learning, academic performance, Occupational Therapy

Finak, P, PhD(c)<sup>1</sup>; Gaurav, N, PhD(c)<sup>1</sup>, Burnham, S<sup>1</sup>. & Henderson, J<sup>1</sup>

<sup>1</sup>Queen's University

**Background:**

A comprehensive assessment in augmentative and alternative communication (AAC) can provide practitioners and researchers with the understanding to select need-based suitable AAC devices for their clients. We need to understand the commonalities, differences and gaps across existing models and frameworks.

**Objective(s):** To summarize research about frameworks and conceptual models used for assessment aiming at provision of aided AAC.

**Methods:** A scoping review of existing models and frameworks was performed to capture descriptions and the process of assessment in AAC published in a fifty-year period (1970 to 2020). Nine databases were searched: IEEE, ERIC, JSTOR, PubMed, PsycINFO, Scopus, Medline, Engineering Village, and Proquest. A total of 2407 studies were imported to covidence; 778 duplicates were removed. 1629 studies were screened at the title and abstract level; 59 were screened at the full-text level using inclusion and exclusion criteria. Twenty-two relevant studies were identified. Data were charted related to the proposed model, year of publication, author(s), purpose, what is proposed as part of the assessment and how, framework development, conclusion, and implications for practice and research.

**Results:** The frameworks and models will be summarized. The results will be presented by presenting similarities, differences and gaps of these models and frameworks.

**Conclusions/Significance of Findings:** Findings will contribute to understanding of the research on AAC assessment frameworks and models and help to identify future research required to guide clinicians and researchers in conducting comprehensive assessment when providing aided AAC.

**Key words:** AAC, Framework, Model, Assessment, Theoretical



# Abstracts By Session

## Academic Perspective on Rehabilitation

Dewhist, K., DSc(c)<sup>1</sup>; Francis, D, DSc(c)<sup>1</sup>, Séguin, J., DSc(c)<sup>1</sup>  
<sup>1</sup>Queens University

**Background:** In 2019, three occupational therapists, at disparate stages of their careers and in various practice settings, embarked on the exciting journey of postgraduate studies in the Doctor of Science in Rehabilitation and Health Leadership (DSc RHL) program at Queen's University.

**Objectives:** The objective of the presentation will be to describe the lessons learned on how this applied doctorate program shapes and guides the scholarly development of these leaders. Through story-telling, the students will discuss the occupational performance intersections between academia, their professional, and personal lives.

**Methods:** Guided by the professional development framework of the DSC RHL program, the students will chronicle the lessons learned, barriers to, and facilitators of their experiences. This retrospective case study will outline narratives of the students' lived experiences.

**Conclusions:** The impact of this shared journey between the students has shaped both their personal and professional trajectories. We propose that the narratives will provide aspiring research scholars with food for thought when considering the application to and completion of a terminal degree.

**Key words:** Students, Doctor of Science

Francis, D., DSc(c)<sup>1</sup>  
<sup>1</sup>Queen's University

**Background:** Historically, racialized students' experiences in higher education vary from their non-racialized peers due to the need to overcome several barriers, such as the university's unwelcoming climate fostered by systemic racism. Regardless of the university equity, diversity, and inclusion initiatives, racialized students voiced their concerns with the programs' quality, as their development did not include students' perspectives and needs. There is a gap in the literature focussing on the experiences of racialized students in mid-size Canadian higher education institutions; a lack of evidence determining the most effective diversity, equity, and inclusion program in higher education; and a lack of programs that exist to address the needs, supports, and barriers of racialized students in higher education.

**Objective:** The objective of the proposed study is to understand the experiences of racialized, full-time, domestic, undergraduate or graduate students to develop, pilot test, and implement a training resource to engage faculty and staff to create a better environment for racialized students.

**Methods:** Counter-narratives will be the chosen method as this form of narratives is used to achieve educational equity by providing a platform for silenced and marginalized populations. The researchers and racialized students will form a collaborative partnership to create and implement a training resource.

**Conclusion:** We propose to develop, pilot test, and develop a training resource for faculty and staff that will move a university community from awareness to action. The training resource development is critical to operationalizing meaningful programs, practices, and policies for racialized students across Canadian university programs, including rehabilitation.

**Key words:** racialized students, equity, narratives, co-creation, training

Queen's University  
Doctor of Science in  
Rehabilitation and  
Health Leadership:  
The journey of 3  
students  
Kaitlynn Dewhirst

Racialized students  
telling their stories  
through a critical  
race informed lens  
Deborah Francis



# Abstracts By Session

## Poster Session May 11<sup>th</sup>

### Usability of an assistive device for writing in children with writing difficulties Antony Predhep- Shruti

Predhep, A. S<sup>1,2</sup>., Archambault, P<sup>1,2</sup>., Flamand, V<sup>2,3</sup>., Anaby, D., PhD<sup>1,2</sup> & Campeau-Lecours, A., PhD<sup>2,3</sup>  
<sup>1</sup>McGill University, <sup>2</sup>Center for Interdisciplinary Research in Rehabilitation; <sup>3</sup>Université Laval

Writing is an essential skill for self-expression and communication in childhood. As such, writing skill often takes time to develop in children. However, some children suffer from sensorimotor impairments due to neurological disorders and brain injury. Such difficulties often render it difficult for children to effectively use or grip the pencil, which negatively affects their writing skills. In particular, children with cerebral palsy (CP) are affected by involuntary movements and spasticity. To overcome this issue, handwriting assistive aids are employed as a therapeutic intervention and can allow children to meet their writing goals. The Handwriting Assistive Device (HAD) has been recently designed and developed to assist the children in writing. The present study will assess the drawing and writing skills of the children who face writing difficulties (especially children with CP), with and without the help of HAD. In addition, the study will focus on their user experience and to obtain feedback which will improve the HAD. The study will follow a single subject design with variable baseline; based on three children with CP. It is designed in two phases: the baseline and intervention phases, which will last for five consecutive weeks. We will assess legibility of handwriting, visuomotor integration and occupational performance before intervention and with HAD at second week and third week respectively. Following the drawing and writing assessment, QUEST 2.1 will be administered measuring usability, ease of use, satisfaction and reliability for their experience with HAD. These findings intend to help special educators, rehabilitation professionals who provide support and help in the community, to be a versatile tool for social inclusive instruction. To conclude, HAD is a versatile tool that may facilitate conventional writing among children by benefitting their learning through writing.

**Key words:** Cerebral Palsy, Writing, Assistive device, Writing difficulties, Children

### Coping Mechanisms Among Youth and Young Adults with Autism Spectrum Disorder in Competitive Employment Abirami Vijayakumar

Vijayakumar, A<sup>1,2</sup>., Penner, M., MD FRCP (c)<sup>1,2</sup>, Scratch, S., PhD <sup>1,2</sup> & Lindsay, S., PhD<sup>1,2</sup>  
<sup>1</sup>University of Toronto, <sup>2</sup>Holland Bloorview Kids Rehabilitative Hospital

**Background:** Successful integration into employment is often an ongoing issue for individuals with autism spectrum disorder (ASD). A primary barrier to successful employment includes being unable to cope with the social demands of work because people with ASD are more likely to experience higher levels of stress and anxiety.

**Objective:** The purpose of our study was to explore how youth and young adults with ASD cope with stress and anxiety (i.e., normal/typical anxiety) in competitive employment.

**Methods:** A phenomenological qualitative study was conducted involving in-depth interviews with a purposive sample of 12 youth and young adults with ASD aged 15-30 who were employed or had work experience. We analyzed our data using interpretative phenomenological analysis.

**Results:** Findings indicated that stress and/or anxiety inducers for participants in the workplace included: challenges with social communication at work, tasks at work, impact of COVID-19 on employment experiences, past trauma/experiences impacting ability to work, and experiences with disability disclosure. Participants reported using the following coping strategies to combat work-related stress and/or anxiety: (1) problem-focused, (2) emotion-focused, and/or (3) resilience. Participants also identified workplace barriers and facilitators, which may impact future occurrences of stress or anxiety.

**Significance of Findings:** Uncovering stress and/or anxiety inducers in a workplace setting can help employers be better informed of the potential barriers that are present for employees with ASD, which can lead to better inclusion on the job. The findings from this study have the potential to improve employment outcomes, transition skills, and overall mental health among youth and young adults with ASD in competitive employment.

**Key words:** Coping, Stress, Employment, Autism, Youth

# Abstracts By Session

## Poster Session May 11<sup>th</sup>

### Features of scholarly practice in health care professionals: A scoping review Marco Zaccagnini

Zaccagnini, M., PhD(c)<sup>1</sup>, Bussi res, A., PhD<sup>2</sup>, Mak, S., PhD(c)<sup>1</sup>, West, A., EdD<sup>3</sup>, Boruff, J., MLIS<sup>1</sup> & Alike, T., PhD<sup>1</sup>

<sup>1</sup>McGill University, <sup>2</sup>Universit  du Qu bec   Trois-Rivi res, <sup>3</sup>The Candian Society of Respiratory Therapists

**Introduction:** Health care professionals (HCPs) are expected to embrace and enact their roles as scholarly practitioners. However, the specific features and educational requirements associated with scholarly practice (SP) are not well known. The absence of well-delineated conceptualizations of SP and the scarcity of empirical research on how SP is operationalized contribute to a lack of a shared understanding of this complex role.

**Objective:** To map the breadth and depth of the literature on what is known about SP in licensed HCPs.

**Methods:** We conducted a scoping review using Arksey and O'Malley's 6-stage methodological framework. We conducted a comprehensive search from inception to present in MEDLINE, EMBASE, and CINAHL using scholarly practitioner terms and synonyms. To be included in the review, papers must have defined or described SP, scholar, scholarly practitioner and/or related concepts in licensed HCPs; be written in English or French and described any research methodology. Following a calibration exercise, two independent reviewers screened the papers for inclusion and extracted data on a pre-tested extraction form. We conducted numeric and thematic analyses.

**Results:** The search yielded 7246 papers after removing duplicates. We retained 89 papers for analysis. More than half (58%) of the articles came from the United States, and 50% were from nursing, followed by occupational therapy (13%). Almost two-thirds (63%) were conceptual papers while the rest were empirical investigations (37%) of the SP phenomenon.

**Conclusion:** The results may illuminate how SP manifests across different HCPs and guide future empirical research to support learners' development as scholarly practitioners.

**Key words:** Scholarly practice; Synthesis; Scoping review; Scholarly practitioner; Scholar

### The Patient- Oriented Impact of Culturally Competent Care on Health Outcomes for Patients with COPD – A Scoping Review Proposal Jalesa Martin

Martin, J<sup>1</sup>., Jiwani, A. A<sup>1</sup>., & Sibbald, S. L., PhD<sup>1</sup>

<sup>1</sup>University of Western Ontario

**Background:** Cultural competence is gaining more importance in healthcare. The difficulties that arise during implementation lead to negative health service outcomes. The lack of literature surrounding this topic can lead to decreased consistency in assessing cultural-competence-related health outcomes. Furthermore, it is important to situate this concept within the quadruple aim of healthcare.

**Objectives:** The aim is to examine the literature surrounding the impact of culturally competent care on health outcomes for patients with COPD.

**Methods:** This review follows the Arksey and O'Malley design. Databases and grey literature will be searched. Included articles will mention cultural competence; and excluded articles will include other chronic illnesses, but not differentiate between COPD and those illnesses. Title, abstract, and full-text screening will be conducted by two teams. During data extraction, information relevant to the research questions, aims and objectives of this study will be extracted. This includes material pertaining to the general characteristics of the study such as location, authors, study design, objectives and the purpose/rationale. Collation and reporting of results will be done through a descriptive summary of key findings and a thematic analysis.

**Significance of Findings:** The findings will include strengths and weaknesses of each intervention in the context of health outcomes. This will aid in identifying successful interventions and their associated barriers and/or facilitators. This analysis will aid in providing health care organizations with a concise summary of culturally competent interventions represented in current literature to allow for better contextualization when providing culturally competent care. It may also identify gaps to inform further exploration of the literature.

**Key words:** Chronic obstructive pulmonary disease, Cultural competency, Care outcomes, Patient-oriented



# Abstracts By Session

## Poster Session May 11<sup>th</sup>

Policies on  
childhood  
disabilities in  
Nigeria: A policy  
review  
Rose Elekanachi

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**Background:** According to UNICEF, 200 million children worldwide live with a disability, with most of these children living in low- and middle- income countries. The United Nations' committee on the Rights of the Child emphasizes the importance of using a child's rights perspective to promote children's rights to opportunities for survival, growth, and development. Since 2010, Nigeria has been a signatory to the Convention on the Rights of Persons with Disabilities (CRPD) and the Convention on the Rights of the Child (CRC). Therefore, the overall purpose of this policy review was to examine which Nigeria's current disability and childhood policies have integrated the two normative frameworks of the CRC and the CRPD.

**Method:** Seven CRC policy reports and five Nigerian Childhood Disability policies were included in this review. The CRC and CRPD articles were used as coding templates on Wordstat and NVivo (v.10) software to map the childhood disability-related CRC and CRPD articles to the Nigerian Disability policies included in this review.

**Result/Conclusion:** Since Nigeria's ratification of the CRC (1991) and CRPD (2010), some disability policies that align with WHO, CRC and CRPD recommendations have been implemented. However, the unavailable civil reports to the CRC and reports from Nigeria to the CRPD over the past reporting cycle in 2015 account for the lack of implementation of specific policies for children with disabilities. Therefore, there is a need for Nigeria to address the uptake of the WHO, CRC and CRPD recommendations and to provide strategies to ensure due implementation of available policies.

**Key words:** Caregivers; Financial burden; Psychosocial burden; Osteogenesis imperfecta and Arthrogryposis congenita multiplex.

Interprofessional  
collaboration to  
serve children with  
autism spectrum  
disorder  
Morgan Ticehurst

Finak, P., MSc SLP<sup>1</sup>, Ball, A., MSc OT<sup>1</sup>, Ticehurst, M., MSc OT<sup>1</sup> & Batorowicz, B., PhD<sup>1</sup>

<sup>1</sup>Queen's University

**Background:** Successful interprofessional collaboration is pivotal in improving clients' care and meeting the current demands placed on the healthcare system. It is imperative that professionals understand how to collaborate to support family and client-centered care when working with children and youth with autism spectrum disorder (ASD). However, little research has been done on the topic of collaboration between rehabilitation therapists and Clinical Supervisors of applied behavioural analysis (ABA) services.

**Objectives:** The objective of this study is to pilot test a survey developed to a) examine current practices of rehabilitation therapists [occupational therapists, speech-language pathologists, physiotherapists], and Clinical Supervisors of ABA services, working with children and youth (ages 0-21) with ASD, in Ontario and b) identify facilitators and barriers to successful interprofessional collaboration.

**Methods:** We developed a survey based on the Canadian Interprofessional Competency Framework (CIHC, 2010) and 'Gearing up' conceptual framework on interprofessional collaboration (Mulvale et al., 2016). The survey domains are: client-centered care, communication, team functioning, collaborative leadership, practice context, role clarification, and conflict resolution. Based on sample size calculations, this cross-sectional study gathers data from 30-45 professionals from Ontario. Data are analysed using descriptive statistics, correlational statistics, and thematic analysis of responses to open-ended questions.

**Conclusion:** This pilot study will provide necessary feasibility information to implement the survey across Canada and will contribute initial knowledge about the best practices and policies for interprofessional collaboration between families, rehabilitation clinicians, and Clinical Supervisors of ABA services.

**Key words:** Children and Youth, Interprofessional collaboration, Rehabilitation/Therapy, Autism Spectrum Disorders, Survey



# Abstracts By Session

## Poster Session May 11<sup>th</sup>

### Use of Digital Tracking Devices to Increase Physical Activity

Emily Lenet

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<sup>1</sup>McGill University

**Background:** ACSM guidelines recommend that adults exercise 150 minutes per week. However, only 23.2% of adults met the recommended physical activity (PA) guidelines in 2018. The COVID-19 pandemic has transformed our behaviors to become more sedentary. To mitigate poor health outcomes, encouraging individuals to adopt an active lifestyle through the use of digital tracking devices (pedometers) is crucial.

**Objective:** To evaluate how the use of pedometers impacts levels of PA in adults.

**Methods:** An exhaustive search of the literature was conducted using the terms physical activity, exercise, digital device, trackers, fitbit, pedometer, step count combined with AND/OR as appropriate. Databases searched included Medline, JAMA, and PubMed. Reports since the year 2000 were included, while those that did not measure PA in step count, or calculated as a proxy were excluded. The search yielded nearly 200 articles, 13 of which were relevant.

**Results:** Pedometer use, in combination with various theories of behavior change, increased motivation, self-monitoring, and self-efficacy. Older adults and individuals with lower PA baselines benefited most from pedometers, resulting in improved health outcomes.

**Conclusions:** Pedometers are effective to increase PA regardless of motivation. Individuals are more likely to increase their daily step count when they set meaningful goals with healthcare professionals.

**Key words:** Pedometers, digital tracking devices, physical activity

### Evaluation of the online peer network 'Obesity Canada Connect'

Morenike Ajidagba

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<sup>1</sup>University of Alberta <sup>2</sup>Obesity Canada

Healthcare organizations are investing resources into establishing online communities to provide patient-support services. Obesity Canada (OC) is one of the largest obesity charity organizations and recently launched an online peer network known as 'OC Connect' to provide socio-emotional support to Canadians living with obesity as well as access to evidence-based information and resources. There has been no reported evaluation of this online platform in terms of how it achieves its intended goals of community membership, knowledge sharing and development of patient advocates.

A survey questionnaire will be designed in partnership with Obesity Canada and sent to members on the exclusive OC Connect platform. The survey period will be one month long with questions focusing on how the platform supports the achievement of the three goals stated. The survey will be followed by a focus group of volunteers from OC Connect to obtain an in depth understanding of how the platform provides personalized support for individuals through open ended questions. The results will be written up in a comprehensive report and submitted to Obesity Canada

This project aims to provide a review of the platform in how it achieves the three goals stated by Obesity Canada. Results generated will provide an insight into the online health community and can be used to produce recommendations to enhance patient-centered care and the development of personalized care within Canadian obesity healthcare.

**Key words:** Online community, social support, obesity research, peer support, online evaluation

# Abstracts By Session

## Uniform-connected Rehabilitation

Releasing Canadian  
Armed Forces  
members  
perspectives on  
health and health  
service access  
during transition to  
civilian life  
Ashley Williams

Williams, A., PhD(c)<sup>1</sup>, Mahar, A., PhD<sup>2</sup>, Ritchie, K., PhD<sup>3</sup>, Cramm, H., PhD<sup>1</sup>.

<sup>1</sup>Queen's University, <sup>2</sup>University of Manitoba, <sup>3</sup>McMaster University

**Introduction:** Military-to-civilian-transition (MCT) refers broadly to the process of leaving military service and transitioning to civilian life. One dimension of the MCT involves the shift for a federal military health system to provincially-administered health systems. These systems operate very differently, which can complicate the transition between health systems for Veterans, who are more likely to experience health problems than the Canadian general population.

**Objective:** Understand the perspectives of releasing CAF members on the health and health service transition associated with MCT.

**Methods:** In-depth semi-structured interviews were conducted with participants within 6 months prior to military release. To analyse the data, we used grounded theory techniques supported by MAXQDA software. This involved open, axial, and selective coding to organize, generate themes from, and theorize the data.

**Results:** Seventy-five participants completed interviews. Participants described diverse experiences of adjusting to pre-existing or emergent health conditions. Participants discussed concerns about the shift to civilian health services related to access and adjustment to a different health system. Anticipated barriers and facilitators to access were discussed as well as concerns about health management through the transition, particularly for those with ongoing health problems.

**Significance of Findings:** The robust sample and richness of the data mean that our results have implications for policy and program development as well as clinicians working with CAF members/Veterans, including rehabilitation therapists.

**Key words:** Canadian Armed Forces, Qualitative, Transition to civilian life, Health services, Primary care

The Experiences of  
Family Members of  
Invictus Games  
Participants  
Lauren Roberts

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**Introduction:** The Invictus Games are a competitive sports competition specifically for serving members and veterans with mental or physical illness and injuries. Competitors have all survived a range of visible and invisible injuries such as post-traumatic stress to amputations not only for themselves, but for their families and the general public as well. Research within this field has focused on the competitors themselves in areas such as participation, stress and media coverage. Thus far, the other realms have only been explored through the lens of the competitors; no published work has explored the family's perspective on the experience of supporting a competitor within the family system after a life-changing illness or injury acquired through military service. Families and friends are crucial to the rehabilitation and recovery process, not only in their role as a supporter, but also for their own journeys as individuals as they move through the Invictus experience.

**Methods:** Data will be collected through semi-structured interviews with friends and families of Invictus Games participants from three countries (n=6), which will then be analyzed using interpretative phenomenological analysis.

**Significance:** This project is expected to aid in building our knowledge of the experiences of friends and families in the world of parasport, contribute to future research, as well as inform policy and programming.

**Key words:** Invictus Games, Military and veteran families



# Abstracts By Session

## Uniform-Connected Rehabilitation

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**Background:** Frequent relocation is the most distinguishable feature of the military family lifestyle. With each move, military families must transition their children between grades and education systems. Since the majority of research to date has focused on the educational experiences of military-connected students in the United States, it is unclear to what extent the American findings are representative of the experiences that military-connected students in Canada have when relocating and transitioning between grade schools and education systems.

**Method:** Guided by an ecological school transition framework, this qualitative study is being conducted in three phases. Phase 1 - a scoping review guided by a five-stage framework developed by Arskey and O'Malley (2005) – will highlight relevant policy, program, and practice related literature that support school transitions among military-connected students across the globe. Phase 2 - guided by interpretative phenomenology – will provide an in-depth, multi-perspective understanding of school transition experiences of military-connected adolescents in Canada. Phase 3 - guided by a Delphi technique, a method used to develop consensus among expert opinions on a specific topic – will offer recommendations to inform both policy and practice related to the school transition experiences among military-connected adolescents across Canada.

**Key words:** frequent relocation, transitions, military-connected adolescents, Canada

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<sup>1</sup>Queen's University, <sup>2</sup>Mount Saint Vincent University, <sup>3</sup>University of Manitoba, <sup>4</sup>University of Western Ontario, <sup>5</sup>Bar-Ilan University

**Background:** Public safety personnel (PSP), such as firefighters, police, paramedics, correctional officers, and emergency communicators, are regularly exposed to potentially psychologically traumatic events. Due to the constant requirement to maintain public safety, personnel work in shifts creating ongoing stressors to their family systems. There has been a dearth of attention paid to how the risks and requirements associated with these occupations impact family life, and how families respond and adapt to these lifestyle dimensions.

**Objective:** This review sought to identify and describe the experiences of families of PSP as they navigate the implications of occupational risks and requirements of public safety work.

**Methods:** This qualitative systematic review was conducted in accordance with the Joanna Briggs Institute methodology. The search strategy was developed in consultation with librarians; seven databases (Embase, MEDLINE, Web of Sciences, CINAHL, PsycINFO, ProQuest, and Sociological Abstracts) were searched to identify qualitative studies written in English that examine the experiences of families of PSP. Results: 17098 original articles were identified and screened; of those, 15 articles met the inclusion criteria. Three analytic categories were determined through meta-aggregation: Potentially psychologically traumatic events can ripple into family lives (communication, identity, roles, and routines); families align their focus on the needs of the PSP, with little recognition and support for themselves; and families experience persistent fear about the occupational risks to the PSP.

**Conclusion:** The occupational risks and requirements of PSP spillover into the home and impact families. By identifying these experiences across public safety sectors, a step has been taken to understand the needs of these families.

**Key words:** Public safety personnel, Family, Systematic review, Lifestyle dimensions

Supporting the  
School Transitions  
of Military-  
Connected  
Adolescents in  
Canada: A  
Qualitative Study  
Protocol  
Shannon Hill

Exploring the  
Occupational  
Lifestyle  
Experiences of the  
Families of Public  
Safety Personnel  
Rachel Richmond



# Abstracts By Session

## Influencing Factors in Rehabilitation

Ataman, R<sup>1</sup>  
<sup>1</sup>McGill University

**Introduction:** Sustainability refers to the continuation of a practice after implementation. Only 40-60% of implemented practices are sustained, which can result in wasted funding, and a loss of potential improvements in quality of care and health outcomes. Evidence for strategies that optimize sustainability could aid implementation teams in maintaining new practices in their specific contexts. However, such context-specific, evidence-informed recommendations have not been developed.

**Objective:** To understand how (mechanism) and in what circumstances (context) sustainability strategies result in sustained rehabilitation practices (outcome).

**Methodology:** With input from stakeholders, we conducted a realist review, a type of evidence synthesis aimed at uncovering the context-mechanism-outcome configurations (CMOCs) for complex interventions. A search of electronic databases was supplemented with reference checking and targeted searches of grey literature.

**Outcomes:** Our searches resulted in 112 included documents, representing 54 implementation projects in rehabilitation. The refined CMOCs (expected by May 2021) will be used to inform recommendations regarding which sustainability strategies can be used in specific contexts to trigger mechanisms expected to enhance sustainability outcomes in rehabilitation. Preliminary results suggest that strategies including identifying and preparing clinical champions, using a collaborative approach to implementation, and providing ongoing education, feedback, consultation and/or monitoring can support collective work and individual behaviour change mechanisms in a variety of contexts.

**Conclusion:** This review provides healthcare stakeholders with CMOC-informed recommendations to support the sustainability of implemented rehabilitation practices according to their specific context. The use of these recommendations could lead to improved quality of care and patient outcomes.

**Key words:** Implementation science, Sustainability, Realist review

Reid, A<sup>1</sup>., Johnson, A., PhD<sup>1</sup> & Holmes, J., PhD<sup>1</sup>  
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**Background:** Informal – unpaid – caregivers (CGs), typically spouses or children, may experience burden, or stress (1), from conducting difficult conversations with the care recipient and with others as part of the caregiving role (2). CGs of individuals with Parkinson's disease (PD) face unique challenges resulting from the nature of PD and its typical progression (3, 4), which may impact their difficult conversations. Difficult conversations have been studied in a variety of contexts (5, 6, 7), but a search of the literature suggests CGs of individuals with PD have been overlooked.

**Objectives:** We aim to use a constructivist lens (8) and the methodology of descriptive phenomenology (9) to better understand the fears, concerns, and experiences informal CGs of individuals with PD in Southwestern Ontario have regarding difficult conversations. Descriptive phenomenology uses a hermeneutic approach, emphasizing an openness to the meanings that phenomena hold for participants which may be counter to the dominant discourse (10).

**Methods:** In-depth, semi-structured interviews will be held with 10 – 16 CGs via Zoom using interview questions developed with the support of a team of individuals experienced with PD. An iterative process will be used to determine whether a second interview with 5 – 10 of these CGs would allow us to attain a richer, deeper understanding of their lived experiences. Inter-coder agreement (11) will be used as two researchers will bracket their prior expectations (12), and independently code and develop themes from the interview transcripts using interpretive phenomenological analysis (13).

**Conclusions/Significance of Findings:** Emergent understandings will be used in future research to develop evidence-based instructional videos to assist CGs of individuals with PD in conducting difficult conversations.

**Key words:** Caregiver, Difficult conversations, Parkinson's, Phenomenology

Understanding how newly implemented rehabilitation best practices are sustained: a realist review

Rebecca Ataman

The Perspectives of Informal Caregivers of Individuals with Parkinson's Disease on Conducting Difficult Conversations  
Abigail Reid

# Abstracts By Session

## Influencing Factors in Rehabilitation

St. Jean, C. R.<sup>1</sup>, Cummine, J., PhD<sup>1</sup>, Singh, G., PhD<sup>2-4</sup>, Hodgetts, W. E., PhD<sup>1</sup>

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**Background:** Hearing loss affects an estimated 40% of individuals over 50 and 65% of those over 70. The primary symptoms are familiar, but the broader impact of untreated hearing loss often goes unrecognized: diminished hearing is adversely associated with quality of life, social participation, mental health, and rate of cognitive decline. Despite continual technological advancements, hearing aids are used by as few as 20% of those who could benefit from them.

**Aim:** Healthcare decision making is influenced not only by the efficacy and availability of treatment and rehabilitation options but, critically, by how information about these options is presented. My research tackles questions of how to best present healthcare options in the context of hearing loss. While cost, access, and stigma are among the reasons for poor rates of uptake, emerging research identifies messaging—the way information is presented to patients—as an integral but frequently overlooked factor in the decisions people make about hearing treatment. Intelligent adjustments in messaging strategies have the potential to influence changes in behaviour and attitudes toward hearing rehabilitation.

**Methods:** Investigating attitudes, intentions, and behaviours related to hearing treatment as a function of message frame (e.g., highlighting gains versus losses; emphasizing psychosocial versus audiological benefits) at multiple stages in the rehabilitation pathway.

**Significance:** The research I will outline in my presentation aims to contribute to an evidence-based model that guides the packaging of information about hearing loss treatment, in the interest of optimizing individuals' capacity for healthful decision-making.

**Key words:** Hearing loss, Audiology, Message framing, Health decision making

Cuvalo, N<sup>1</sup>., Johnson, A., PhD<sup>1</sup> & Wedlake, M., PhD<sup>1</sup>

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There is an obvious need to increase help-seeking behaviour among university students. Studies have reported that levels of psychological distress are high among undergraduates, yet low treatment rates suggest that existing models of support may be inadequate or inappropriate for this particular population. The need to investigate potential determinants of help-seeking behaviour is punctuated by the finding that most undergraduate students do not seek formal help, despite its increasing availability and positive association with academic performance. Trait emotional intelligence (EI) and the Big Five personality factors both represent promising – and perhaps, redundant – constructs in the individual differences literature that have been investigated in relation to aspects of help-seeking behaviour. The following project therefore aims to fortify the emerging evidence base concerning the relationship between individual differences in affect-related personality traits and attitudes toward, future intentions to commit, and actual help-seeking behaviour. Latent variable modelling, or path analysis, will be used to determine the goodness of fit between the collected data and a hypothesized input model. This project seeks to further our understanding of why people behave the way they do, and why people relate to themselves and others in the manner they do, without appealing to physicalist markers of dysfunction and diagnostic categories. Ultimately, this work serves to identify students who might be most at risk of 'suffering in silence' based on dispositional variables such as trait EI and personality, which can be assayed and potentially used to fine-tune the promotion, delivery, and evaluation of campus-based mental health services.

**Key words:** Health psychology; Individual differences; Help-seeking; Personality

Toward the right message, at the right time, in the right context:  
Message framing in Audiology  
Craig St. Jean

Exploring the Role(s) of Trait Emotional Intelligence and Personality in Help-Seeking Behaviour  
Nikola Cuvalo



# Abstracts By Session

## Stakeholders in Rehabilitation

Definitions and conceptualization of context- A scoping review

Catherine George

George, C.<sup>1,2</sup>, Rochette, A.<sup>2,3</sup>, Ataman, R.<sup>1,2</sup>, Renaud, S.<sup>4</sup>, St-Onge, C.<sup>5</sup> and Thomas, A.<sup>1,2</sup>

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**Background:** Context is broadly defined as the range of affordances and constraints that collectively define situations which structure social practices. The context in which healthcare professionals (HCPs) like nurses, physicians, occupational therapists, physiotherapists, speech therapists work is believed to influence the enactment of professional competencies. Despite existing literature on the impact of context on competency, the nature and role of contextual characteristics, as well as how context is defined and measured, remain poorly understood.

**Objectives:** To map the breadth and depth of the literature on 1) how context is conceptualized, defined and measured; 2) what are the contextual factors that may influence professional competencies.

**Methods:** We conducted a scoping review based on Arksey & O'Malley's framework (2005). We searched MEDLINE and CINAHL from 2000 to 2019. Our inclusion criteria were studies that reported on context or relationships between contextual factors and professional competencies, or that measured context of HCPs. We extracted data on context definitions, context measures and their psychometric properties, and contextual factors influencing competencies. We performed numerical and qualitative analyses.

**Results:** Of the 8530 articles, 284 were included for review. We compiled a list of 71 context descriptions and 112 available measures, with or without psychometric properties. We identified 60 contextual factors organized into 5 themes: Leadership and Agency, Values, Policies, Supports and Demands.

**Conclusion:** The findings highlight which contextual factors may potentially influence the enactment of professional competencies and point to areas which may be targeted in education and continuing professional development of HCPs.

**Key words:** Context of rehabilitation Professionals

Co-Designing an Integrated Transitional Care Model to Address Alternate Level of Care and Promote Aging in Place

Jake Tran

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<sup>1</sup>Queen's University, Toronto Grace Health Centre,

**Background:** Currently, roughly 48,000 Alternate Level of Care (ALC) patients occupy acute inpatient beds in Ontario; of these, approximately 85% are seniors (CIHI, 2020). ALC patients unnecessarily occupy inpatient beds, taking them out of service for acute patients, while risking further decline to themselves as they await placement. A myriad of frail elderly with complex conditions, living in the community, are awaiting admission to institutional settings, such as long-term care homes. These individuals place undue strain on their spouses, caregivers, and the community-based services to support them in their homes. ALC patients require community integrated care but are often forced to wait in hospitals. The need to shift from short term to long term strategic planning to create a health care model of collaboration and service delivery integration is imminent.

**Aims:** There are three objectives to the study: 1. To understand the barriers to and facilitators of successful discharge to community/home team; 2. To explore the services required to discharge clients safely into the community; 3.To co-design care pathways to address the different challenges and barriers during discharge process.

**Research Question:** 1. What are the practical discharge pathway considerations of using experience-based co-design to develop an integrated model that reduces the number of ALC patients in hospital?

**Methods:** This is a qualitative study that use Modified Experience-Based Co-Design that allows staff, patients, caregivers, and administrators to co-design appropriate services and care pathways in equal partnership allowing patients to be discharged to the community.

**Key words:** ALC, LTCH, Capacity, institutionalized, hospitals



# Abstracts By Session

## Stakeholders in Rehabilitation

### Stakeholders' Perspectives On The Impact of Patient Engagement In Rehabilitation Research

Conchita Saldanha

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**Background:** Over the last two decades, there has been a shift from traditional to more patient-centered approaches to healthcare. This evolution has resulted in an increased interest in patient engagement (PE) in health research, and specifically in the dynamics and power relations among rehabilitation research stakeholders (i.e., researchers and patients). Patient engagement, wherein patients actively engage in every step of the research cycle may be key to improving research outcomes and ensuring that the evidence generated is relevant to stakeholders' needs. Despite a growing body of evidence on patient engagement, there is a paucity of rigorous frameworks and methods to assess impact of patient engagement in rehabilitation research. A first important step is to explore rehabilitation stakeholders' perspectives on the impact of patient engagement.

**Objectives:** The goals of this presentation are to present a proposal for a study aimed at understanding: 1) various stakeholders' conceptualizations of impact of patient engagement in rehabilitation research, including the power dynamics between researchers and patients; 2) how stakeholders evaluate the impact of patient engagement on research outcomes.

**Methods:** We will first provide a short overview of the literature supporting the need for this work followed by a description of the proposed methodology, a qualitative study consisting of focus groups with the various researchers and patients in various clinical domains.

**Conclusion:** Assessing the impact of patient engagement in research is key for advancing patient-oriented research. The study findings may contribute to the future development of robust measures of impact of patient engagement.

**Key words:** Patient Engagement, Patient Involvement

### Using social network theory to explore nutritional risk in a novel aging-in-place program, Oasis Seniors Supportive Living

Christine Mills

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One-third of community-dwelling Canadians aged 65 and older are at increased nutritional risk, the risk of poor dietary intake and nutritional status, with consequences including increased frailty, decreased quality of life, increased hospitalization, and increased mortality. Social network factors have been associated with nutritional risk. It is therefore important to explore if social network interventions can improve nutritional risk.

One such social network intervention is Oasis Seniors' Supportive Living (Oasis). Oasis is an innovative aging-in-place program that targets social connectedness, physical activity, and nutritional wellness through member-driven programming. The purpose of this study is to gain an understanding of how social networks affect nutritional risk in Oasis participants and if nutritional risk scores improve within 9 months of Oasis implementation.

Data will be analyzed using SPSS Statistics from IBM. Significance levels for the analyses will be set at  $\alpha = 0.05$ . Multiple linear regression analysis will be performed with baseline Oasis data to determine the social network factors associated with nutritional risk. The dependent variable will be nutritional risk score. The independent variables will be social networks, social participation, social support, and length of time of Oasis implementation, with age, gender, and income as potential confounding variables. Then the appropriate statistical test will be used to determine if nutritional risk scores improved.

It is hypothesized that social network factors will be associated with nutritional risk. It is also hypothesized that nutritional risk scores will improve. If Oasis improves nutritional risk it could serve as a model for future interventions.

**Key words:** Nutritional risk, Older adults, Aging-in-place, Social networks

# Abstracts By Session

## Biomechanical Assessment in Rehabilitation

Postural control as a marker of neurodegeneration in Mild Cognitive Impairment  
Lily Merovitz-Budning

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**Background:** Brain volume loss is commonly associated with aging and neurodegeneration. In individuals with Alzheimer's Disease, deficits in postural control assessed with dynamic posturography have been associated with reduced brain volume. Postural control may be a predictive biomarker of cognitive decline and neurodegeneration. However, whether postural control performance is associated with brain volume in individuals with mild cognitive impairment (MCI) is not known.

**Objectives:** 1) Investigate differences in postural control, using dynamic posturography, between MCI and cognitively normal (CN) older adults. 2) Investigate differences in brain volumes between MCI and CN older adults. 3) Explore associations between brain volume and postural control, using dynamic posturography, in CN and MCI older adults.

**Methods:** 18 MCI (age=73.61±6.59; MoCA=24.05±3.21) and 32 CN (age=73.04±6.68; MoCA=26.52±2.62) adults were tested. Structural magnetic resonance imaging was used to assess total and discrete brain volumes. The sensory organization test (SOT), a test of dynamic posturography, was employed to assess postural control.

**Results:** MCI individuals showed smaller brain volumes, but differences met statistical significance only in the postcentral region and caudate and accumbens structures. Similarly, MCI individuals demonstrated poorer postural control than CN individuals, but differences did not reach statistical significance (p=0.062). Correlations between total brain volume and SOT score in the CN group were negligible (R<sup>2</sup>=0.24; p=0.24). In contrast, robust associations were found in the MCI group (R<sup>2</sup>=0.60; p=0.0079).

**Significance:** Postural control assessed with dynamic posturography is strongly associated with total brain volume in MCI individuals. Longitudinal studies should investigate the potential predictive value of postural control as a biomarker of neurodegeneration.

**Key words:** Alzheimer's disease, cognition, postural control, neurodegeneration, balance

A systematic review and meta-analysis of exercise interventions and use of exercise principles to reduce fear of falling among community-dwelling older adults  
Chengying Feng

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**Background and Purpose:** Fear of Falling (FOF) contributes to activity restriction and institutionalization among older adults; exercise interventions have been linked to reduction in FOF. Adhering to exercise principles and adapting optimal exercise parameters are fundamental to optimizing the effectiveness of exercise interventions. The purpose of this study was to describe FOF exercise interventions in older adults and evaluate the extent to which these interventions followed the exercise principles and reported exercise parameters, and to quantify the effect of these interventions on reducing FOF.

**Methods:** Randomized Controlled Trials (RCTs) of FOF exercise interventions in community dwelling older adults (≥65 years) were identified from four databases. The methodological quality of RCTs was assessed using the PEDro scale. A random-effect model was used in the meta-analysis.

**Results:** Seventy-five RCTs were included in our review. Regarding exercise principles, specificity was reported in 92% of trials, progression in 72%, reversibility in 32%, overload in 31%, diminished return in 21%, and initial value in 8%. For exercise parameters, 97% RCTs reported exercise type, 89% frequency, 85% time, and 25% intensity. The pooled effect of exercise interventions on FOF among 50 included studies in the meta-analysis was standard mean difference: -0.34 (95% confidence interval 0.44, 0.23).

**Conclusion:** While our study shows a small-to-moderate effect size of exercise interventions in reducing FOF among community-dwelling older adults, most exercise principles and intensity were not adequately reported in included RCTs. To facilitate evidence-based practice, more attention must be given to reporting components of therapeutic exercise.

**Key words:** Fear of falling, Exercise, Older adults



A scoping review of outcome measures for pediatric upper extremity function and mapping to the International Classification of Functioning, Disability and Health  
Caroline Elfassy

Effect of assessment position on female pelvic floor muscle function assessed through transperineal ultrasound imaging and intravaginal dynamometry  
Kaylee Brooks

# Abstracts By Session

## Biomechanical Assessment in Rehabilitation

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**Introduction:** Outcome measures are important in the field of rehabilitation as they provide therapists important information that can be used to guide and evaluate treatment. Clinicians working with children with upper extremity (UE) anomalies such as amputations, birth defects, and joint contractures oftentimes use different types of outcome measures to gather information across the various domains of health.

**Objective:** The aims of this scoping review were to identify pediatric outcome measures for UE function that are used by clinicians, and map the items to the International Classification of Functioning, Disability and Health (ICF).

**Methodology:** A scoping review was conducted to: 1) identify the research question, 2) identify relevant studies, 3) select the studies, 4) chart the data, and 5) collate, summarize and report the results.

**Results:** A search was conducted in MEDLINE, EMBASE, CINAHL, and OT Seeker and generated 5564 articles. After removal of duplicates, two reviewers screened 4762 titles and abstracts, and 895 full-text articles using the screening criteria. A total of 74 outcome measures were identified, from which 27 outcome measures met the inclusion criteria. The most commonly cited outcome measures were the Assisting Hand Assessment, Jebsen-Taylor Hand Function Test, Quality of Upper Extremity Skills Test, Pediatric Evaluation of Disability Inventory, and Box and Blocks. A mapping of 511 items to the ICF by three reviewers indicated that most items mapped to “voluntary movement” of the body function and body structure domain, and “fine hand use” and “fine hand manipulation” of the activity domain.

**Conclusion:** Items from the measures under-represented the participation, personal factors, and environment domains of the ICF. In order to get a more holistic picture of a child’s capacity, clinicians need to use measures that assess different domains of the ICF.

**Key words:** Upper extremity; Pediatric; Outcome measures

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**Background:** Symptoms of pelvic floor disorders are more severe when individuals are in an upright position, yet pelvic floor muscle (PFM) assessments are typically performed in supine. The purpose of this study was to evaluate the impact of body position (supine/standing) on measures of PFM function (using transperineal ultrasound imaging (USI) and intravaginal dynamometry (IVD)) during PFM maximum voluntary contraction (MVC) efforts.

**Methods:** This was a secondary analysis of data from a cross-sectional study. Females were recruited from local pelvic health physiotherapy clinics and attended two laboratory visits. At visit one, measures of baseline force, relative peak force, and rate of force development were recorded during PFM MVCs in both supine and standing using an IVD. At visit two, PFM MVCs were repeated in both positions while USI was used to measure levator plate length (LPL) and bladder neck position at rest and change in LPL and bladder neck excursion (BNE) during MVC. The impact of testing position on all outcomes was evaluated using separate, paired t-tests.

**Results:** Twenty-six females participated. In comparison to supine, resting vaginal force was higher and during MVC, relative peak force was lower, and rate of force development was slower while in standing. Similarly, in standing, bladder neck position was lower at rest and during MVC, BNE was smaller, and the LPL did not shorten to the same extent as compared to supine.

**Conclusions:** Selecting and reporting the participant position during a PFM assessment appears to be an important factor when evaluating female PFM function.

**Key words:** Pelvic floor muscles, Pelvic floor disorders, Testing position, Transperineal ultrasound imaging, Intravaginal dynamometry



# Abstracts By Session

## Poster Session May 12<sup>th</sup>

### Military and Veteran Family Research: Roots for Rehabilitation Shannon Hill

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**Background:** Military members have long been studied in the realms of resilience and rehabilitation, yet their families, who are naturally exposed to elements of the military lifestyle, namely mobility, familial absence, and risk, have only recently begun to appear in research. These families are not only crucial to the resilience and rehabilitation of the military members, but face challenges of their own which require resilience.

**Objectives:** To understand where resilience and rehabilitation research needs to go for military families, it is crucial to understand where we have been. This narrative review aimed to identify and describe the articles and presentations relating to military family research from the Journal of Military and Veteran Family Health Journal (JMVFH) and the Canadian Institutes of Military and Veteran Health Research (CIMVHR) Forum.

**Methods:** A systematic search was conducted of the JMVHR from 2015-2020, and CIMVHR Forum abstracts from 2011-2020 in both French and English by the Families Matter Research Group.

**Results:** From our analysis it became clear that the key works have informed and expanded this field, such as a call to action for military family research in 2015, publications regarding identifying who military families are & defining them, as well as evaluating program & policies.

**Significance of findings:** The results of this study facilitate an understanding of where this developing field of research began, while highlighting areas that are still underdeveloped and require further investigation.

**Key words:** Military Families, Narrative Review, Resilience & Rehabilitation

### Using Podcasting to Deliver Living Cases in Gerontology Education: An Outcome Evaluation of the GeroCast Study Julie Cameron

Cameron, J<sup>1</sup>., Kolomitro, K., PhD<sup>1</sup>, Dalgarno, N., PhD<sup>1</sup>, Turnnidge, J., PhD<sup>1</sup>, Pelland, L., PhD<sup>1</sup> & Auais, M., PhD<sup>1</sup>

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**Background:** Physiotherapy (PT) students are less interested in working with seniors and may be under-prepared to deliver efficient services to this population. A novel way to improve students' attitudes towards seniors is to present living case studies via podcasting. The GeroCast project created living case studies and delivered them using podcasting technology to support the learning experience of MScPT students in a gerontology course.

**Objectives:** The objective of this study was to evaluate the GeroCast project to assess its usability, feasibility, and value.

**Methods:** A cohort of PT students were provided access to the podcasts and invited to complete an online questionnaire on their experience with the podcasts.

**Results:** Participants included 68 PT students (69% female, mean age = 24.6 years). Among respondents, 91% found podcasting enhanced their understanding of how to best care for seniors in clinical settings; and 90% indicated that listening to the podcasts increased their recognition of the critical issues older adults face. Thematic analysis of the data indicated that students felt the podcast challenged their assumptions and facilitated reflection on experiences from different perspectives. Additionally, students reported that hearing a real-life case study was engaging and provided a sense of connection with the case.

**Conclusion:** Overall, students enjoyed learning via podcasting compared to traditional learning approaches and found it a valuable way to better understand issues facing seniors. Thus, delivering case studies using podcasting may be a feasible and effective method to present the lived and living experiences of older adults to physiotherapy students.

**Key words:** Podcast, Physiotherapy, Geriatrics, Lived-experience, Education

# Abstracts By Session

## Poster Session May 12<sup>th</sup>

### The Impact of Sleep on the Health of Canadian Firefighters Rachel Richmond

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**Background:** Volunteer and career firefighters are at risk for insomnia, depression, posttraumatic stress disorder (PTSD), alcohol abuse, and other mental health conditions due to the demanding and unpredictable nature of their employment. They are also at an even greater risk for sleep and mental health disorders as they are shift workers, often required to work extended hours, night shifts, and/or on rotating schedules.

**Objectives:** In the current study, we aimed to examine the association between mental health and sleep for firefighters, as well as to compare and contrast the association across volunteer and career firefighters.

**Methods:** A national Canadian mental health survey of public safety personnel was made available online in English and French from September 2016 to January 2017, which included 1217 firefighter respondents. The survey assessed current symptoms of mental disorders, and participation was solicited from national public safety agencies and advocacy groups.

**Results:** While we did not find any statistical differences in sleep and mental health when comparing volunteer and career firefighters, 69.2% of participants reported less than ideal sleep quality and 21.3% screened positive for clinical insomnia. Firefighters with insomnia had higher frequencies and odds of screening positive for PTSD, generalized anxiety disorder, panic disorder, social phobia, and major depressive disorder than firefighters without insomnia.

**Conclusions:** As firefighters are already at a higher risk of sleep and mental health disturbances than the general population, interventions should attend to sleep across the trajectory of firefighters' careers.

**Key words:** Firefighters, Sleep, Health

### How does a theoretical lens help us understand the experience of families involved with rehabilitation and recovery following life altering injury or illness acquired in early to mid-adulthood? Lauren Roberts

Roberts, L.<sup>1</sup>, Cramm, H. PhD<sup>1</sup>, Norris, D. PhD<sup>2</sup>, Shirazipour, C., PhD<sup>3,4</sup>

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**Background:** When a person acquires an injury or illness in mid to late adulthood, the repercussions of the injury do not only affect the individual themselves, but rather the entire family system. The impact of injury and illness on the survivor and the family is a topic that has been examined in many different forms. Specifically, the literature highlights the process through which family members accept the injury, moving from initial disbelief to uncertainty to overprotectiveness, and eventual readjustment. However, these studies tend to lack guiding principles, or theories, models or frameworks, that provide a conceptual foundation.

**Aim:** The purpose of this study is to explore how family theories, models and frameworks may guide the understanding of family members' experiences through the process of rehabilitation and recovery of a fellow family member following a life altering injury or illness acquired in early to mid-adulthood.

**Methods:** The scoping review was conducted in accordance with the Joanna Briggs Institute methodology for scoping reviews.

**Results:** A preliminary analysis of studies reviewed revealed that theories, models and frameworks focus on changes that occur within the family structure following the injury or illness, the factors that influence these changes, and how family members are affected both individually and collectively.

**Conclusions:** Family theories, models, and frameworks, applied within studies focusing on the impacts of rehabilitation and recovery on family systems, will expand understandings of family adjustment to acquired injury and illness and should be utilized as guiding frameworks.

**Key words:** Family studies, Theories, Models, Frameworks, Rehabilitation



# Abstracts By Session

## Poster Session May 12<sup>th</sup>

### Mass Media and Physical Activity Promotion in Adults Gupta Prateek

Gupta, P., PT<sup>1</sup>, Jiang, A., PT<sup>1</sup>, Chan, A., PT<sup>1</sup>, Nguyen, T., PT<sup>1</sup> & Wright, M., PT<sup>1</sup>  
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**Introduction:** Due to the COVID-19 pandemic, it is crucial to understand the media through which health promotion messages are communicated. Specifically, we examined the role that mass media plays in promoting health-related behaviors.

**Objective:** The objective was to conduct a systematic review on the use of mass media in physical activity (PA) promotion and determine (1) the effectiveness of mass media campaigns in changing PA behavior in adults, and (2) its influence on PT practice.

**Methods:** A systematic search was conducted using PubMed, PsychInfo, Scopus, Web of Science. Screening and data extraction were performed using Rayyan. Article quality was assessed using the AXIS checklist.

**Key words:** Health Promotion, Mass Media, Physiotherapy

# Abstracts By Session

## Neurological Rehabilitation

### Internet-delivered Cognitive Behavioural Therapy for Persons with Mild Traumatic Brain Injury: A Multi-Method Feasibility Trial

Ujjoyinee Barua

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**Background:** Individuals with mild traumatic brain injury (mTBI) can experience high levels of emotional distress, leading to decreased quality of life and increased health care costs. Though mental health problems are prevalent and disabling, they often go untreated for various reasons, including stigma and accessibility. Internet-delivered cognitive behavioural therapy (ICBT) overcomes face-to-face therapy barriers by reaching a wider group of patients who experience unequal access to health care.

**Aim:** A mixed-methods feasibility trial will be conducted to evaluate the acceptability and limited effectiveness of the ICBT program for persons with mTBI.

**Methods:** Twenty participants with mTBI will assess the ICBT program's acceptability, feasibility, and limited effectiveness. In the end, participants will complete a brief semi-structured interview examining the barriers and facilitators of the program.

**Anticipated Results:** The ICBT program will be acceptable to participants and improve patient-reported outcomes from baseline to follow-up. Additionally, participants will provide valuable information on the strengths and challenges of the ICBT program so that it can be further improved to better serve this population's needs.

**Research Implications/Future Direction:** This study will provide guidance to future studies which will evaluate the program's effectiveness in a community setting to improve patients' overall well-being and access to mental health care services. There is significant potential to improve our healthcare system through ICBT to address mental health concerns and make psychological services accessible and cost effective.

**Key words:** Internet-delivered Cognitive Behavioural Therapy, Brain Injury

### Understanding the mechanisms of virtual reality to improve balance and gait in stroke rehabilitation: A realist review

Ahlam Zidan

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<sup>1</sup>McGill University <sup>2</sup>Centre de recherche interdisciplinaire en readaptation du Montreal metropolitain

**Background:** Virtual reality (VR) includes a variety of options regarding immersion degree and integrates motor learning principles (i.e., repetition, engagement, feedback) that support functional recovery. Despite the evidence on the effectiveness of VR on outcomes such as balance and gait, it is still unclear which components of VR drive recovery, especially in the stroke rehabilitation context.

**Aim:** To explore the underlying mechanisms of VR interventions in stroke rehabilitation, which explains how improvements in balance and gait are achieved and the contexts in which these mechanisms are triggered.

**Methods:** We will conduct a realist review. Using stakeholder consultations (i.e. clinicians, researchers, policymakers), we will first clarify the scope of the review. Electronic databases and grey literature will be searched for studies reporting on outcomes of VR therapy. We will use an iterative process to obtain a sense of the literature on VR use for stroke rehabilitation, generate initial program theories (IPTs), and develop context-mechanism-outcome configurations (CMOCs). The appraisal criteria will be based on the relevance and rigor of the primary studies. Two reviewers will extract data to further contribute to the IPT. We will synthesize the evidence and draw conclusions based on the final phase of testing and refining the IPT.

**Conclusions:** Findings from this review can guide future research by identifying the mechanisms of action of VR therapy for stroke survivors and offer a framework to help researchers to design VR interventions to achieve the desired goals. Finally, the recommendations can aid healthcare professionals in clinical decision-making and guide managers regarding VR rehabilitation services.

**Key words:** Stroke rehabilitation, Virtual reality, Balance, Gait



# Abstracts By Session

## Neurological Rehabilitation

### Brain mechanisms involved in identifying emotional gait patterns of virtual pedestrians: a neuroimaging study Yu-Tzu Tracy Wu

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**Background:** Neuroimaging studies revealed a neural network specifically associated with emotion perception from biological motion (BM). However, how such a network interacts with other brain regions involved in motion interpretation and social interaction remains to be elucidated. Moreover, we are yet to understand how biological sex modulates brain activation while perceiving BM.

**Objectives:** Our primary objective is to map brain activation regions and characterize the brain signal changes involved in emotion perception from BM, while focusing on event-related potential (ERPs) and functional connectivity (FC). The secondary objective is to determine potential interactions between sex/gender of observers vs. emotion walker on brain activation, and the effect of direction of approach.

**Methods:** In this project, magnetoencephalography (MEG) will be used to measure brain activation while healthy young adults (n=24) passively view and discriminate virtual pedestrians displaying different emotions through their gait patterns (neutral, angry, happy).

**Hypothesis:** Pedestrians with emotional gait will evoke larger amplitudes and shorter latencies of early (N170 in occipitotemporal) and late components of ERPs (N300 in pSTS) compared to those with neutral gait. The FC will reveal a network associated with the perception of BM (e.g., FBA, EBA, pSTS, hMT/V5+) and social/emotion representation (e.g. amygdala). Female observers are hypothesized to elicit greater FC compared to males, in response to both male and female pedestrians.

**Significance:** Results will enhance our understanding of brain mechanisms involved in emotion perception from body movement and will serve as a basis for comparison to understand deficits in social interactions in patient populations.

**Key words:** Neuroimaging, Magnetoencephalography, Biological motion, Emotion perception Condition, Depression, Anxiety

### Art-based Rehabilitation Therapy (ART) for Sensorimotor Recovery Post-Stroke: A Pilot Study April Christiansen

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Literature suggests that intense rehabilitation, with respect to duration of therapy and motor repetitions, is beneficial to stroke patients' upper limb (UL) functional recovery; however, individuals often receive minimal therapy time focused on their arm and hand, which equates to fewer than 100 UL movements per therapy session. This low number of repetitions is at odds with studies on motor learning where many thousands of volitional motor actions are required to regain adequate motor skills. A potential strategy to increase motor repetitions and therapy time is Art-based Rehabilitation Therapy (ART), a novel therapeutic intervention that has been introduced at Providence Care Hospital (PCH). ART acts as an adjunct to conventional therapies and engages stroke survivors in task-directed, frequent, challenging art-based activities to augment UL activity intensity.

The objective of this project is to assess the feasibility of delivering ART to stroke inpatients and determine its' potential benefits with respect to sensorimotor improvement.

We intend to recruit ~30 hemiparetic individuals to participate in the ART program at PCH. Feasibility will be assessed by: ART completion rate, number of sessions and weeks required to complete ART, and ART task completion rate. UL activity intensity will be quantified by 2 measures – time and wrist accelerometers. Sensorimotor and cognitive function will be assessed using the Kinarm robot and clinical measures.

Preliminary results demonstrate that ART is a feasible and enjoyable program capable of augmenting UL therapy.

**Key words:** Cerebral Palsy, Writing, Assistive device, Writing difficulties, Children

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Thank you for attending!