Evidence-Based Practice Conference

2017 Proceedings

Harnessing the Transformative Power of Occupation

Western

SCHOOL OF OCCUPATIONAL THERAPY
Welcome to the 2017 Evidence-Based Practice Conference

The School of Occupational Therapy extends a warm welcome to our participants and guests of the 2017 Evidence-Based Practice Conference.

We have hosted the Barbara Sexton Lectureship since 1999 during which time we have had a variety of distinguished speakers provide thought-provoking and action-oriented talks, which have inspired our students, faculty, staff and the Western community. We are delighted to present Dr. Marcia Finlayson as the 2017 Barbara Sexton Lecturer, who will provide a talk titled, “Building Evidence to Support Practice: The Example of Managing Fatigue in Multiple Sclerosis”.

At the completion of the Barbara Sexton Lecture, the Evidence-Based Practice poster session will allow our second year MScOT students to share their exciting and innovative research projects. Their topics represent the diversity of the Occupational Therapy profession, with client populations across the lifespan.

A number of our students’ research projects have been submitted or accepted for presentation at important professional and research conferences including the: 2017 Canadian Association of Occupational Therapists (CAOT) conference (Charlottetown, PEI), the 2017 American Occupational Therapy Association (AOTA) conference (Philadelphia, PA), and the 2017 Canadian National Driver Rehabilitation conference (Ottawa, ON). Moreover, our students have been successful in securing travel funding to offset the cost of attending these conferences and a number have submitted or plan to submit their work for peer reviewed publication. This displays the quality, diversity, and ingenuity of the work undertaken by our students and their respective project supervisors. We are very proud of their hard work and accomplishments. Congratulations!

On behalf of the School of Occupational Therapy, we thank you for sharing in our celebration of scholarship.

Dr. Jeffrey Holmes
Course Coordinator,
OT 9695

Dr. Trish Tucker
Course Coordinator,
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Dr. Jan Polgar
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ACKNOWLEDGMENTS

We would like to express our appreciation for the expertise, enthusiasm, and time so generously dedicated by each of the project supervisors and co-supervisors. The quality and diversity of the student research projects would not have been achieved without this ongoing guidance and support.

These research projects are based on the foundational research knowledge these students ascertained throughout the curriculum. Therefore, we would be remised to not acknowledge Dr. Debbie Laliberte Rudman who taught the Foundations of Research (OT 9541) course, Dr. Suzanne Huot who taught the Evidence-Informed Practice (OT 9595) course, and Marisa Tippett, the subject librarian for occupational therapy, who assisted students with database searching.

We would also like to extend our thanks to the following Year I MScOT students who volunteered their time to help ensure the research day ran smoothly and was a success: Erin McQuay, Hanne Roelen, Ashley Seguin, and Nadine Thomas.

Finally, the School of Occupational Therapy would like to thank Lisa Ouellette and Jess Bechard whose support contributed to the success of the 2017 Evidence-Based Practice Conference.

With thanks,

Dr. Jeffrey Holmes & Dr. Trish Tucker
Co-Chairs and Course Coordinators
Evidence-Based Practice Conference
School of Occupational Therapy

Elborn College
Western University · Canada

**Agenda – April 12, 2017**

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THE BARBARA SEXTON LECTURESHIP

The School of Occupational Therapy at Western University annually invites a distinguished visitor to give a public presentation for the Barbara Sexton Lectureship at the Evidence-Based Practice Conference. The Barbara Sexton Lectureship was established in 1999 to reward innovation and excellence in occupational therapy teaching and to foster professional enrichment.

Professor Sexton dedicated her career to the profession of Occupational Therapy and its advancement, both nationally and internationally. Following a successful career as a clinician, Professor Sexton joined the faculty at Western in 1973, just one year after the inception of the School. Thus, she was involved in the education of every graduate in Occupational Therapy from Western prior to her retirement in 1995. Barbara’s specialty was mental health with an emphasis on interviewing and small groups. She worked hard to ensure that every graduate of this program was not only educated in the relevant theories of the discipline, but also in the clinical skills required in the day-to-day practice of the profession. During her tenure at Western, Professor Sexton served in many capacities and on many committees, both internal and external to the University. Most notably, she was the Assistant Dean in the Faculty of Applied Health Sciences from 1990 to 1994. She served as a member of the Review Board of the Canadian Journal of Occupational Therapy for nine years. She was actively involved with the World Federation of Occupational Therapists for 12 years, serving as an executive of the Federation for eight years. While functioning in this role, she served not only the World Federation, but also acted as an ambassador for Canadian Occupational Therapy. The University awarded her the status of Professor Emeritus in 1995. Professor Sexton had numerous publications in professional journals, made numerous presentations at scientific and professional meetings, and is the author of the widely used textbook, “Small Groups in Therapy Settings: Process and Leadership” which is in its fourth edition. Professor Sexton received the Life Member Award from the Ontario Society of Occupational Therapists and the Canadian Association of Occupational Therapists, and was an Honorary Fellow of the World Federation of Occupational Therapists. All of these honors recognize her major contribution to these Societies and to Occupational Therapists in general. Professor Sexton’s academic career was marked by dedication to the profession, to the University, and most notably to her students.
Dr. Finlayson's research program focuses on developing, implementing, and evaluating self-management programs and rehabilitation services to enhance the health and well-being of people affected by multiple sclerosis (MS). These people include both individuals with the disease and their family caregivers. The ultimate goal of Dr. Finlayson's scholarship is to enable people affected by MS to lead healthy, meaningful lives, and exert choice and control over their participation in daily activities at home and in the community particularly as they age. Her specific topical interests include falls prevention, fatigue management, caregiver support, and utilization of health-related services. She is the lead and co-founder of the International MS Falls Prevention Research Network, which includes 9 other MS rehabilitation researchers from the US, Ireland, Italy, and the UK.
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Effectiveness of Mirror Therapy for Upper Limb Stroke Recovery: A Meta-Analysis
Poster # 1

Francis K.W. Chik, Lin Duo, Sojeong Lee, & Dr. Sandi Spaulding

Background:
Stroke is a prevalent condition that can lead to upper limb paresis, which limits one’s ability to perform occupations. Mirror therapy is an emerging intervention for improving upper limb function. There are many primary studies exploring the effects of mirror therapy on stroke rehabilitation. However, combining data from these studies will provide higher level evidence and further answer the question of whether mirror therapy would contribute to functional improvements post-stroke, and if it should be implemented in occupational therapy practice.

Purpose:
The purpose of this study was to synthesize research findings on the effects of mirror therapy on upper limb function of people who have experienced stroke.

Methods:
This meta-analysis reviewed the available literature and synthesized data on the efficacy of mirror therapy on post-stroke upper limb outcomes. The following databases were searched: PubMed, EMBASE, CINAHL, Proquest Nursing and Allied Health, Scopus, Dissertation and Thesis Database, and the Cochrane Library. Occupational therapy journals including the American Journal of Occupational Therapy, Australian Occupational Therapy Journal, British Journal of Occupational Therapy, Canadian Journal of Occupational Therapy, and Occupational, Participation, and Health were also searched. Key terms included “Stroke”, “Mirror Therapy”, and related synonyms. Articles were included if they met the following criteria: (1) evaluated the effects of mirror therapy on stroke; (2) included only adults 18 and older; (3) time since stroke was one month or greater; (4) full length studies from a peer-reviewed journal or a dissertation and thesis; (5) included upper limb outcome measures; (6) published in English. Exclusion criteria were: (1) only described the neural mechanism or protocol of mirror therapy; (2) only examined mirror therapy with a co-intervention other than control therapy; (3) included participants with a condition additionally to stroke; (4) exclusively focused on lower limb outcomes; (5) qualitative studies. The search identified 1000 articles, and four articles were appropriate for this study. All articles that passed the title and abstract screening were assessed for quality using a modified guideline developed by the Cochrane Collaboration Back Review Group. A data extraction form was used to collect data from relevant studies. Studies were synthesized through the Comprehensive Meta-analysis software.

Findings:
Four studies with a total of 135 participants were included in the meta-analysis. The results for the Fugl-Meyer Upper Arm and Wrist/Hand, and ABILHAND assessments were synthesized. The meta-analysis showed significant improvement in upper limb motor function after the use of mirror therapy, but the evidence for the effectiveness of mirror therapy on improving performance on activities of daily living was limited. (Hedge's $g = 0.314; 95\%$ confidence interval [0.087, 0.542]).

Implications:
This study indicates that mirror therapy is more effective for improving post-stroke upper limb motor deficits compared to functional outcomes. Therefore, occupational therapists may consider incorporating mirror therapy in stroke rehabilitation programs. Limitations of this study include having data synthesized from a limited number of articles. Due to the diversity of outcome measures, evaluating mirror therapy did not allow for synthesis of the results from many relevant studies. Additionally, not searching grey literature and including articles only written in English were also limitations. Future research should incorporate the same outcome measures, examine the long-term effects, and investigate different exercise protocols for mirror therapy.
The Role of Caregiver Play in Promoting Infant Mental Health
Poster # 2

Jennifer Kalbfleisch, Nayasta Kusdaya, Kayla Meissner, Victoria Vollmershausen,
& Professor Donna Dennis

Background:
Recent mental health reports have indicated high prevalence of mental illness amongst infants. Mental health issues during infancy often continues to adulthood and impacts occupational development. One of the primary areas for infant mental health development is through their interactions with caregivers during play, which can be addressed by occupational therapy (OT). Paediatric OT interventions have rarely focused on the social and emotional development, which are as important as sensory, motor, and cognitive development in advancing overall mental health and occupational outcomes.

Purpose:
The purpose of this review was to examine how caregiver-infant play has been used to effectively promote social and emotional infant mental health through a comprehensive and critical literature review. This is to inform occupational therapists (OTs) and clinicians in the field of infant mental health on best practices of play-based interventions that can be utilized to promote adaptive mental health.

Methods:
The rationale for a systematic review was based on the availability of adequate high-quality evidence. A literature search was conducted with expansive list of 58 terms. Databases used were: CINAHL, PubMed, SCOPUS, PsychINFO, EMBASE, OTseeker, and Cochrane library (n = 10,902). Nine exclusion and nine inclusion criterion were applied to each of these articles (n = 26). Next, the Downs and Black's (1998) checklist was used for quality assessment. Any articles that did not meet at least 70% of the requirements in the checklist were not included (n=12). Data from the remaining 12 articles was extracted based on statistical correlations between caregiver-infant play interactions and mental health outcomes. Outcomes were summarized based on relevance to the development of social relationships, emotion, and independence.

Findings:
12 level II (quasi-experimental) and level III (non-experimental) studies showed caregiver-infant play that utilized sensitivity (i.e., responsive interaction), scaffolding (i.e. guided interaction), or both as indicative of mental health outcomes. Each study comprised of 25 to 1,364 caregiver-infant pairs and measured social, emotional, and independent behaviours as outcomes. Nine studies found caregiver-infant play involving caregivers’ sensitivity or scaffolding was associated with positive social behaviours, such as secure attachment with caregivers and cooperatively with peers (p < 0.05). Four studies showed sensitive caregiver-infant play had a negative correlation with poor emotional regulation, such as aggression and frequent comfort-seeking behaviours (p < 0.05). Four studies showed guided caregiver-infant play was correlated with initiative behaviour at play, while controlled caregiver-infant play was correlated with dependent behaviours, such as imitation and frequent help-seeking behaviours (p < 0.05).

Implications:
Fostering caregiver-infant play interactions characterized by caregiver sensitivity and guidance-based scaffolding may be beneficial to mental health outcomes in infants. OTs may enhance these qualities in caregiver-infant play interactions by providing education and creating supportive environment in the clinic, home, child care or school setting. Further quantitative research on caregiver-infant play performance in relation to socio-emotional and overall occupational development would facilitate advancement in play-based interventions to promote adaptive infant mental health.
A Textbook Review: Driving Simulation for Assessment, Intervention, and Training
Poster # 3

Bethan Blackburn, Hillary Hamilton, Bri Marshall, Nicole Mazgola, Aileen McAleese, Jocelyn Schubert,
Andrea Trebilcock, Melissa Knott, & Dr. Sherrilene Classen

Background:
Driving is a meaningful and highly valued occupation across the lifespan, and the use of driving simulator
technology can mitigate risks associated with on-road assessment and intervention for driving
performance. Addressing a gap in available resources, the textbook *Best Evidence and Best Practices in
Driving Simulation: A Guide for Health Care Professionals*, edited by Dr. Sherrilene Classen, is the first
comprehensive resource for health care professionals in driving simulation. An in-depth critical review
process promotes the presentation of evidence-informed content in a manner accessible to the target
audience.

Purpose:
The purpose of this project was two-fold: 1) to critically appraise each textbook chapter to enhance the
rigour of textbook content; and 2) to compile an evidence-informed, scholarly book review that will outline
the textbook’s strengths and limitations.

Methods:
Working in pairs, peer reviewers compiled feedback on each of the 25 textbook chapters and resolved
discrepancies using consensus. This process employed an adapted critical appraisal worksheet,
addressing 11 criteria using 26 targeted questions (Cornell’s Olin Library, 2015; Peel Health Libraries,
2014). Peer reviewers provided constructive feedback on the chapter’s features, reference accuracy,
objectivity, topic coverage, writing style, and clinical relevance. Reference accuracy and currency was
determined via literature searches in Google Scholar, CINAHL, and PubMed databases. Next, chapter
appraisals were compiled together with published guidelines to inform the development of a scholarly book
review manuscript (Lee, Green, Johnson, Nyquist, 2010). The book review summarized the textbook’s
overall strengths, limitations, and utility for health care professionals and researchers.

Findings:
After incorporating feedback from the critical appraisal process, peer reviewers concluded that the
textbook presented evidence-informed information in an accurate, meaningful, comprehensive, and
informative manner. Literature searches confirmed reference accuracy. The majority of the text’s
references were current, with selected foundational references in the area of driving simulation. The
comprehensive book review highlights the textbook’s utility, strengths, and limitations. Despite the high
overall quality of the textbook, peer reviewers identified a few perceived limitations with respect to
completeness, global representation, and the inherent pace of technological advancements in this field.
Overall, peer reviewers found that the textbook covers the topic of driving simulation in an extensive
fashion that is informative, relevant, and practical.

Implications:
Detailed peer review and critical appraisal enhanced the rigour and supported the evidence-informed
nature of textbook content. The textbook enables clinicians to incorporate best practices by way of case
studies, current research, best practice guidelines, and practical examples presented in one streamlined
resource. The textbook highlights driving simulation use for a variety of populations throughout the
lifespan, however, additional resources may be required for in-depth review of specific conditions not
included in the textbook. Future electronic editions of the textbook may include more targeted information
and new developments in this emerging practice area. The book review identifies the textbook as an
important resource for occupational therapists and healthcare practitioners in the field of driving
assessment, intervention, and research using driving simulation.
Mindfulness and Human Occupation: A Scoping Review  
Poster # 4

Shelly Cohen, Victoria Goodman, Suzanne Myers, Brooke Wardrope, & Dr. Elizabeth Anne Kinsella

Background:
Mindfulness is an emergent construct in the occupational therapy (OT) and occupational science (OS) literature with implications for our understanding of approaches to participation in human occupation. Occupational scientists are beginning to consider the implications of mindful approaches to human occupation. Little is known however about how mindfulness is being applied and what its possibilities are across the occupation-based disciplines.

Purpose:
The purpose of this scoping review was to identify, summarize and describe existing literature on mindfulness in relation to human occupation in the disciplines of OT and OS.

Methods:
A scoping review, guided by Arksey and O’Malley’s (2005) methodological framework, was undertaken. The following electronic databases were systematically searched: Scopus, Pubmed, CINAHL, PsychInfo, Proquest Allied Health & Nursing, and Embase. Keywords used included: ‘mindfulness’ or ‘meditation’ or ‘yoga’, and ‘occupational therapy’ or ‘occupational science’ or ‘human occupation’ or ‘occupation’. The initial search yielded 929 articles; 20 articles met the criteria for full review. Articles were included in the review if they addressed mindfulness in OT or OS; included the terms ‘human occupation’, ‘occupational therapy’ and/or ‘occupational therapist’, and ‘mindfulness’ and/or ‘meditation’ or ‘yoga’; were published in English; were published between 2006 and April 2016; and were peer reviewed or grey literature (practice magazines and dissertations). Articles were excluded if the definition of occupation related to a job in the workforce; the article was not available in English; the study involved mindfulness in other professions not in combination with OT; mindfulness was used for a certain clinical condition and it was not occupation-based treatment; and the article was published over 10 years ago. A descriptive analysis using charts was completed and a qualitative analysis emerged through a mind-mapping process.

Findings:
Of the 20 articles included in the review, 14 were peer-reviewed and 6 were grey literature. Seven of the articles employed qualitative research designs, 4 were mixed-methods studies, 3 used quantitative research designs, and 6 were conceptual/theoretical articles. The papers were predominantly situated in Canada (9) and the United States (5). The qualitative analysis identified an overarching theme related to mindfulness and human occupation with one main theme: Mindful occupation, and 5 sub-themes related to qualities of mindful occupations including occupational presence; occupational awareness; occupational engagement; occupational well-being; and occupational fulfillment.

Implications:
The papers in this review map the current applications of mindfulness and suggest that bringing mindfulness into daily occupations has the potential to change the way people think about and engage in occupations, in ways that emphasize approaches that promote presence, awareness, engagement, well-being and fulfillment. This may increase the use of mindfulness in clinical practice. Future directions should focus on more depth and breadth of empirical research that can be used to implement and evaluate mindfulness in occupational-based practice and education. Limitations of this study include the exclusion of articles not published in English, excluding articles that studied mindfulness being applied in the physical rehab setting, excluding articles that used the term occupation in the traditional sense, and including grey literature.
Mobile Device Apps for Diabetes Management in Occupational Therapy Practice:
A Scoping Review
Poster # 5

Delaram Basiri, Tammem Chahal, Nicholas Coelho, Jeff Davis, & Dr. Mike Ravenek

Background:
Due to increases in life-expectancy, more people are living with chronic health conditions such as diabetes mellitus where self-management becomes necessary to ensure occupational functioning and independence. Occupational therapists often use technology to assist individuals in performing the activities required in daily life. Occupational therapists and other health professionals have been using app-based devices in practice with increasing prevalence. However, limited research has been conducted that explores the use and utility of smart mobile device apps for diabetes management (Ravenek & Alvarez, 2016).

Purpose:
The purpose of this scoping review was to determine the available knowledge that exists on mobile apps that can be used in an occupational therapy setting. In particular, this review focuses on self-management apps that can be used by clients to manage their diabetes.

Methods:
Arksey and O'Malley’s (2005) framework for scoping reviews was utilized. The databases searched included: PubMed, EMBASE, ProQuest Nursing and Allied Health Source, PsycINFO, Scopus, EMBASE, CINAHL, and Dissertations and Theses. The categories of, “occupational therapy”, “apps” and “mobile devices” were searched with 22 related terms which resulted in 4179 articles. In addition, ‘grey’ literature was scoped, which consists of research findings yet to be published, conferences, and theses. Another search strategy that was used to increase inclusion of relevant material was citation tracking of the reference lists of systematic reviews that met our inclusion criteria. Furthermore, relevant occupational therapy journals were hand searched. After the completion of citation tracking and the application of inclusion/exclusion criteria, 50 relevant articles remained for abstract review. Due to the iterative process of scoping reviews, the focus was narrowed to diabetes self-management apps; 23 articles fit the criteria and were selected for the review. Data was charted based on variables that related back to the initial research question. Finally, data was summarized, reported, and analyzed in order to uncover potential implications of the findings.

Findings:
In total, 23 articles were included in the data extraction. A majority of the studies (66.7%) did not specify an operating system for their mobile app; however, iOS, Android, and Windows were all represented in this review. Nineteen (90.4%) used glycated haemoglobin (HbA1c) as the primary outcome measure, with eight of those (42.1%) noting significant change in HbA1c post-intervention.

Implications:
The current scoping review provided insight into the use of self-management apps on diabetes care, as well as directions for future research. This study presents information that can aid occupational therapists to engage in evidence based practice when supporting clients with diabetic self-management issues. In addition to using an app, it is important to note that every client is different and will require individual intervention plans. Future research would focus on the apps presented in this study being prescribed to occupational therapists’ clients with diabetes. This may provide an understanding of the feasibility of using apps with clients who have other conditions in addition to diabetes, such as acquired brain injuries, and other circumstances common in the field of occupational therapy. Furthermore, research that contains a larger sample size and demographic would increase generalizability of using apps for diabetes self-management.
The Use of Deep Pressure Therapy in the Management of Symptoms Related to Concussions: A Scoping Review

Poster # 6

Jessica Beardsall, Danielle Dilworth, Karli Gavendo, Erin Roznik, & Dr. Jeffrey Holmes

Background:
Concussion is defined as a pathophysiological process which affects the brain, and which is induced by biomechanical forces (McCrory et al., 2013). Persistent symptoms of concussion can impact an individual’s ability to engage in meaningful occupations, and can make returning to productive occupations a stressful and complex experience (Ontario Neurotrauma Foundation, 2013). Deep pressure therapy (DPT) is a form of treatment that has a variety of applications in various contexts, and is an emerging treatment for those with mild traumatic brain injuries including concussion (St. Joseph’s Health Care, n.d). While DPT is often used to treat concussion related symptoms, there is a lack of research on the use of DPT to treat individuals with concussion directly.

Purpose:
The purpose of this study was to identify the nature and extent of literature available on DPT as it relates to concussion symptoms, identify gaps in the literature, and provide a direction for future inquiry on this topic.

Methods:
A scoping review was conducted based on Arksey and O’Malley’s (2005) framework to map key concepts and identify gaps in the DPT literature. The following electronic databases were: CINAHL, EMBASE, AMED, ProQuest Nursing & Allied Health Source, PsycINFO, PubMed, Scopus, and Cochrane. Search terms included DPT and related terms, as well as concussion-related terms. In order to be included, articles had to pass a title and abstract screening followed by a full-text review, which applied a list of inclusion and exclusion criteria to the articles found. Data extraction and analyses were then used to identify key themes and develop thematic tables.

Findings:
A total of 19 articles were included for review. All articles were published between 2001-2015 and thematic analysis revealed the following concepts: (1) the broad nature of populations examined in DPT research; (2) the variability in modalities used to administer DPT; (3) inconsistency in intervention application and design within each DPT modality; and (4) a pattern of different targeted symptoms based on treatment modality. The following gaps in the literature were identified: a paucity of research (n=3) focused on physical symptoms of concussion; additionally dizziness, consciousness/wakefulness and agitation/irritability were symptoms of concussion not addressed by any of the articles uncovered in this review.

Implications:
This scoping review identified several gaps in the research pertaining to the use of DPT with concussion symptoms. Research in other populations showed that deep pressure has been used to treat physical, cognitive, and affective symptoms related to concussions, as such it has the potential to affect occupational performance for many activities of daily living. However, at this time there is insufficient research to inform occupational therapy practice, as there is no research with the target population of individuals with persistent concussion symptoms, and limited research on several concussion symptoms. Future research should also compare DPT treatment modalities to attempt to identify the most effective implementation method.
Behavioural Mapping Older Adults’ Occupational Engagement in Public Spaces
Poster # 7

Jessica Cheng, Geneviève A. Gingras-Hill, Janice Ng, Victor I. Wu, & Dr. Carri Hand

Background:
Supportive environments are important for older adults to avoid occupational deprivation. While accessible public spaces are assumed to facilitate community participation, little is known about whether and how older adults use these spaces. Limited research has been performed to examine the feasibility and utility of tools that can capture the broad range of activities older adults perform within public spaces.

Purpose:
To examine the feasibility and utility of using behavioural mapping tools, which are non-participant observation methods, to record occupational engagement of older adults in commonly accessed public spaces within London, Ontario.

Methods:
Older adults’ occupations were observed and recorded in two parks and one shopping centre using base maps and behavioural matrices. Nineteen total observations occurred, in 30 minute periods over 3 hours. Occupations recorded on base maps and matrices were grouped by level of physical activity and socialization. These groups were then analyzed using descriptive statistics and visualization. Throughout the study, data collectors recorded reflective notes regarding the data collection and analysis processes and reflected on the resulting data, guided by questions addressing feasibility and utility. The reflective notes were analyzed using descriptive content analysis to identify themes.

Findings:
A total of 1856 older adults presumed to be over the age of 65 were recorded from June to August. The data was useful in identifying the most commonly-performed occupations in the public spaces. For instance, during the walking observations in the shopping centre, the most frequently-seen occupation was sitting and eating while socializing (29.6% of observed older adults). More older adults were present in shopping centres, though individuals in parks engaged in more physically-demanding occupations and socialized less. Base maps provided useful, visual information about environmental features that could be impacting older adults’ occupational engagement, for example the availability of picnic tables in the park for seated activities. Matrices provided more detailed descriptions of the occupations, for example an individual’s attire and company. Both methods enabled comparisons across settings, facilitating understanding of environmental conditions that may support occupational engagement.

Implications:
The use of base maps and matrices is feasible for gathering local, contextualized information in public spaces on the occupational engagement by older adults and the environmental conditions that support their engagement. Such information can be used to advocate for and create age-friendly public spaces and help to achieve Ontario’s Accessibility Action Plan. Environments impact occupational engagement by older adults. Thus, occupational therapists and policy makers must consider this during goal setting within the community. Future research should assess the feasibility and utility of these methods in fall/winter, as weather conditions may affect ability of researchers to use these tools, as well as the occupations that older adults engage in. Employing Geographic Information System technology within behavioural mapping studies may also help to more accurately count and map locations of observed older adults.
Exploring Occupational Therapy Interventions for Youth Anxiety Disorders: A Scoping Review
Poster # 8

Jessica Chuang, Tonya Ellis, Stephanie Garrett, Renee LaRose, & Kirsten Smith

Background:
Occupational therapists have been providing mental health services since the beginning of the profession, however the strategies available for these therapists to treat youth with anxiety disorders is not clear.

Purpose:
The purpose of this scoping review was to explore the current literature available regarding treatment approaches for youth with anxiety disorders that occupational therapists could implement in practice. In addition, the study aimed to identify which approaches are most commonly utilized and which require further study.

Methods:
A scoping review was conducted utilizing the methodological framework proposed by Arksey and O’Malley (2005) with changes as recommended by Levac, Colquhoun, and O’Brien (2010). Five major databases were searched: CINAHL, PubMed, Proquest Nursing and Allied Health Source, Embase, and PsycINFO. The key search terms were broken into three main concepts: anxiety (all eight DSM-V anxiety disorders, anxiety disorder, etc.), youth (adolescents, children, teenagers, youth, etc.), and interventions (programs, treatment, interventions, etc.). An iterative process was utilized to produce the final inclusion/exclusion criteria. The inclusion criteria required participants to be between 6 and 18 years old and have a DSM-V diagnosis of anxiety, and the studies needed to describe a treatment approach and be written or pre-translated into English. The exclusion criteria included participants with concurrent medical diagnoses and developmental disorders, participants experiencing grief or end of life care, pharmacological-based studies, treatments related to herbal supplements, specified transdiagnostic treatments, studies focused on selective mutism, studies focused on predictors and mediators of anxiety, treatments addressing both anxiety and depression, and studies where youth anxiety was not the primary outcome measure. Title, abstract, and full-text screening phases resulted in 91 articles and following the application of a relevancy scale and reference list screening, a total of 28 articles were included in the study. Researchers collated and charted the data from each article and engaged in content analysis to describe the different treatment approaches for youth with anxiety outlined in the literature. Consultation with three occupational therapists practicing in youth mental health was conducted.

Findings:
Following examination of the 28 articles included in the scoping review, four major themes highlighting the different treatment approaches were identified: (1) One-to-one direct treatment; (2) group treatment; (3) parent-involved treatment; and (4) parent-only treatment. Overall, the majority of studies included in this scoping review utilized cognitive-behavioural therapy as the primary treatment approach. However, other promising treatment approaches were also found to be used to target youth anxiety, including: attention bias modification, multimodal music therapy, parent coached exposure therapy, and psychoanalytic child therapy.

Implications:
This scoping review identified possible interventions to treat youth with anxiety disorders that fall within the occupational therapy scope of practice. Limitations include: only articles published after 2010, written in English and available through the Western library were included, as well as exclusion of grey-literature and a single evaluator completing the title/abstract and reference screening. Future research should be conducted to evaluate the effectiveness of these treatments, narrow down the precise components of interventions that impact anxiety symptoms and to explore preventative and emerging therapies.
Occupational Therapy Interventions for Informal Caregivers of Stroke Survivors: A Scoping Review
Poster # 9

Jillian Burton, Jessica Gough, Joni Soans, Elaine Sou, & Dr. Michael Ravenek

Background:
Home care for stroke survivors often falls on informal caregivers, and as a result they experience increased depression, burden and decreased quality of life. While much literature exists on interventions provided by nurses and social workers for these carers (Visser-Meily, Van Heugeton, Post, Schepers, & Lindeman, 2005) occupational therapy-specific interventions are quite limited. Occupational therapists can use the Canadian Model of Client-Centred Enablement (CMCE) skills coupled with client-centered practice to aid caregivers in re-integrating important activities back into their life, which can have a positive effect on their health and well being. However, the explicit role that occupational therapists can play is unclear in current literature.

Purpose:
The purpose of this scoping review was to describe current literature, identify gaps and future research directions for occupational therapy interventions to support informal caregivers of stroke survivors.

Methods:
This scoping review followed Arksey and O'Malley’s (2005) methodology. CINAHL, Dissertations and Theses, EMBASE, ProQuest, PsycINFO, and PubMed databases were searched using 51 search terms related to “occupational therapy”, “chronic illness”, “informal caregiver” and CMCE enablement skills. In addition, occupational therapy journals, select non-peer reviewed journals and conference abstracts were hand searched. Reputable articles in English with interventions that included occupational therapists and targeted informal caregivers of stroke survivors were included. Theoretical articles that were not in English, provided incomplete interventions, or were about formal caregivers, bereavement, other conditions, or concurrent disorders were excluded. Nine articles fit the criteria and were included in the final review. Relevant data was extracted onto a spreadsheet and analyzed by characterizing the literature and interventions through an iterative process.

Findings:
The majority of the studies took place in the United Kingdom (n=4) and included rehabilitation, community, outpatient, and acute care settings. The studies predominantly used quantitative randomized controlled trials (n=8) and measured caregiver burden, quality of life, health, and/or stroke knowledge. In seven studies, the intervention was provided by a multidisciplinary team which included an occupational therapist; most used an education approach, with few statistically significant outcomes, but trends of improved support, mastery, and knowledge and decreased burden. Two studies evaluated interventions provided solely by occupational therapists - a pre-discharge home visit which led to significant improvements in caregiver domains and an education program, which led to non-significant decreases in caregiver strain.

Implications:
Education and collaboration were two key approaches: most interventions were team-administered and used an education/training approach. Both approaches are occupational therapy enablement skills in the CMCE, which suggests that occupational therapists have suitable skills to provide caregiver interventions. The limitations of this study were that non-English articles or those about concurrent disorders were excluded; therefore, relevant articles may have been overlooked. Gaps warranting future research include caregiver-only interventions, as many studies simultaneously targeted the stroke survivor; and interventions with a defined and explicit occupational therapy role, because the role of occupational therapy was often unclear.
The Physical Activity Levels of Children on Natural Playgrounds
Poster # 10

Jonathan Chiu, Aleisha Christo, Anna Matthews, Kelsey Willms, & Dr. Trish Tucker

Background:
Research has shown that only 7% of Canadian children are reaching the recommended levels of physical activity in a day (Colley et al., 2011). In addition, the prevalence of overweight and obese children has continued to dramatically increase (Ng et al., 2014). In this study, natural playgrounds were defined as a strategically designed play area encompassing natural elements (including but not limited to plants, logs, sand, and boulders), recycled materials and very few man-made elements. Physical activity is defined as energy expenditure created by bodily movement (CSEP, 2012). Previous research has found emotional, psychological and motor fitness benefits (Bixler et al., 2002; Sageie, 2011) in children participating on these playgrounds. It was thought that since natural playgrounds promote these benefits, that perhaps they may work to increase physical activity levels in children as well.

Purpose:
The purpose of this study was to explore whether natural playgrounds support physical activity in children.

Methods:
This systematic review was based on the PRISMA guidelines (Liberati et al., 2009) and consisted of searching eight electronic databases (PubMed, Education Research Complete, CINAHL, EMBASE, GeoBase, SCOPUS, SPORTdiscus and ProQuest Education Journals) with a plethora of search terms regarding natural playgrounds (‘natural playscape’, ‘natural play space’, ‘green playground’, ‘green space’, etc.), physical activity (‘exercise’, ‘active play’, ‘locomotor activity’, ‘outdoor play’, etc.) and children under the age of 14 (‘preschooler’, ‘toddler’, ‘early childhood’, ‘early years’, etc.). Eight articles met the inclusion and exclusion criteria after title and abstract screen followed by a full text screen, and were included in this study. Inclusion criteria included studies that were original research, measured some form of physical activity, incorporated a natural playground, included children 14 or younger, peer-reviewed studies and only written in English. Studies were excluded if they specifically looked at children with disabilities, did not focus on children, did not measure physical activity, did not look at a natural playground, were qualitative studies, were not peer-reviewed or were written in a language other than English. Articles were organized based on positive or null association of children's physical activity.

Findings:
In general, it was found that natural playgrounds promote physical activity behaviours, as 75% of the eight studies included showed an increased level of various types of physical activity. Types of physical activity include moderate to vigorous physical activity, increased play time, increased walking, running, jumping, and climbing. Furthermore, the other 25% found physical activity levels to be equal between natural and traditional playgrounds. The studies measured physical activity in various ways.

Implications:
These results are important for consideration when planning playground design at schools and childcare centres. One limitation to this study is that true experimental research (eg. Randomized Control Trial) cannot be done with this phenomena as children cannot be randomly allocated to a specific playground. Additionally, the studies that were found did not all use the same objective measure for analyzing physical activity. The research that we conducted revealed that more research needs to be done in this area with objective physical activity measures so better comparisons can be made between studies. Furthermore, natural playgrounds have been shown to support physical activity, which can in turn improve the occupational balance of self-care, productivity and leisure in children.
Risk Factors and Older Adults’ Safety in Inpatient Rehabilitation Settings: A Scoping Review
Poster # 11

Robyn McMackin, Kyla Pettigrew, Celese Thompson, Dr. Elizabeth Anne Kinsella & Dr. Evelyne Durocher

Background:
Concerns about risk and patient safety in healthcare settings have been increasing over the past several decades and have further intensified in recent years. The focus on enhancing patient capabilities in older adult rehabilitation settings sets up tensions with respect to how much risk may be tolerated in efforts toward achieving rehabilitation goals. To date however little research has examined conceptualizations of risk and what is meant by patient safety in older adult inpatient rehabilitation settings.

Purpose:
The purpose of this scoping review was to examine what is documented in the published literature as potential risks to patient safety in older adult inpatient rehabilitation settings.

Methods:
A comprehensive scoping review was conducted using Arksey and O’Malley’s (2005) five-stage Methodological Framework, with modifications by Levac and colleagues (2010). The CINHAL, EMBASE, AMED, PubMed, Scopus, ProQuest Nursing and Allied Health Source databases were searched using the terms risk(s), risk aversion, safety, patient safety, risk factors, and/or older adult(s), elderly, senior(s), aged, geriatric(s), and/or inpatient rehabilitation. The search was limited to articles published between January 2000 and April 13, 2016. Included articles were written in English, published in a peer-reviewed journal, addressed an older adult population (65 years or older) in an inpatient rehabilitation setting, and discussed risk aversion and/or safety. Articles were excluded if they discussed risk in relation to financial risk, financial abuse, specific drugs or drug trials, or if they examined risk in relation to specific interventions. A total of 1225 articles were identified in the initial search. Of those, 38 articles met the inclusion criteria and were reviewed in full. Two researchers appraised each article and then extracted data into a matrix following Miles, Huberman and Saldana’s (2014) guidelines. Themes were identified collaboratively by the research team through an iterative process.

Findings:
The most prevalent risk factors related to safety were classified into five themes including: ‘falls’, ‘nutrition’, ‘medication and physical factors’, ‘cognition’ and ‘external factors’. ‘Falls’ was the most prominent theme and was further divided into three sub-themes including; ‘risk factors leading to falls’, ‘fall prediction tools’, and ‘fall-prevention’.

Implications:
Risk prevention may pose a barrier to older adults’ reengagement in meaningful activities, which is one of the main goals of rehabilitation settings (Egan et al., 2015). Understanding risks that may impact the safety of older adults in inpatient rehabilitation settings is important to help make visible, and manage, the tensions that arise in efforts to foster enhanced capacities and participation of older adults in such settings. The current research contributes to understanding of five prominent categories of risks identified in the literature. More empirical research is necessary to support a deeper understanding of safety and risk in inpatient rehabilitation and to consider such risks in relation to the quest for enhanced opportunities for older adults to maintain capacities to participate in everyday activities.
Considering the Implications of Barriers to Healthcare Accessibility for Everyday Occupations in the High North: A Scoping Review
Poster # 12

Paula Tactay, Hung Ho, Athena Ko, Sze Wai (Sylvia) Lam, Dr. Suzanne Huot, & Dr. Ruth Kjærsti Raanaas

Background:
The unique physical and social environments of those living in the High North pose distinct challenges to accessing varied healthcare services. The High North refers to the northern regions of circumpolar countries that are partially or completely located above 60°N (Ruscio, Brubaker, Glasser, Hueston, & Hennessy, 2015). These countries include Canada, Norway, Denmark, Finland, Iceland, Russia, Sweden, and the United States (Ruscio et al., 2015).

Purpose:
The aim of this study was to identify and explore the barriers related to healthcare access that populations face in the northern regions of circumpolar countries. This study adopted an occupational perspective to examine how healthcare accessibility barriers impact everyday occupations for those dwelling in the High North. This study is important because no in-depth review of recent literature currently exists that collates the unique barriers and challenges to healthcare accessibility that may limit the occupational possibilities related to how people in the High North are able to tend to their own health. In particular, the following research question was investigated, “What are the specific challenges to healthcare accessibility for populations in the High North?”

Methods:
A scoping review was conducted based on the framework put forth by Arksey and O'Malley (2005). Specifically, electronic searches of seven databases (i.e., ProQuest Sociology Collection, PubMed, PsycINFO, ProQuest Nursing & Allied Health Source, Scopus, CINAHL, and Web of Science) and a hand search of two relevant journals (i.e., International Journal of Circumpolar Health and Polar Geography) were performed. Results from these searches were screened based on inclusion and exclusion criteria. Studies were included if they were published in English between 2005 and 2016, investigated the barriers or challenges related to healthcare accessibility, addressed populations in northern regions of circumpolar countries, and were peer-reviewed. Search terms included those pertaining to populations living in the High North and challenges to healthcare accessibility. Lastly, reference lists of the articles included were reviewed to identify additional relevant studies. The researchers collated the extracted data into an Excel spreadsheet, and analyzed them to identify key themes.

Findings:
Four main themes, with associated sub-themes were generated: 1) the influence of geography and distance (i.e., remoteness and distance, weather and seasonal conditions, limited transportation options, as well as travel and delivery costs); 2) challenges experienced by healthcare providers (i.e., staff shortages, high staff turnover, recruitment and training challenges, and professional knowledge); 3) the importance of culture (i.e., language, lack of cultural knowledge among healthcare providers, and geographic remoteness); 4) and the impact of systemic factors (i.e., fragmented management of health services, lack of communication, and lack of funding). Upon further analyzing the data gathered from the articles, these themes appeared to be strongly interrelated.

Implications:
The aforementioned barriers may lead to health concerns among populations living in the High North and impact how they care for their own health (Whiteford, 2000). Consequently, the issues identified in our scoping review have the potential to negatively impact engagement in daily occupations. A limitation of this study is the breadth of articles reviewed in this study due to time constraints. Our results may thus help inform stakeholders in providing more equitable access to healthcare for all populations, regardless of geographical location; future research could focus on solutions to help achieve this.
Informal Leadership in the Clinical Setting: Occupational Therapists Perspectives
Poster # 13

Dr. Clark P. Heard, Jared Scott, Tanish McGinn, Emily van der Kamp, & Amjad Yahia

Introduction:
Leadership concepts have been extensively studied; informal leadership in particular has received attention in the past decade. In healthcare and more specifically within the Occupational Therapy (OT) context, study of informal leadership has been very limited.

Purpose:
The purpose of this study was to explore the meaning of participation in the role of informal leadership in Occupational Therapy practice. An understanding of how participation in the role of informal leader impacts day-to-day practice for Occupational Therapists is needed.

Methods:
This was a qualitative study guided by the principles of interpretative phenomenological analysis. Semi-structured interviews were conducted with 10 Occupational Therapists practicing in Ontario, Canada. Participants were identified through an anonymous survey which asked Occupational Therapists to identify other OT co-workers who they perceived as informal leaders within their workplace. The interview transcripts were analysed using a two-step coding process through which overarching themes were identified. Three interview questions were included:
1. As a peer identified informal leader in Occupational Therapy, how would you describe your perceptions of participation in that role?
2. How do you feel that informal leadership influences Occupational Therapy practice?
3. How do you feel that informal leaders might be best supported or enabled within the Occupational Therapy profession?

Findings:
Overarching themes for each question were identified. Three overarching themes were identified for the first question: Informal leaders are accessible and they demonstrate professional competence knowledge, experience and accountability; The experience of informal leadership is both assertive and receptive; Informal leaders work collaboratively; they are perceived as “go to” staff. Two themes were identified for the second question: Informal leaders organically shape and define the practice as supportive mentors, coaches and educators; Informal leaders are inspirational and creative in building strength and capacity. Finally, three themes were identified for the third question: Informal leaders are validated by having the freedom to realize their vision; Acknowledgement of informal leaders’ unique contribution by organizations enables and supports that role participation; The provision of time and opportunity to connect with peers is key.

Implications:
On a macro level, the results can be used by organizations seeking to leverage the talents and experiences of the informal leaders hidden in the ranks of their employees. Managers can use these results to inform policies and procedures to support the emergence of informal leaders. On a smaller scale, clinicians may be encouraged to identify and seek help from informal OT leaders knowing that these individuals perceive themselves as sources of support. Furthermore, knowledge of the themes identified in this study may give current informal leaders evidence which they can use to advocate for themselves in their organization.
Exploring How Those Working in the Canadian Employment Services Sector Perceive the Labour Market Integration of Immigrants
Poster # 14

Bahara Ayubi, Morgane Defalque, Jaime McKenzie-Mohr, Alesia Ricci, & Dr. Suzanne Huot

Background:
Unemployment/underemployment is an issue that impacts many Canadians and causes occupational disruption in their daily lives affecting financial stability, sense of identity and overall health and wellbeing (Brandi, 2015). Immigrants continue to be impacted at a higher degree than Canadian citizens, which is concerning as they are important in contributing to the workforce and growth of the population (Statistics Canada, 2016a; Statistics Canada, 2011). Despite immigration policy changes, which favour economic immigrants with more competitive educational and work backgrounds (Sethi, 2015), these factors are typically devalued within the Canadian context (Suto, 2009). It is strongly suggested throughout the literature that the current system is not effective at meeting the needs of this population (Albert, Takouda, Robichaud, & Haq, 2013). The connection between systemic constraints and the lived experiences and consequences for these individuals is understood through the perspective of employment service providers. As a first point of contact for new immigrants, employment service providers are well-placed to provide a citywide perspective on immigration and unemployment characteristics (Clevenger, Derr, Cadge & Curran, 2014).

Purpose:
The purpose of this study was to explore how those working in the employment sector perceive the labour market integration of immigrants in London, Ontario.

Methods:
This qualitative secondary analysis analyzed interviews from a SSHRC funded primary research study entitled Possibilities and Boundaries in the Socio-Political Shaping of Unemployment. Interviews conducted with eighteen participants (7 sector stakeholders and 11 front line service providers) who were recruited from various employment and training service agencies throughout London, Ontario were included in the analysis. The primary research study aimed to enhance the understanding of how long-term unemployment is shaped by discourses in government policies and employment support service organizations. The data used for this secondary analysis were collected during the completed second phase of the original study, which explored service provision and long-term unemployment from the perspectives of service providers.

Findings:
Three primary themes emerged from this study. The first theme outlines external factors that influence the provision of employment services and that create barriers for individuals trying to re-enter the workforce. The second theme discusses the implications of these factors on the group of individuals integrating into the labour market with a focus on immigrants, the family unit and service providers themselves. The third, and final theme outlines various strategies utilized by service providers to aid their clients in obtaining employment in spite of constraints within the current labour market.

Implications:
This secondary analysis highlighted the perspectives of service providers working within the employment sector, and their unique understanding on the integration of immigrants into the labour market. They have been identified as mediators between structures and policies of the labour market, and the individuals affected by them. The insight offered by these service providers revealed a need for change in policy and eligibility constraints, as well as in labour market attitudes in order to better respond to immigrants attempting to obtain employment within the Canadian work culture.
The Effectiveness of Mirror Therapy for Upper Limb Sub-Acute Stroke: A Meta-Analysis

Poster # 15

Niloofar Ahanchin

Background:
Stroke is a disease leading to paralysis of an individual's body and impairment of their daily functions. Due to its high prevalence of affecting 405,000 of Canadians' lives, stroke is a disease that surely needs considerable attention (Krueger, Koot, Hall, O'Callaghan, Bayley & Corbett, 2015). According to Sengkey and Pandieroth (2014), mirror therapy (MT) is a simple, convenient, cost-effective and a relatively new therapeutic intervention for the recovery of post-stroke population. However, since 2012, no meta-analysis was conducted to study the effect of mirror therapy (MT) on stroke.

Purpose:
A meta-analysis was conducted to determine the effect of MT on upper limb function of post-stroke individuals.

Methods:
The following databases were searched by the four authors: PubMed, EMBASE, Dissertation/Theses, CINAHL, Cochrane, Scopus, ProQuest, and hand searching table of contents in the American Journal of Occupational Therapy and the British Journal of Occupational Therapy. The MeSH term “stroke” and MeSH subheadings “cerebrovascular accident” and “CVA” were used as keywords in the search. MT was a relatively new concept, thus no subject headings for MT existed. Through database searching, 1000 articles were retrieved. The articles were divided in half. Two authors were assigned the same list of articles to screen for the title/abstract. After, the two authors compared their selection of articles for any discrepancies. For articles determined as eligible, the full-text articles were screened based on the inclusion and exclusion criteria in the same method as the title/abstract screening. Specifically, articles were included if evaluated the effects of MT on post-stroke individuals, considered individuals over 18 years of age, the time since stroke was at least one month, focused on upper limb outcome measures, were published in English, and were Randomized Controlled Trials (RCTs). Articles were excluded if they were not published in English, only described the underlying mechanism of MT, considered MT intervention combined with other treatments, considered individuals with additional morbidities to stroke and focused on lower body outcome measures. After screening, 11 articles were applicable and selected to be used in the review. Of these, four were included in the meta-analysis. This was due to the extensive utilization of the AbilHand, Fugl-Myer Assessment of Upper Arm (FMA-UA) as well as Fugl-Myer Assessment of Wrist and Hand (FMA-WH) outcome measures relative to others in four of the 11 studies. These three outcome measures were then synthesized in the Comprehensive Meta-Analysis Software (CMA).

Findings:
The included studies consisted of 449 participants, consisting of mixed numbers of males (n=289) and females (n=156) experiencing ischemic or hemorrhagic stroke. Four subjects were dropped out from Yavuzer et al. (2008) and their gender was not identified. This review focused on the MT effect on the three outcome measures of AbilHand, FMA-UA and FMA-WH, individually and combined. The overall MT’s effectiveness on AbilHand outcome measure was (Hedge g = .230; p = .337). The overall MT’s effectiveness on FMA-WH and FMA-UA was (Hedge g = .400; p = .053). MT was found to be an effective intervention for post-stoke individuals only in the study of Arya et al. (2015) on the FMA-WH outcome measure. However, MT intervention was not statistically significant on AbilHand, FMA-UA and FMA-WH in other studies included in the forest plot.

Implications:
The information obtained from this review can assist Occupational Therapists (OTs) in terms of enhancing their knowledge and awareness when consider using MT as part of their intervention for post-stroke clients. One drawback identified was the limited number of studies included in this meta-analysis. By modifying the meta-analysis inclusion criterion and thereby including greater number of studies in the meta-analysis, the overall quantity of study participants increase. This greater sample size strengthens the effectiveness of MT intervention on the aforementioned outcome measures.
Higher Levels of Perceived Groove in Music Improve Spatiotemporal Parameters of Gait During Accelerated Rhythmic Auditory Stimulation
Poster # 16

Emily A. Ready, Dr. Lucy M.J. McGarry, Dr. Jeffrey D. Holmes, & Dr. Jessica A. Grahn

Background:
People have an automatic desire to move when they hear music, and listening to music can regulate movement patterns. Rhythmic auditory stimulation (RAS) is a therapeutic strategy that applies this principle in rehabilitation among people with abnormal gait (such as Parkinson’s disease or stroke). During RAS, users are typically instructed to synchronize footsteps with a musical beat that is presented at an individualized speed to match or be slightly faster than the user’s baseline walking pace. Spatiotemporal parameters of gait (e.g., stride length) during RAS can be influenced by musical groove (how much the music induces a desire to move), which elicits larger and faster strides than low groove music when walking at normal pace. However, RAS outcomes vary significantly across individuals and many factors remain to be optimized. One potential factor is whether participants are instructed to synchronize to the beat or not. Instructions to synchronize may be detrimental to participants who have difficulty perceiving a beat by increasing cognitive demand, which is known to impair gait.

Purpose:
To examine how task instructions (instructed to synchronize vs. uninstructed) and beat perception abilities influence spatiotemporal parameters of gait (stride length, stride time, and stride velocity) when walking to high and low groove music during accelerated RAS.

Methods:
Healthy young adults (n = 80) were randomly allocated to either synchronized (instructed) or free-walking (uninstructed) RAS. In both conditions, participants walked across a 16-foot sensor walkway 16 times (totaling 256 feet) to assess baseline gait parameters. Participants then walked to high and low groove music that was adjusted to be 15% faster (beats per minute) than baseline cadence (steps per minute). Finally, participants completed the Beat Alignment Test to measure beat perception ability.

Findings:
Results indicate that RAS elicited longer and faster strides, but only when stimuli were high groove. In high groove conditions, stride velocity, stride time, and stride length significantly improved relative to low groove music. Significant interactions between groove and instruction demonstrate that instructions influence how musical properties effect gait, specifically synchronization enhances the beneficial effects of high groove music and increases the detrimental effects of low groove music. Beat perception abilities did not influence gait responses.

Implications:
These results may allow clinicians to maximize the benefits of RAS in Parkinson’s disease by individualizing interventions. Individualized interventions may produce healthier and more consistent outcomes and consequently facilitate engagement in meaningful occupation.