Abstracts, Canadian Physiotherapy Association National Congress 2016

Best Practice

Abstract Presentations

A005 Measuring ‘Illness Perceptions and Behavior’ in People with Knee Pain/Osteoarthritis
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Purpose/Objectives and Rationale:
We sought to identify validated measures that capture illness perception and behavior and have been used to assess people who have knee pain/osteoarthritis.

Relevance:
The assessment of ‘illness perception and behavior’ can help to recognize illness and inform the implementation of strategies for managing pain and disability.

Materials and Methods:
We performed a scoping review. Nine electronic databases were searched for publications from inception through April 19, 2015. Search terms included illness perception, illness behavior, knee, pain, osteoarthritis, and their related terms. This review included primary research publications on people with knee pain/osteoarthritis who were assessed with validated measures capturing any of four components of ‘illness perception and behavior’: monitor body, define and interpret symptoms, take remedial action, and utilize sources of help.

Analysis:
Two reviewers independently coded and analyzed each relevant measure using the four components as predetermined codes and directed content analysis.

Results:
We identified sixteen relevant validated measures within seventy-one publications. These measures were originally developed to capture constructs that include coping strategies/styles, illness belief, illness perception, self-efficacy, and pain behavior. Coding results indicated that five, eleven, twelve and five measures included the monitor body, define and interpret symptoms, take remedial action, and utilize sources of help components, respectively. Several validated measures were interpreted as capturing some components, and only one measure was interpreted as capturing all four components of ‘illness perception and behavior’ in the target population.

Conclusions:
This paper is a useful resource for physical therapists when selecting measures to assess ‘illness perception and behavior’ in patients with knee pain/osteoarthritis.

Keywords: Knee, Osteoarthritis, Pain, Illness Perception, Illness Behavior

A006 Patterns of Sedentary Behaviour and Physical Activity in Older Adults Post Hip Fracture
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Purpose/Objectives and Rationale:
Decreasing sedentary time and increasing activity may contribute to older adults’ recovery from hip fracture. We aimed to test a follow-up clinic for older adults after hip fracture on light physical activity (LPA) and sedentary behaviour (SB) patterns. We also explored activity patterns between genders.

Relevance:
Physiotherapists manage mobility recovery after hip fracture.

Materials and Methods:
The B4 study was a parallel-group, 1:1 single-blinded randomized controlled trial for older adults after hip fracture. The usual care (UC) group received standard post-operative management; intervention group (B4) received usual care plus management by geriatrician, physiotherapist and other professionals. We enrolled older adults with recent hip fracture and measured LPA and SB using accelerometry at baseline, 6 and 12 months.

Analysis:
We described continuous data using medians (p10, p90) and differences using 95% confidence intervals [CI] using linear regression (Stata V.13).

Results:
We enrolled 53 participants, mean age (SD) 79.5 (7.8) years, 34 women and 19 men. Median (p10, p90) BMI was 25.35 (20.41,30.38). At midpoint (end of intervention), median minutes/day [95% CI] SB among the B4 group was 36.9 [-17.1 to 91.0] minutes lower than the UC group and median [95% CI] LPA was 37.08 [-86.9 to 12.7] minutes higher. Compared with women, men showed more SB (55.4 [-110.9 to 0.20] minutes) and less LPA (52.7 [-1.5 to 103.9] minutes) at midpoint.

Conclusions:
Older adults after hip fracture spend most of their waking hours sedentary. Breaking up prolonged sitting, especially in men, should be incorporated into recovery goals.

Keywords: Hip fracture, Older adults, Sedentary behaviour, Physical activity, Accelerometry
A008  Hand Grip Strength and Balance As Predictor of Bone Mass Among Women with Wrist Fracture

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Purpose/Objectives and Rationale:  
To determine the extent to which modifiable risk factors such as balance, muscle strength and physical activity can explain variability in bone mineral density (BMD) among post-menopausal women (PMW) with distal radius fracture (DRF).

Relevance:  
DRF is an early & independent predictor of future osteoporotic (OP) fractures. Currently, there are no studies evaluating the role of modifiable risk factors on OP fracture risk in PMW with DRF.

Materials and Methods:  
The study was designed as a cross-sectional investigation of baseline data. 50-80 year old PMW with DRF were assessed for balance, muscle-strength (grip strength, plantar-flexion) and physical activity using reliable and validated measures. Dual-energy-X-ray-absorptiometry was used to assess areal-BMD at femoral-neck (BMD-FN) and total-hip (BMD-TH).

Analysis:  
Stepwise multiple regression analysis was used to determine the extent to which modifiable risk-factors (predictor) could explain variability in the BMD (outcome) in overall and age-stratified sample.

Results:  
67 women (mean age: 62.12±7.45 years) with completed data were analyzed. Hand grip strength was the only independent predictor explaining 15 % (F= 11.26, p<0.001) and 6% (F= 4.18, p=0.04) of total variability in BMD-FN and BMD-TH respectively. Balance (R² =0.10, F= 4.35, p=0.04) and hand grip strength (R² =0.32, F= 10.78, p=0.003) alone explained significant variability in BMD-FN among 50-64 year (n=41) and among 65-80 year (n=25) old PMW with DRF respectively.

Conclusions:  
Hand grip strength is the independent predictor of femoral neck and total hip BMD in PMW with DRF. We recommend evaluation of hand grip strength and balance as a component of OP risk factor assessment among PMW with DRF.

Keywords: wrist fracture, osteoporosis, postmenopausal, bone health, muscle strength

A010  Physiotherapy Student Experience of Mistreatment on Clinical Placements

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Purpose/Objectives and Rationale:  
To explore the prevalence of mistreatment during clinical placements experienced by physical therapy students in one Canadian jurisdiction.

Relevance:  
A systematic review found that close to 60% of medical learners had experienced mistreatment during their training (Fnais et al., 2014). Whiteside et al. (2014), found that up to 25% of PT students had been subject to bullying in the United Kingdom; 84% of which went unreported. It is currently unknown if there is cause for similar concern in the Canadian context of physiotherapy education.

Materials and Methods:  
An on-line anonymous survey was undertaken of all physiotherapy students at one Canadian university following completion of clinical placements from 2013 to 2015 (n=390). An overall response rate of 54% was achieved. Further details were gathered through an anonymous in-class survey in February, 2015 (n=49, 100% response rate).

Analysis:  
Descriptive trend analyses were performed by year and clinical practice area.

Results:  
45% of respondents to the in-class survey reported mistreatment compared to 5% in the on-line survey. This difference may be explained by the greater depth in survey questions used in-class. Mistreatment included public embarrassment (74%); unwanted sexual advances (65%); extended work hours (37%); threats of physical harm (30%); racism (27%); and offensive sexist remarks (20%). Of note, only 25% of students actually reported any mistreatment to an authority.

Conclusions:  
Physical therapy students in Canada are at risk of mistreatment. Physiotherapy programs and faculty must anticipate such possible experiences and be prepared by having appropriate services and responses in place.

Keywords: mistreatment, students, clinical
A017  A Scoping Review of Therapeutic Alliance in Musculoskeletal Rehabilitation
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Purpose/Objectives and Rationale:
Emerging research from physical rehabilitation indicates that physiotherapists can influence the outcomes of rehabilitation through therapeutic alliance (TA). TA has been linked to improved treatment adherence, patient satisfaction and outcomes. We aimed to map out the current state of literature with regards to TA in physiotherapy and occupational therapy to advance knowledge in this area.

Relevance:
TA is an important aspect of rehabilitation that influences patient response to treatment through improved patient and therapist dynamics in clinical practice. However, it remains poorly understood and unexplored making it difficult to tap into its potential as a covariate of rehabilitation outcome.

Materials and Methods:
A scoping review was conducted by searching multiple electronic databases to identify a comprehensive body of therapeutic alliance in musculoskeletal rehabilitation literature that was classified into eight themes.

Analysis:
Meta-data for each study was abstracted and descriptive statistics were used to summarize the results.

Results:
105 studies met the inclusion criteria with from 71% from physiotherapy. Most studies were quantitative (36%), investigated low back pain (25%) and performed in North America (32%). The working alliance inventory was the most utilized measure of TA, being cited by 19% of 36 studies. 40% of the studies explored therapist-related barriers to treatment with 70% reflecting the patient’s perspective. Studies exploring adherence and TA represented 29% of the literature and only 20% of the studies were RCTs.

Conclusions:
The current study provides a comprehensive summary of the existing literature on therapeutic alliance in MSK rehabilitation. Several knowledge gaps were identified and have generated a rationale for future research priorities.

Keywords: Therapeutic Alliance, Therapeutic Relationship, Physiotherapy, Musculoskeletal

A021  Perceptions of Leadership: Comparing Physiotherapists’ Views in Canada and Ireland
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Purpose/Objectives and Rationale:
To contribute to the growing body of research on leadership in physiotherapy by comparing leadership-related perceptions of physiotherapists in Ireland and in Canada.

Relevance:
Culture has an effect on perceptions and enactment of leadership. At present there are no cross-cultural comparative studies of leadership in physiotherapy.

Materials and Methods:
Members of the Canadian Physiotherapy Association (CPA) were surveyed on their perceptions of leadership in an earlier study. This study was replicated in Ireland and the survey administered to members of the Irish Society of Chartered Physiotherapists (ISCP). The survey asked respondents to rate how important they perceive each of fifteen characteristics to be to leadership in three settings; the workplace, the healthcare system and society. Respondents were also asked if they perceived themselves to be a leader.

Analysis:
Frequencies and percentages were calculated for the ratings of each characteristic. Two-portion Z-tests were performed to compare the percentage of physiotherapists in Ireland who self-declared as a leader with the percentage of physiotherapists in Canada who did so.

Results:
Physiotherapists in both Ireland and Canada most often rated communication and professionalism as ‘extremely important’ characteristics. Physiotherapists in Canada were more likely than those in Ireland to perceive themselves as leaders (Z=2.67, p < 0.05; 95% CI, 1.33–9.87%). Factors associated with self-declaration as a leader differed between the two countries.

Conclusions:
Physiotherapists in Canada and Ireland showed both similarities and differences in their perceptions of leadership characteristics. Results from this study may aid the development of future leadership training programmes specifically targeted at physiotherapists.

Keywords: Leadership, physiotherapy specialty, culture, comparative study
A026 Impact of Explicit Information on Implicit Motor Sequence Learning in Acute Stroke

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Purpose/Objectsives and Rationale:
To study the effect of explicit information on the implicit motor learning in the acute stage of stroke. In patients with chronic stroke, some investigators have reported the beneficial effect of explicit instruction on implicit motor sequence learning while others have shown detrimental effect. Duration of the onset of stroke may also have an impact on the interaction of explicit information on implicit motor sequence learning. However, there is not much literature available for such interaction during the acute stage of stroke

Relevance:
Motor learning mechanisms are operative during the spontaneous recovery after stroke. Physical therapists often use explicit information (declarative learning) while helping patients reacquire functional skills during early rehabilitation

Materials and Methods:
Twenty two individuals with unilateral anterior circulation stroke were randomly assigned into two groups. One group was provided with explicit information and one group was not, as the subjects practiced an implicit motor sequencing task using the ipsilesional arm over 3 days, with a retention test on day 4. Reaction time was measured by Reaction time apparatus to assess implicit learning

Analysis:
The variables were analyzed using independent t-test for between group comparisons and paired t-test for within group comparisons

Results:
Participants provided with explicit information demonstrated better learning of implicit motor task, whereas the subjects who did not receive explicit information did not show improvement on retention test

Conclusions:
Our findings suggest that explicit information when given prior to physical practice improved implicit motor sequence learning in acute stage of stroke; however subjects were not able to express it explicitly

Keywords: Explicit, Implicit, Motor learning, stroke

A045 Survey of Physical and Occupational Therapists’ Virtual Reality Use and Learning Needs

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Purpose/Objectsives and Rationale:
To determine an effective program of resistance training for early phase rehabilitation following acute myocardial infarction (AMI).

Relevance:
Frequently therapists are approached for guidance regarding resumption of resistance programs. Therapists are hesitant to endorse resistance training post AMI as traditionally rehabilitation programs advised against it.

Materials and Methods:
A systematic review of the literature was completed utilizing a broad search strategy and seven common databases. Search terms focused on the cardiovascular disease group, rather than solely on AMI, and various versions of the term resistance training. Two independent reviewers, by consensuse, selected final articles for inclusion using title review, abstract review and article review. Research studies that investigated individuals post AMI who participated in resistance training were included.

Analysis:
A narrative evaluation of the studies was completed as they were not amenable to meta-analysis.

Results:
The search yielded 14,818 unique titles. Eight hundred and seventy-one were chosen for abstract review which yielded 135 articles. Sixteen articles were chosen for indepth review. Only four articles truly met our inclusion criteria and another three validated safety of resistance training. Combined resistance and aerobic training beginning 4-16 weeks post AMI with moderate levels of arm + leg resistance has positive physiological results. No critical incidents were reported in any of the studies.

Conclusions:
Evidence of the efficacy of resistance training in the acute phase post AMI is scarce. No studies were found supporting resistance training in the first four weeks post AMI. Current evidence suggests that individuals should wait until at least four weeks post AMI to begin supervised training.

Keywords: Acute Myocardial Infarction, resistance, rehabilitation, cardiology

A033 Effectiveness of Resistance Training Post Acute Myocardial Infarction

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Purpose/Objectsives and Rationale:
Despite increasing evidence supporting the effectiveness of virtual reality (VR) interventions for many client populations, little is known about its use by Canadian physiotherapists (PTs) and occupational therapists (OTs). The purpose of this study was
Feasibility of Translating Parkinson Wellness Recovery into Practice: A Pilot Study
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Purpose/Objectives and Rationale:
To explore the feasibility of translating Parkinson Wellness Recovery (PWR), a Parkinson-specific exercise program, into clinical practice for people with mild to moderate Parkinson's Disease (PD) that do not regularly engage in exercise.

Relevance:
Current research shows intensive exercise therapy as feasible, safe, and beneficial for people with PD. PWR, developed by Dr. Becky Farley, is about early intervention, enrichment, education, and empowerment to improve longevity and quality of life for people with PD. However, the feasibility of implementing PWR to individuals who do not participate in exercise normally is not known.

Materials and Methods:
Eligible participants had a confirmed diagnosis of PD and previously did not exercise routinely. Each participant engaged in 60-minute group sessions, 2x/week for 8 weeks. Pre and post intervention measures were tested, which included gait speed, 5x Sit to Stand, and Timed Up and Go (TUG). Investigators also looked at Dynamic Gait Index, Functional Reach test, Activities specific Balance Confidence Scale, and Ratings of Perceived Exertion (RPE).

Analysis:
Average change scores were calculated from pre and post assessments.

Results:
Six participants enrolled in the study. One dropout occurred due to medical reasons. No adverse events occurred. All measures remained close to the same or demonstrated slight improvement. Participants showed greatest improvements in average gait speed (+0.1m/s), TUG (< 1.1s), and reported RPE as 3.1 points less out of 10 post-intervention.

Conclusions:
Results indicate a small positive response to the PWR-based program. However, more research is recommended to determine optimal exercise parameters and strategies for increased participation in PWR for this sub-population.

Keywords: Parkinson's Disease, exercise, group-based, neuroplasticity, motor function

Effect of Nordic Walking on Individuals with Parkinson's Disease: a Systematic Review
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Purpose/Objectives and Rationale:
Parkinson's disease (PD) is a neurological condition that causes impairments including rigidity, bradykinesia, tremor and postural instability which contribute to reduced mobility and quality of life. Nordic walking (NW) is a safe and accessible mode of exercise for healthy individuals and some patient populations, though it’s effect on individuals with PD has not been adequately established. This review examined the effectiveness of NW programs in a PD population.

Relevance:
Identification of beneficial modes of exercise to prescribe PD patients will improve the care physiotherapists provide this population.

Materials and Methods:
Evidence was compiled from six articles of varying research designs written between October 1946 and October 2014 selected from the following databases: Medline, EMBASE, PubMed, SPORTDiscus, PsycINFO, and CINAHL. Two independent reviewers...
identified studies that used NW programs of at least two weeks in length and measures of quality of life and functional mobility. Quality of articles were assessed using Down’s and Black quality assessment tool.

Analysis:
Data was synthesized by calculating the Cohen’s d effect size and relationships were analyzed.

Results:
NW programs improve gait speed, Timed up and go (TUG), Parkinson’s disease questionnaire (PDQ-39), and unified Parkinson’s disease rating scale (UPDRS) scores. Three NW programs reported significant improvements compared to conventional exercise programs in all four outcome measures.

Conclusions:
This review supports the implementation of NW programs to improve ambulation, functional mobility and quality of life for individuals with Parkinson’s disease. Further research utilizing larger sample sizes must be performed to validate it as an optimal mode of exercise for this population.

Keywords: Parkinson’s disease, Nordic walking, Quality of life, Functional mobility

A052  A Multimodal Approach for Functional Mobility Gains in an Incomplete SCI: a Case Report
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Purpose/Objectives and Rationale:
To provide a case study example of a multimodal approach of Lokomat® (robotic gait orthosis), body weight supported treadmill training (BWSTT), and functional task training in helping an individual with an incomplete C4 spinal cord injury achieve their functional mobility goals.

Relevance:
Learning how to walk after a serious neurological injury is often the major goal of rehabilitation. Optimal training parameters using new technological tools such as the Lokomat and BWSTT to augment conventional therapy have not been well-established.

Materials and Methods:
Participant is a C4 incomplete SCI discharged from a rehabilitation facility. Physiotherapy led interventions took place over 15 months, 3x/week, for 60 minute sessions. Assessment of sit to stand, standing balance, ambulation, and transfers were recorded over the continuum of this treatment. The use of Lokomat vs BWSTT vs conventional therapy (mat or overground work) was determined by the treating physiotherapist.

Analysis:
No statistical data analysis.

Results:
Participant improved on all functional outcome measures. Participant progressed from no standing to independent standing, sliding pivot transfer to step around transfer, and ability to ambulate using a four-wheeled walker with minimum assist from no walking at all. Sessions always included functional task training on a weekly basis, but gradually progressed from Lokomat to BWSTT sessions.

Conclusions:
This case study demonstrates the benefits of physiotherapy using a multimodal approach. Lokomat was an effective method to initiate gait re-training and functional mobility, with the gradual progression to BWSTT. Conventional therapy was used throughout the rehabilitation process to provide an opportunity to apply newly gained skills in a functional manner.

Keywords: Incomplete SCI, functional mobility, Lokomat, body weight supported treadmill training, gait

A055  Post-Stroke Inpatient Rehabilitation Clients Whose Rehabilitation Goals Were Not Met
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Purpose/Objectives and Rationale:
Upon admission to inpatient rehabilitation (IR), clients and therapists work together to devise personalized goals as part of treatment planning. However, despite treatment efforts, a small proportion of clients do not meet their IR goals. This analysis identifies group characteristics of stroke clients who did not meet expectations for their course of recovery during IR.

Relevance:
94.7% of the cohort was treated by a physiotherapist during IR.

Materials and Methods:
Using data from the CIHI National Rehabilitation Reporting System (NRS), first-time stroke clients discharged over a 3-year period (2012–2014) were examined based on their reason for discharge from IR.

Analysis:
Clients were divided by whether their rehabilitation goals were met (N=16620) or not met (N=1727). Descriptive statistics were used to analyze outcomes by sex, age, FIM® function score on admission and FIM® change scores, discharge wait days and proportion of clients who returned home upon discharge.

Results:
Approximately 10% of clients did not meet their goals upon IR discharge. These clients were older, had significantly lower function upon admission, had lower functional gains and experienced more days awaiting discharge from IR. For all clients admitted from home, the proportion who met their goals and returned home immediately after IR was approximately 10 times the proportion of clients who returned home having not met their goals.

Conclusions:
This analysis suggests that following stroke, IR goal setting and attainment is less successful with groups of older, more functionally impaired clients. Methods to improve prediction of clinical
outcomes and response to IR may improve treatment planning for physiotherapists in IR.

**Keywords:** Inpatient, Rehabilitation, Stroke, Goal Achievement

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**Proposal Presentations**

**P002  What’s Next After Discharge? Meeting Patient Needs with Community-Based Exercise**

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**Learning Objectives and Session Content:**

- As discharge approaches, patients often become concerned about how to maintain the gains they have made during rehabilitation. People with disability already living in the community are also concerned about the limited access to appropriate exercise programs to maintain their function, health and well-being. To respond to these needs, a community-based exercise program (C-BEP) was developed for adults with balance and mobility limitations related to a range of underlying chronic conditions.

An innovative partnership model between health care and community recreation organizations is the foundation of the program. By pooling their skill sets, a safe and beneficial group exercise program is delivered at community centres. Since its initiation in 2007, the program has expanded to more than 35 locations in three provinces, demonstrating its scalability.

At the end of this session, participants will be able to:

1. Summarize the features of the C-BEP that make it feasible, beneficial and safe, essential for translation to a community setting.
2. Explain how the C-BEP is an easily replicated model with standardized educational materials and a task-related exercise program in a circuit format packaged in a toolkit to facilitate implementation.
3. Identify the important roles for Physiotherapists (PTs) in developing local partnerships with community recreation facilities and providing ongoing education and support to fitness instructors to sustain program integrity from program launch to maintenance.

**Relevance to the Physiotherapy Profession:**

PTs play an integral role in the solution of how and where to exercise for people living with disability in the community. Their concern for the well-being of patients after discharge, particularly with the trend toward shorter lengths of stay, not only sparked the initial development of the C-BEP but also the expansion of the program to more locations. Through their involvement, PTs apply their expertise and skills to new roles and opportunities within the C-BEP. For example, as a collaborator, the PT facilitates the development of relationships with his/her local community centre to start up the C-BEP. As an educator, the PT trains fitness instructors to lead the task-related exercise class in the community centre. As a mentor, the PT periodically visits the classes supporting the instructors to maintain program quality and safety. As an advocate, the PT increases access to exercise in the community thereby supporting healthy activity for discharged patients.

Thus, the relevance to the profession is a new avenue for PTs to lead in promoting health and well-being in their communities through education and partnerships with other organizations external to health care. Finally, PTs and health care teams not directly involved in the C-BEP but seeking exercise opportunities in the community for their discharged patients can be confident in referring them to this safe, evidence-based exercise program with ongoing program quality control.

**Target Population:**

This session will interest clinicians, practice leaders, health network/system planners, educators, students and researchers with an interest in increasing access to safe and effective exercise in the community for people with disability.

**Description of Supporting Evidence:**

Task-related training in a circuit format is effective in improving balance and mobility among people with stroke (level of evidence: systematic review and meta-analysis). Grouping participants with similar functional deficits from a range of neurological and orthopaedic conditions in an exercise class appears feasible and may help optimize access to appropriate exercise programs (level of evidence: expert opinion). Evidence suggests that task-related exercise programs delivered by fitness instructors who are trained and supported by PTs, are safe, feasible, and effective in improving balance and walking capacity for people with stroke (level of evidence: non-randomized controlled trial).

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5. Salbach, N.M., Howe, J., Brunton, K., Salisbury, K., Bodiam, L. (2014). Partnering to increase access to community exercise...
programs for people with stroke, acquired brain injury or multiple sclerosis. J Phys Act Health 11: 838-845.

Description of Session Format:
This session will be in lecture format with opportunity for discussion about successes and overcoming challenges to C-BEP implementation and sustainability. Attendees will also view a video of the program which includes interviews with participants, health care and community centre partners, and participate in a selection of the task-related exercises in the circuit.

Conclusions and Implications:
People with balance and mobility limitations are at risk for sedentary lifestyles and declines in functional ability and health status. Ongoing access to exercise for this population is essential to mitigate this risk. Implementing and sustaining the C-BEP is a challenge for both the health care system or community recreation providers working in isolation. Partnerships between health care and community organizations are necessary to increase capacity for safe and appropriate exercise programs that provide an exit point from the health care system and an entry point to the community.

This model of service delivery demonstrates how inter-organizational partnerships and inter-professional education achieved the expansion of a community exercise program. Using this scalable program, PTs can be successful in leading and advocating for exercise opportunities beyond hospital or clinic walls to positively impact community health.

Keywords: exercise, community, partnerships, advocacy, education, implementation

P003  TJAOM Toolkit to Support Use of Outcome Measures for Joint Arthroplasty Rehabilitation

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Learning Objectives and Session Content:
This session will build on previous Congress sessions by 2 of the presenters that focused on using outcome measures in clinical practice. It will highlight the completed Total Joint Arthroplasty Rehabilitation Measure (TJAOM) online toolkit developed in BC. By the end of this session, participants will be able to:

1. Describe the current state of outcome measurement for TJA in BC in terms of:
2. Which outcome measures are being used
3. Who is using them
4. What are the challenges to using them
5. Access and use the resources in the multi-modal TJAOM toolkit
6. Through use of case studies, demonstrate the selection, administration, scoring, interpretation and reporting of a patient-reported and performance-based outcome measures for a person undergoing TJA surgery.

Relevance to the Physiotherapy Profession:
Total joint arthroplasty (TJA) is an increasingly common surgery throughout Canada. In 2012-13, more than 100,000 TJA surgeries were performed of which approximately 14 thousand were on British Columbians (CIHI, 2014). This number is expected to grow as the population ages and incidence of hip and knee osteoarthritis increases. Most of these patients receive physiotherapy services at some point along the continuum of care from the pre-operative phase through the acute care stay and post-acute recovery. Rehabilitation services are provided in a number of clinical settings and thus patients can encounter many different physiotherapists along this care continuum. Determining which outcome measures are applicable and feasible across care phases is challenging yet would allow therapists to more effectively monitor patient progress and compare treatment effectiveness. This session will build on discussions started at Congress 2009 by introducing one strategy to increase outcome measure (OM) utilization in the TJA population through use of the multidimensional TJAOM toolkit which has been accessed extensively provincially, nationally and internationally. Further, it will give participants the opportunity to familiarize themselves with the toolkit and learn how its various components may be of value in their own clinical practices and outcome evaluation/quality improvement efforts in TJA care.

Target Population:
Clinicians, Practice Leaders and Operational Managers

Description of Supporting Evidence:
The number of total hip (THA) and total knee arthroplasty (TKA) surgeries in Canada is on the rise. This is in part due to the aging of the population, increasing prevalence of obesity, and a growing number of adults with hip and knee osteoarthritis. Together with technical and procedural advances in arthroplasty surgery and greater patient expectations, one can expect the demand for THA and TKA to continue to grow. While a relatively small contributor to the overall costs associated with TJA surgery, rehabilitation costs in the first 12 months after surgery is on the rise and can account for as much as 18% of total hospital reimbursements for Medicare and Medicaid patients in the United States. Large international joint replacement registries have been successful in collecting short-term peri-operative data and long-term surgical outcomes; however, few record patient outcomes in a prospective manner to guide individualized patient care and inform rehabilitation services and allocation of resources. Despite the appreciation that appropriate use of OMs can inform clinical decision-making, enhance patient and inter-professional communication, and help to predict which patients will require more services, the utilization of these measures to guide practice across the continuum is currently suboptimal. Measurements are often taken primarily at admission and discharge, sometimes at admission only and even if the scores are analyzed and collated they are not consistently used to guide day-to-day practice. Physiotherapists are often confused about the selection, administration, and interpretation of outcome measures. For OMs to be useful in clinical decision-making and be meaningful to patients and rehabilitation providers, tools need to meet both standard psychometric criteria and clinical utility properties. As well, clinicians need to be informed on how best to administer, interpret and report the information from OMs to inform practice.

Creative strategies are required to incorporate OMs into routine practice. Furthermore, barriers to using measures need to be
identified and addressed if sustained change in clinician behaviour is to occur. In 2010, we conducted a province-wide survey of physiotherapists in British Columbia to determine their awareness and use of standardized OMs in osteoarthritis and TJA care. Results (n=172) showed a majority of therapists provided TJA rehabilitation care in more than one care phase and had greater experience using performance-based tools than patient reported outcome measures (PROMs). Respondents also identified a number of challenges to routine use of outcome measures.

This study and other related projects informed the development of an online resource for clinicians – the TJAOM toolkit (http://physicaltherapy.med.ubc.ca/physical-therapy-knowledge-broker/total-joint-arthroplasty-and-outcome-measures-tjaom-toolkit/). The toolkit was produced by a taskforce of clinicians and researchers over a 2-year period and facilitated by a PT Knowledge Broker. It includes recommendations for both PROMs and performance-based tools along with supporting evidence on their validity, reliability and responsiveness in the TJA population. It is comprised of printable materials, online learning modules with videos and self-tests in addition to templates for discharge letters.

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4. Kennedy DM, Stratford PW, et al. Using outcome measure results to facilitate clinical decisions for the first year after total hip arthroplasty. J Orthop Sports Phys Ther. 2011;41(4):232-9.
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Description of Session Format:
1. Presentations
   • A summary of the current state of OM use for TJA in BC
   • A description of the development of the TJAOM toolkit and how to use it
2. Break out groups based on case studies to select, administer, score, interpret and report on patient reported and perform-
ance-based OMs through use of the TJAOM toolkit. Small groups will report back to the larger group on their choice of OM and how information from this tool could help to inform clinical practice.
3. Panel discussion with the 4 presenters on barriers and facili-
tators to using TJA measures in varied clinical settings

Conclusions and Implications:
This session will provide participants with the opportunity to dis-
cuss challenges to integrating standardized OMs in to their clinical practices and introduce a knowledge translation (KT) strategy - the TJAOM toolkit - designed to address some of these common challenges. The inclusion of different perspectives provided by a panel incorporating a researcher, a knowledge broker, physio-
therapist team leader and physiotherapist educator/clinician ensures that the varied needs of participants will be addressed.

Keywords: outcome measures, total joint arthroplasty, rehabilitation, knowledge translation

P004 Putting Physiotherapy First: Lumbar Spinal Stenosis
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Learning Objectives and Session Content:
On completion of this session, participants will:
1. Understand the evidence surrounding surgical based care of spinal stenosis including risk, cost and outcomes.
2. Understand the evidence supporting physiotherapy inter-
ventions for lumbar spinal stenosis.
3. Have knowledge of physiotherapy best practice assessment and treatment for lumbar spinal stenosis.

Relevance to the Physiotherapy Profession:
It is anticipated that the incidence of lumbar spinal stenosis will continue to grow with our aging population. As emerging evidence indicates that physiotherapy can provide a low risk and cost effective alternative to surgical interventions, physiother-
apists can use this information to provide improved care for their patients presenting with lumbar spinal stenosis.

Target Population:
As lumbar spinal stenosis is an orthopaedic condition that af-
ficts older adults, it is anticipated that this session will appeal to physiotherapists working in both geriatrics and orthopaedics.

Description of Supporting Evidence:
Lumbar spinal stenosis is a relatively frequently seen condi-
tion in the older population and is defined as a focal narrowing of the spine that causes compression of the neural elements. Patients typically report either unilateral or bilateral leg pain that comes on with walking and standing and is relieved by sitting down. Lumbar spinal stenosis is typically the result of acquired degenerative changes in the spine but can also potentially be of a congenital nature or as a result of a previous trauma. The leg symptoms that come on with this condition are hypothesized to be a result of neural or vascular compression or possibly both. As our population ages, it is anticipated that LSS will become an increasingly common condition in the coming years.

The utilization of surgical decompression with or without fusion for lumbar spinal stenosis has increased significantly since 1980. A number of trials have investigated the efficacy of surgery and conservative management of lumbar spinal stenosis. The Spine Patient Outcome Research Trial compared surgical intervention for lumbar spinal stenosis with conservative management of the condition. At four year follow-up, those patients receiving surgery demonstrated significantly improved outcomes with respect to Oswestery Disability Questionnaire and SF-36 bodily pain scores when compared to those patients managed conserva-
tively. It should be noted that only 44% of patients in the conservative care group actually received physiotherapy and no specific protocol was provided for the physiotherapy group. A prospective cohort of 148 lumbar spinal stenosis patients found that at 8 to 10 year follow-up, both conservative care and surgically treated lumbar spinal stenosis patients had no
significant differences with respect to percentage reporting that they were satisfied with present status and predominant symptom being improved. Interestingly, a significant portion of the conservative patients reported improvements in symptoms over the course of the trial, suggesting that not all patients with spinal stenosis experience a progressive worsening of symptoms. Although there is evidence to support surgical intervention for lumbar spinal stenosis, a recent study identified that there is also significant risk and cost associated with surgery. Deyo and colleagues retrospectively reviewed U.S. Medicare claims for lumbar spinal stenosis patients age 66 and older receiving surgical intervention in 2007. Major medical complications were observed to occur in 3.1% of all surgical patients within one month of surgery and mortality occurred in 0.4% of patients. Those receiving a multilevel fusion for lumbar spinal stenosis had even higher risk of mortality and complications. Along with these high rates of significant complications, cost for surgery averaged $23,000 U.S. dollars for decompression and escalated to $83,000 U.S. dollars for multilevel fusion.

A more recent trial randomized lumbar spinal stenosis patients to either receive surgical intervention or physiotherapy, consisting of flexion based exercises. At two year follow-up, there was no significant differences in outcomes between the two arms of the study. This stated, it should be considered that there was significant crossover from the physiotherapy group to the surgical intervention arm of the study. Interestingly, much of the crossover was reportedly due to the inability of patients to afford the co-payment required for physiotherapy services. Ironically, surgical intervention costs were fully covered, despite being exponentially greater than physiotherapy costs. Traditional physiotherapy typically consists of flexion based exercises for pain relief. Whitman et al. performed a randomized trial comparing flexion based exercises and a walking program to impairment-based manual therapy and exercise in conjunction with an unweighted walking program. The patients receiving impairment-based therapy demonstrated significantly better outcomes in pain and function upon conclusion of the study. At one year follow-up, 62% of the impairment based manual therapy and exercise group reached the threshold for perceived recovery while 41% of the patients in the flexion based exercise group reached the same threshold. The impairment-based physiotherapy group not only received treatment to the lumbar spine but the thoracic spine and joints of the lower extremity were also targeted for manual therapy and exercise-based on examination findings. It could be speculated that impairment-based manual therapy as part of comprehensive physiotherapy treatment may provide benefits beyond that of the Delitto trial.

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**Description of Session Format:**
This educational session will consist of a 45 minute lecture that explores the three stated learning objectives. 15 minutes will be devoted to the discussion of each objective and the lecture will be followed by a question period that will promote active discussion from the audience.

**Conclusions and Implications:**
Based on recent evidence, surgery does appear to provide benefit to patients with lumbar spinal stenosis but comes with potential for significant risk and is a costly intervention. Research indicates that physiotherapy treatment can result in improved long-term outcomes for patients with lumbar spinal stenosis with significantly decreased cost and risk of adverse events when compared with surgical intervention. The use of impairment based exercise and manual therapy treatment of the lower extremity and spine in cases of lumbar spinal stenosis may further improve clinical outcomes beyond those seen with traditional flexion based exercise programs. On this basis, physiotherapy should be a first line intervention for the treatment of lumbar spinal stenosis.

**Keywords:** lumbar spinal stenosis, manual therapy, exercise, surgical decompression

**P005 Optimal Stimulation: Best Practice in NMES for MSK, Neuro and Critical Care Populations**

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**Learning Objectives and Session Content:**
This session will provide participants with an opportunity to learn and trial the most recent recommendations to optimize the use of neuromuscular electrical stimulation (NMES) for the management of common musculoskeletal, neuromuscular and critical care conditions. At the completion of this session, participants will be able to:

1. Describe the key concepts crucial to effective application of electrical stimulation for recruitment and strengthening of muscle
2. Effectively apply NMES for optimal management of muscle function in: knee osteoarthritis; patellofemoral syndrome; postop anterior cruciate repair or total knee replacement; stroke rehabilitation (hemi shoulder and gait); and during critical illness or advanced disease states.

**Relevance to the Physiotherapy Profession:**
Early in 2014, in response to requests from physical therapists across Canada, a team of experts in electrophysical agents (EPAs) commenced a project to develop an evidence-informed resource providing guidance in the effective application of EPAs.
Although the authors’ previous publication *Electrophysical Agents. Contraindications and Precautions: An Evidence-Based Approach to Clinical Decision Making in Physical Therapy,* had become the ‘go-to’ reference nationally and had been impressively accessed internationally to inform safe application of EPAs, there remained a void in terms of a resource to guide effective application of EPAs. The authors subsequently developed the first in a series of resources to address this gap. This resource is currently under review for publication.

This session will provide participants with the opportunity to learn about and to practice optimal application of NMES in conditions commonly treated by physiotherapists.

**Target Population:**
Clinicians who currently use or would consider using NMES as part of patient treatment for muscle weakness/dysfunction.

**Description of Supporting Evidence:**
ACL Reconstruction: After ACL reconstruction presynaptic reflex inhibition of the quadriceps impedes recruitment of motor neurons and atrophy resulting in weakness that jeopardizes joint function, alters gait, and predisposes to reduced functional performance, a greater potential for re-injury and a higher risk of development of osteoarthritis. Two systematic reviews (SRs) have concluded that the addition of NMES to rehabilitation exercises can improve strength and function.

Patellofemoral pain syndrome (PFPS): Quadriceps muscle weakness, particularly of vastus medialis obliquus is believed to play a key role in PFPS. A review of the literature demonstrates the benefit of NMES combined with exercise greater than exercise alone.

Total Knee arthroplasty (TKA): Quadriceps weakness is very common after TKA. Two SRs and 1 update on rehabilitation practice concluded that the functional recovery following TKA can be enhanced by the use of NMES and traditional rehabilitation approaches. The results achieved combining NMES and exercise are greater than those achieved by exercise alone.

Knee Osteoarthritis: NMES is used to promote strengthening, minimize hypertrophy, reduce muscle spasm and increase range of motion at the joint. Both a SR and a SR/meta-analysis concluded that there is moderate evidence in favor of NMES alone or combined with isometric quadriceps exercise in elderly people with knee osteoarthritis.

Stroke - Hemiplegic shoulder: Activation of shoulder girdle muscles in the flaccid shoulder post CVA helps to prevent subluxation and stretching of the soft tissues (contractile and non-contractile) holding the humeral head in place. Five of 6 RCTs showed NMES applied to flaccid shoulder muscles resulted in less shoulder subluxation.

Stroke - foot drop/plantar spasticity/improvement in gait: Of 11 RCTs reviewed, 9 reported positive effects of NMES on leg impairments and/or function.

Advanced disease states: Skeletal muscle proteins break down in advanced disease states and during prolonged periods of immobilization leading to varying degrees of loss of skeletal muscle mass and possible polynuropathy. NMES preserves muscle strength, has potential to enhance joint range of motion, reduce muscle atrophy, improve ventilation and reduce activity limitations; and reduce the duration of mechanical ventilation and ICU length of stay. In adults with COPD, chronic heart failure and cancer, NMES strengthens weak muscles.

**Description of Session Format:**
Part 1: A brief overview of the process undertaken in (1) the selection and synthesis of literature and (2) the consensus process for establishing the recommendations.

Part 2: Participants will select their preferred area of focus: musculoskeletal (ACL, PFPS, TKA, OA), neurological (stroke – hemi shoulder or foot drop) or advanced illness (COPD, heart failure, sepsis, reduced consciousness during critical illness, malignancy and during mechanical ventilation). In these smaller groups, participants will have to opportunity to learn and practice the optimal application of NMES specific to the given pathology.

**Conclusions and Implications:**
This session will permit participants to learn and trial the most up to date and evidence-informed recommendations for best practice in the use of NMES to recruit or strengthen muscle in a number of commonly treated conditions.

**Keywords:** Electrophysical agents, neuromuscular electrical stimulation, strengthening, muscle weakness/dysfunction

**P006 Implementation of Functional Electrical Stimulation in Neurorehabilitation**

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**Learning Objectives and Session Content:**
Functional electrical stimulation (FES) is a therapeutic technology that can be used as an orthosis or as a motor learning tool in neurorehabilitation. FES involves applying an electrical current to cause weak or paralyzed muscles to contract in a specific sequence facilitating functional tasks, like reaching and grasping. Although FES has been shown to be effective in numerous neurological populations, it is not widely used in clinical practice. What prevents the use of FES by physical therapists? How can we address the barriers to its implementation in clinical practice? This session will address these questions by: 1) examining the findings from a Canada-wide survey on the use of FES by physical therapists; and 2) learning about a ‘train-the-trainer’ initiative to educate physical therapists about FES. At the end of this interactive session, participants will be able to:

1. Identify which neurological clients may benefit from FES, and what therapeutic benefits may be seen;
2. Recognize the barriers to, and facilitators of, the implementation of FES in their clinical environment; and
3. Apply strategies, such as the train-the-trainer approach, to overcome a key barrier – a lack of education and training in FES.

**Relevance to the Physiotherapy Profession:**
Following a stroke or other insult to the nervous system, functional tasks like walking are often impaired secondary to deficits in motor control, weakness and/or abnormal muscle tone. A primary goal of physical therapy is to restore this lost function. FES is one intervention that has been shown to effectively address deficits in strength, motor recruitment and abnormal tone. Understanding when and how to introduce FES into client...
care will help physical therapists implement this intervention in clinical practice.

**Target Population:**
This session will be relevant to physical therapists, physical therapy students and assistants, and other health professionals who work with clients with neurological conditions. Researchers in the areas of best practice implementation, motor learning, and neurorehabilitation will also be interested.

**Description of Supporting Evidence:**
Using electrical stimulation to improve function is not a novel concept; in fact, the first research reported on this topic was published over 50 years ago. Since that time, a large amount of research, including systematic reviews and meta-analyses, has been done examining the effects of electrical stimulation on the function of individuals with neurological conditions such as stroke and spinal cord injury (SCI). In these individuals, the application of FES leads to improved strength and function, and can also reduce spasticity. If applied early after a stroke, it is an effective means of preventing hemiplegic shoulder subluxation. Accordingly, FES is recommended as a therapeutic intervention in current best practice guidelines for stroke and SCI rehabilitation.

Despite the strong supporting evidence, Canadian physical therapists do not commonly use FES in neurorehabilitation. A recent survey of 298 physical therapists found that the use of FES in stroke care was low. Furthermore, more than 40% of respondents were unsure of the strength of the scientific evidence supporting FES. Physical therapists identified several barriers to the use of FES in their clinical practice: a lack of resources (time and equipment), a lack of training and education in FES, and a preference to use other interventions. However, 53% of therapists stated that they would like to increase the use of FES in their practice. Thus, investing effort into identifying and implementing effective methods to address the above-mentioned barriers is warranted.

In Alberta, clinicians have implemented a ‘train-the-trainer’ program to educate fellow clinicians in how to use FES in neurorehabilitation; thus addressing a key barrier. This model of knowledge dissemination involves mentors (i.e., clinicians with FES experience) training inexperienced clinicians to teach the topic to other colleagues. The underlying premise of the train-the-trainer model is ‘to teach is to learn twice’. Providing these clinicians with the opportunity to consolidate their learning through teaching is critical. The FES ‘train-the-trainer’ program in Alberta resulted from the formation of a community of practice around FES (i.e., an FES working group). The group was formed in one city and consisted of clinicians from across the continuum of care, including physical therapists and two stroke physiatrists. The goal of this group was to ensure consistent FES equipment and education for clinicians across sites and practice areas. As a first step toward this goal, a free one-day course was offered by the FES working group in collaboration with an external expert in FES. Participants of this course were able, with some additional training, to teach at subsequent FES courses. To ensure consistency across training programs, a glossary of terms, a therapist/therapy assistant checklist, and a patient/family education sheet were created.

Due to the initial success of the train-the-trainer program, the initiative was expanded to two additional Alberta health services zones. Over a three-year period, about 200 clinicians were trained in the basics of FES. As well, about 50 clinicians assisted with the instruction of FES courses and consolidated their knowledge through teaching. A recent survey sent to course participants found that 36% of respondents felt confident in their ability to act as FES mentor for their colleagues, and another 45% felt confident in their ability to provide FES to their clients. This is an indication of the success of the program.

**Description of Session Format:**
The session will involve presentations in lecture format interspersed with whole-group discussions and small group activities to reinforce the content being presented. Participants will have the opportunity to consider and discuss how the train-the-trainer model could be used to encourage the adoption of a best practice guideline in their clinical environment.

**Conclusions and Implications:**
FES is a recommended intervention for the rehabilitation of individuals with a variety of neurological conditions. The implementation of this best practice guideline in clinical practice, however, is limited by several barriers, such as a lack of equipment, time, and training in how to appropriately apply FES. A train-the-trainer program in Alberta has helped to overcome some of these key barriers, and may be used as a model for best practice implementation in neurorehabilitation and physical therapy.

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**Keywords:** functional electrical stimulation, neurorehabilitation, best practice implementation

**P010 Determining Intensity for Rehabilitation of Ambulatory Balance Following Stroke**
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**Learning Objectives and Session Content:**
Determining the level of intensity for balance retraining tasks required to carry over to successful gains in community-level ambulatory balance can be challenging. This session will explore the importance of planning and progressing treatment intensity in the retraining of ambulatory balance post-stroke. We will present new findings of the effects of stroke on the autonomic nervous system and motor control strategies associated with the anticipation of, and reaction to, challenges to standing balance. Considering both the goal of addressing sensorimotor impairments and minimizing potential restrictions to participation associated with decreased balance abilities, we will present an overview of our research addressing retraining ambulatory balance following stroke and its clinical application.

At the end of this session, participants will: 1) have increased knowledge of an evidenced-based motor learning approach for retraining ambulatory balance which focuses on determining the optimal intensity level; 2) understand how to implement objective measurements of balance performance, physiological arousal
and patient perception of balance abilities; and 3) understand how to apply these concepts for retraining ambulatory balance following stroke armed with strategies to address common barriers to implementation in clinical settings.

Relevance to the Physiotherapy Profession:
Determining the optimal “dose” for rehabilitation interventions is a critical component recently identified by the Canadian Stroke Network. Much of the focus of treatment dose to date has been on time spent performing rehabilitation interventions. However, balance retraining requires specific attention to the level of challenge of the task and the effect of that challenge on the individual recovering from stroke. This session will explore the dose of rehabilitation exercise from the perspective of the level of intensity or challenge inherent in the balance retraining tasks and provide clinicians with the opportunity to identify and address barriers to implementing these strategies in their practice.

Target Population:
Our target population is clinicians working with people with neurological conditions affecting balance, particularly people who have achieved independent ambulation. Although the focus will be placed on people post-stroke, there is a great deal of crossover of clinical balance retraining for other neurological conditions e.g. traumatic brain injury, spinal cord injury. In addition, the measurement of the intensity of treatment intervention is transferable to all areas of physiotherapy practice in which balance retraining is performed.

Description of Supporting Evidence:
Rehabilitation of balance following stroke is a critical component of achieving independence. Designing balance retraining interventions which adequately reflect the functional level required for community integration presents significant challenges. Rehabilitation clinical trials are increasingly investigating duration of treatment as a surrogate measure of treatment intensity to guide practice in rehabilitation following stroke. However, intensity from the perspective of patient perception of (and actual challenge of) the task has received less attention. This is an important consideration in the rehabilitation of balance.

Intensity is determined by the level of challenge within the task. Application of the Challenge Point Framework (CPF) of motor learning to rehabilitation of balance post-stroke is useful in developing a clinical framework for treatment planning and progression.1 The CPF suggests that motor learning is optimized when the participant is actively involved in problem solving during the process of finding movement solutions to maintaining or regaining balance. A central component to this framework is determining the appropriate level of difficulty, as measured by error (i.e. loss of balance) experienced by the patient, during the exercise intervention.

Retraining of ambulatory balance that includes the loss of balance can be anxiety provoking for both patients and physiotherapists. Therefore, the consideration of patient perception and emotional responses during balance retraining is important. Fear of falling has been identified as an important predictor of successful community reintegration and the occurrence of falls post-stroke.2 Mounting evidence suggests that the autonomic nervous system arousal associated with the perception of threat and/or emotional state specifically, influences postural control strategies.3 Our research shows that, in comparison to age-matched controls, participants post-stroke demonstrate heightened autonomic physiological arousal and concurrent changes in postural control strategies both in anticipation of and in response to external perturbations, suggesting that people post-stroke perceive challenges to balance as a threat.4 It is important that the level of perceived threat or challenge in the task progress to be comparable to that which would be associated with community mobility to achieve task specificity of motor retraining. Our research agrees with previous findings of dominance of the non-paretic leg in maintaining standing balance; however, it has also shown that increased levels of challenge will engage the paretic muscles of the lower leg in such a way as to behave more similarly to the non-paretic leg.4

Prescribing the intensity of balance retraining following stroke requires physiotherapists to manage the level of anticipated error during practice together with the perceptions of the participant and safety. Community reintegration will place the person post-stroke in varied situations which threaten balance; therefore, rehabilitation should optimize the transferability of skills gained during rehabilitation. Furthermore, performance-based outcome measures should capture community-level balance to ensure that the end-goal of the community is represented. The recent refinement of the CB&M for the stroke population, CB&M Stroke, assists in addressing this clinical need.5 Improvements in both performance on balance tasks and balance self-efficacy are important to be considered and measured following rehabilitation for balance post-stroke. Incorporation of measures to measure appropriate challenge progression and treatment outcomes are important components to ensuring optimal treatment intensity is achieved.

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Description of Session Format:
This education session will comprise lecture and discussion of the barriers to implementation. Participants will be encouraged to actively problem solve together to develop implementation strategies. We will incorporate current findings from our research as well as case studies to highlight the clinical application of findings. The session will include video from practice settings which implemented this approach to balance retraining to demonstrate clinical feasibility.

Conclusions and Implications:
The session will increase knowledge of the effects of stroke on physiological arousal and motor control strategies related to patient perception of the difficulty of the balance task. The proposed session will use participatory teaching strategies to introduce and implement new evidence to inform the rehabilitation of community level-ambulatory balance, and apply clinical reasoning in establishing the training intensity necessary for
Keywords: balance, treatment intensity, stroke, motor learning

P015 The Evolving Role of International Physiotherapy Clinical Internships

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Learning Objectives and Session Content:

At the end of this session, participants will be able to:

1. Understand the definition and importance of international clinical internships (ICIs) in global health (GH) work
2. Discuss current trends and evidence for ICIs in the physiotherapy curriculum
3. Meaningfully discuss the spectrum of outcomes of ICIs and the challenges students and clinical coordinators face during implementation of ICIs.

Relevance to the Physiotherapy Profession:

Physiotherapy has a unique role to play in Global Health (GH) work as the profession addresses disability through rehabilitation and mobility. Physiotherapists (PTs) can play a key role in the equitable provision of health services for all people in a GH context (Crawford et al., 2007). Given this role, logically it follows that PTs would ideally receive a baseline standard of education to prepare them for international work. Many physiotherapy programs offer international clinical internships (ICIs). ICIs are defined as any clinical internship completed anywhere outside of Canada (Crawford et al., 2007). ICIs can be beneficial in preparing students for international physiotherapy work and also for working in the changing cultural landscape of Canada. ICI participation by rehabilitation students has been linked to future practice in public health, multi-cultural practice settings and underserviced areas within local communities (Ahluwalia et al., 2014). Despite an increase in ICIs offered through physiotherapy programmes in Canada, there remains a lack of consistency in GH education, pre-departure training and post-internship debriefing of trainees (Crawford et al., 2007). Addressing this could lead to an increase in mutually beneficial ICI participation on the parts of the hosts and the physiotherapy students thereby enhancing positive experiences and minimizing the potential for negative outcomes experienced by participants and host communities.

Target Population:

This session will be of interest to: 1) Global Health Division (GHD) members; 2) physiotherapy clinicians and students who have an interest in developing, implementing, and/or evaluating GH work or volunteer experiences; 3) Educators and researchers involved in ICI analysis or general curriculum design, with the understanding that GH competencies are an important part of the physiotherapy curriculum.

Description of Supporting Evidence:

Students participating in ICIs have reported an increase in cultural sensitivity, enhanced community awareness, enhanced communication skills, enhanced ability to adapt to varying resources and an increase in clinical confidence (Haq et al., 2000). Furthermore, students often improve their teaching skills during ICIs through health education and workshops within communities (Crawford et al., 2007). Particularly in ICIs in developing countries, exposure to different health care systems and levels of disability has been identified by some as an experience that increased the individual PT’s ability to advocate for the role of physiotherapy in health delivery at the community level (Crawford et al., 2007).

Despite the many benefits of ICIs, a discussion of the potential negative effects on the host community and challenges students face is important. There is potential for ICIs to increase the burden on host partners in developing countries and for potentiating harm when physiotherapy students or faculty have insufficient knowledge of the host community or a deficit in cultural competency (Ahluwalia et al., 2014). In order to mitigate this possibility, pre-departure training has been identified as a strategy to prepare students for international physiotherapy work (Carvajal et al., 2014). However, many Canadian physiotherapy schools currently offering ICIs do not offer formal pre-departure training and there is no consistency of training across rehabilitation disciplines (Crawford et al., 2007, Ahluwalia et al., 2014). The sustainability of ICI programs is also of concern for both the physiotherapy students and the host organizations. Physiotherapy students have identified a gap in knowledge translation across years of ICIs at the same location and academic coordinators of clinical education (ACCEs) at various physiotherapy schools have identified insufficient documentation as a barrier to developing future preparatory activities and areas for improvement (Crawford et al., 2007). Furthermore, investing in formal post-ICI debriefing could not only contribute to physiotherapy students’ professional development, but also to the improvement of the ICI and future student preparedness.

This interactive session will aim to encourage participants to think critically about the impact an unprepared student can have on a host community when participating in an ICI. It will incorporate both the current literature on the topic and anecdotal experiences to foster discussion and engagement. A potential outcome of this session is the propulsion of the development of a more consistent and effective strategy for Canadian physiotherapy schools to employ to ensure the sustainability and effectiveness of ICIs.

References:

Ahluwalia P, Cameron D, Cockburn L, Ellwood L, Mori B, Nixon S. Analyzing international clinical education practices for Canadian rehabilitation students. BMC Medical Education 2014;14:187.

Carvajal J, Camden C, Crowley H. Getting prepared for global health work: Why, what to do and how to do it? Canadian Physiotherapy Congress Panel Presentation 2014.

Crawford E, Biggar J, Leggett A, Huang A, Mori B, Nixon S, Landry MD. Examining International Clinical Internships for Canadian Physical Therapy Students from 1997 to 2007. Physiotherapy Canada 2007; 62(3):261-273.

Haq C, Rothenberg D, Gjerde C, Bobula J, Wilson C, Bickley L, Cardelle A, Joseph A. New World Views: Preparing Physicians in Canada 2007; 62(3):261-273.

Description of Session Format:

First, this session will introduce ICIs and their current role in Canadian PT schools. It will then present the current evidence both discussing the benefits and challenges presented with ICIs. It will include dialogue from individuals who have participated in
IICIs in both the student and educator role and encourage active engagement from participants.

Conclusions and Implications:
In summary, this proposed session would be highly relevant to both members of the GH and CPA Congress attendees who are interested in PT GH work. We aim to encourage personal reflection of the participants’ own experiences in IICIs or GH work and what challenges they faced. We also aim to illuminate the importance of further examination of IICIs and a consistent approach to pre-departure training and post-ICI debriefing across PT schools in Canada.

Keywords: global, health, international clinical internship (ICI)

P019 An Introduction to the Harris Infant Neuromotor Test (HINT)
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Learning Objectives and Session Content:
Upon completion of this 60-minute educational session, participants will be able to: (1) describe the population for whom the HINT is intended; (2) decide if the HINT is appropriate for use with her/his own clients; and (3) identify the importance of parent/caregiver perceptions in informing infant screening.

Participants who attend this special educational session will be introduced to the Harris Infant Neuromotor Test (HINT), a reliable, valid, and norm-referenced tool for screening low-risk (typically developing) or high-risk infants aged 2.5 to 12.5 months. A family-centered test, the HINT can be used to screen healthy infants in the community as well as at-risk infants in early intervention programs, to ascertain if further screening or more comprehensive assessment is needed.

The HINT is comprised of two score sheets: Questions to Parent/Primary Caregiver (5 questions) and Infant Assessment (22 items). The HINT has been designed to differentiate between infants who are developing typically and those at increased risk for developmental delay. Although primarily a neuromotor test, the HINT also includes items aimed at identifying early cognitive or behavioral concerns, e.g., stereotypical behaviors, head circumference.

Relevance to the Physiotherapy Profession:
Paediatric physiotherapists are increasingly involved in screening high-risk infants for neuromotor disabilities, e.g., cerebral palsy, and developmental motor delays. Because cerebral palsy is a movement disorder and there are no lab tests or neuroimaging scans that can reliably diagnose the disorder, physiotherapists play a critical role in contributing to its clinical diagnosis as part of paediatric best practice. As a quick and non-invasive screening test, the HINT can provide an important first step in the overall diagnostic process.

Target Population:
This educational session is targeted at paediatric physiotherapist clinicians, clinical researchers and educators, as well as students interested in infant assessment.

Description of Supporting Evidence:
In a systematic review of the effects of early intervention (birth to 5 years of age) on motor development in at-risk infants, Blauw-Hospers and Hadders-Algra concluded that “substantial evidence has been provided which suggests that specific developmental training and general developmental programmes in which parents learn how to promote infant development can produce a positive effect on motor development.” But early intervention can only be made available to infants who have been identified as at-risk through standardized, norm-referenced screening and assessment procedures. The HINT is a promising, family-focused screening test for detecting motor disabilities or early motor delays that can subsequently qualify either low- or high-risk infants to receive early therapy interventions.

Through psychometric research conducted on the HINT (reliability, concurrent and predictive validity), the test has been shown to: (1) corroborate the parent/primary caregiver’s level of concern about their infant’s movement and play; (2) discriminate between infants at low- and high-risk for developmental motor delay at 4, 5, 7, and 8 months; (3) correctly identify infants who do not have a neuromotor delay; (4) have predictive correlations equal to or slightly greater than those for the Alberta Infant Motor Scale (AIMS); and (5) categorize infants’ levels of motor delay (within normal limits, mild delay, significant delay), the same as with the Bayley-II Motor Scale.

1. Blauw-Hospers CH, Hadders-Algra M. A systematic review of the effects of early intervention on motor development. Developmental Medicine & Child Neurology. 2005;47:421-432.
2. Harris SR. Parents’ and caregivers’ perceptions of their children’s development. Developmental Medicine & Child Neurology. 1994; 36: 918-923.
3. Megens AM, Harris SR, Backman CL, Hayes VA. Known groups validity of the Harris Infant Neuromotor Test. Physical Therapy. 2007:87:164-169.
4. Harris SR, Backman CL, Mayson TA. Comparative predictive validity of the Alberta Infant Motor Scale and the Harris Infant Neuromotor Test. Developmental Medicine & Child Neurology. 2010; 52:462-467.
5. Harris SR. Listening to parents’ concerns: Three case examples of infants with developmental motor delays. Pediatric Physical Therapy. 2009;21:269-274.

Description of Session Format:
This educational session will include ample opportunities for audience questions and interaction, as well as a videotaped observation of a 5-month old infant being administered the HINT. After attending this session, participants will be able to differentiate screening and assessment tools, identify the importance of parent/caregiver perceptions as part of infant screening, and decide if the HINT is appropriate for use within their own practice settings.

Knowledge Translation: A bibliography of HINT publications will be provided to participants. Discussion among participants and the presenter during the session will include whether or not screening typical infants should become part of paediatric physiotherapy practice.

Conclusions and Implications:
Because the HINT was normed on Canadian infants from five different provinces and representative of our nation’s multi-ethnic population, it is an appropriate screening tool for use by Canadian paediatric physiotherapists. It is the only infant motor screening test that incorporates parent impressions or concerns...
about their infants’ movement and play, thus demonstrating the value of family input and the concept that families know their child best. Because infant motor delays may represent the first sign of a global developmental disorder, the earlier such a disorder is identified the sooner the infant can be referred for developmental physiotherapy services, which have been shown to be of benefit to these infants and their families.

Keywords: infant motor screening, developmental motor delay, family-centered assessment, early intervention

P021  Joint Compression: Finding the Sweet Spot
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Learning Objectives and Session Content:
At the end of the session, participants will be able to:
1. Discuss the biomechanical role of joint compression in the continuum between joint mobility and stability.
2. Explain to patients why joint compression needs to be considered to preserve and maintain joint health.
3. Tailor individual patient exercise programs so as to optimize muscle recruitment, while not overloading the potentially damaging compressive forces associated with excessive or prolonged muscle activation.
4. Participants will be given information as to the biomechanical factors included in the calculation of joint compression; a calculation that includes not only positional data but also the activation of surrounding muscles. Joint compression considerations include quantification of peak compressive forces as well as the effects of cumulative compression over time. This biomechanical information will be linked to the applied risks and benefits of compression in functional tasks and exercise.

Relevance to the Physiotherapy Profession:
Joint compression is a function of both passive and active (muscular) components. As joint compression correlates with joint stability, many physiotherapists may assume that stronger muscles will improve joint stability, without taking into consideration the potentially damaging effects of excessive or prolonged joint compression. To do so, physiotherapists need to understand what variables affect total and cumulative joint compression. Sometimes, the best treatment may not simply be strengthening a muscle, but also understanding that we have to affect the temporal patterns: encouraging the muscle to adopt or resume a healthy phasic activity as opposed to a prolonged, static contraction.

Target Population:
This session will be of interest to a broad range of physiotherapists including, but not limited to, those working in orthopaedics (e.g. arthritis care, sports, core stabilization), neural facilitation and ergonomics. It will be of specific interest to those determined to integrate science, evidence and applied knowledge.

Description of Supporting Evidence:
Joint compression has been shown to be both beneficial and detrimental to articular cartilage, subchondral bone and the intervertebral discs. The literature raises four key aspects of joint compression: peak load, cumulative load, the relationship between joint compression and joint stability, as well as joint compression related to the temporal patterns of muscle activation. Guidelines exist as to the recommended upper limits of peak compression, such as the 3400 newtons described by NIOSH for episodic peak lumbar compression. While joint compression has been shown to positively correlate with joint stability, the question arises as to whether stabilization exercises may result in excessive joint compression? To address this question, numerous spine stabilization exercises have been analyzed in an attempt to determine which exercises will result in the greatest cost-benefit ratio in terms of L4,5 joint compression and muscle activation levels (stability), respectively. Advances in technology have allowed objective comparisons of the temporal patterns of muscles contributing to joint compression. For example, in a group of individuals with severe unilateral knee osteoarthritis, both the quadriceps and hamstrings muscles demonstrated elevated activation throughout the stance phase of gait, possibly as an attempt to increase stability secondary to joint deterioration. Similar findings have been reported in patients with severe unilateral hip OA; not only do the muscles surrounding the hip joint have elevated, prolonged activation, but the ipsilateral and contralateral quadriceps also demonstrate prolonged activation. Such patterns would result in an increase in cumulative joint loading and potentially hasten joint deterioration.

As physiotherapists, our role in rehabilitation, injury prevention and optimizing performance all require consideration of the impact our recommended exercises and movement patterns have on joint compression. Our goal may be to facilitate a more phasic pattern to the muscle activations, one that responds to the phases of gait and gives pauses to the higher compressive load. Instead of focusing solely on increasing strength and recruitment of the surrounding muscles, we need to also address patients’ ability to turn their muscles off and lessen the load. Exercises which have an asymmetrical loading may reduce the compressive load, such as when the oblique muscles are recruited for spine stabilization. By nature of their orientation, oblique muscle recruitment will result in a greater rotational challenge, but less lumbar spine compression in the longitudinal axis, thus reducing the compressive load to the lumbar discs.

These are only a few examples of what the literature states about joint compression. The biomechanical understanding of compression and the findings reported in the literature are critical to clinicians evaluating the ‘best’ approach for each client. It is important that we understand the different structures that contribute to joint compression so that we can be flexible enough to respond to each person’s individual demands.

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5. Rutherford D, Moreside J, Wong, I. Knee joint motion and muscle activation patterns are altered during gait in individ-
The format of an exam used to assess knowledge and application of professional standards in first year entry level PT students was changed to an “open book” format. The content of the exam was unchanged. Following the exam, student and instructor feedback on the revised format was elicited, and exam results compared with previous student cohorts.

**Analysis:**
Comparison of exam results between the use of open and closed book exams was completed along with thematic analysis of student feedback and observational data.

**Keywords:** joint compression, joint stability, temporal patterns, cumulative loading, peak loading
Conclusions:
Data from the first two NRC cohorts indicate that the program may assist in rural recruitment on graduation. Effects on long term retention and service delivery are yet to be determined.

**Keywords:** clinical education, rural, evaluation

**A012 An Educational Innovation to Develop Critical Analysis Skills Among PT Students**
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**Purpose/Objectives and Rationale:**
This study examined physiotherapy (PT) students’ experiences with a novel educational initiative to develop learners’ capacity in critical analysis, which is a process to interrogate assumptions and knowledge claims underpinning PT practices. Critical analysis is fundamental to successful development of the non-Expert roles in the Essential Competency Profile, and for addressing inequities in health care. Yet, little is known about best practices for fostering critical analysis skills among PT students.

**Relevance:**
PT students who can critically analyze PT practices stand to illuminate and address taken-for-granted assumptions that can threaten or advance the PT profession.

**Materials and Methods:**
In this ethnographic inquiry, we developed and implemented a pilot curriculum in which 6 final year PT students participated in a pre-internship workshop, an assignment during internship, a post-internship workshop, and a final presentation. Data were in-depth ethnographic field notes during the workshops and a focus group with students.

**Analysis:**
Data were analyzed to inductively develop a coding scheme, which was applied to all data to capture concepts that emerged consistently across the data set.

**Results:**
Students described their experience with critical analysis as a journey with much uncertainty. Increasing clarity of its value and application to the PT profession were achieved after engaging in deliberate, mentored practice of the critical analysis process. Participants articulated common characteristics of their journey to develop critical analysis capacity.

**Conclusions:**
Our study provides insights to inform the manner and contexts in which critical analysis skills can be successfully built among PT students in order to advance the non-Expert PT roles.

**Keywords:** educational innovation, critical analysis, non-Expert roles, qualitative

**A031 Bridging to Success Ontario Internationally Educated Physiotherapy Bridging Program**
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**Purpose/Objectives and Rationale:**
The OIEPB Program at the University of Toronto offers a variety of learning opportunities to meet the needs of internationally educated physiotherapists (IEPT’s) seeking licensure to practice in Ontario. The “!Goal!” of the OIEPB Program is to enhance IEPT’s professional and clinical competencies to facilitate qualification for practice as an autonomous practitioner in the Canada. IEPTs level of foundational knowledge and skills and their readiness for bridging are evaluated through an admission assessment. Success of the OIEPB Program is evaluated through success of the IEPTs in the Physiotherapy Competency Exams (PCE). The purpose of this study was to evaluate the effectiveness of the OIEPB Program as a predictor of success in the PCE.

**Relevance:**
Successfully integrating IEPTs into the Canadian workforce is an important human resource strategy to fill projected skills gaps, ensure cultural diversity, and address needs of the aging population.

**Materials and Methods:**
78 IEPTs who completed the OIEPB April 2012 – March 2015 as assessed by admission scores and success in the PCE.

**Analysis:**
Descriptive analysis of test scores

**Results:**
IEPTs with higher scores on the MCQ and OSCE portions of the admission assessment are more successful on the PCE written and clinical components respectively. Post bridging there is an overall 76% success rate in the written and 72% in the clinical component of the PCE. Of the IEPTs with 3 years of clinical experience or more are 86% are successful in the PCE.

**Conclusions:**
Performance on admission assessments and participation in the OIEPB Program are positively associated with success on the PCE.

**Keywords:** Bridging, program evaluation, admission assessment, educational outcomes
A032 CPA’s Clinical Specialty Program: Results from the First Four Years
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Purpose/Objectives and Rationale:
To present the results of the Canadian Physiotherapy Association’s Clinical Specialty Program (CPA-CSP). These results will inform program evaluation initiatives and ongoing program development.

Relevance:
Launched in July 2011, the CPA-CSP provides physiotherapists (PTs) the opportunity to obtain the professional designation of “Clinical Specialist” (CS) through a rigorous and recognized certification process. Candidates undertake a two-stage assessment in order to demonstrate the four program requirements and nine competencies.

Materials and Methods:
Anonymized records of candidates in the CPA-CSP up to September 2015 were accessed.

Analysis:
Descriptive statistics were used.

Results:
There have been 37 applications to the CPA-CSP. The majority of candidates represent the Musculoskeletal, Neurosciences and Pain Sciences specialty areas. Nineteen candidates have not initiated Stage 1 and 2 have withdrawn from the Program. Twelve of the 16 candidates completed Stage 1 successfully, 2 failed, and 2 are still in process. Of the 12 who moved to Stage 2, 5 received the CS designation, 5 did not, and 2 are still in process. The pass rates for Stages 1 and 2 were 86% and 50%, respectively.

Conclusions:
The new CPA-CSP demonstrates rigour in credentialing CSs in several specialty areas. Not all candidates were able to demonstrate the required competencies. These results differ from the results of the feasibility trial (n=15) where the pass rates for Stages 1 and 2 were 60% and 67%, respectively. A study limitation is the small number of candidates in the CPA-CSP. Performance statistics along with candidate and assessor feedback are important components of ongoing program evaluation and program development activities.

Keywords: clinical specialization, professional development, advanced clinical competencies, certification

A037 Evaluating HIRT? Hemophilia Injury Recognition Tool Using a Mixed Method Approach
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Purpose/Objectives and Rationale:
Young men with hemophilia may not always identify musculoskeletal injuries requiring medical attention which can lead to significant health consequences. In response to these challenges, a team of clinicians, researchers and young men with mild hemophilia developed a self-assessment pathway and created a tool to address the need for easier access, the mobile app, HIRT? (Hemophilia Injury Recognition Tool). The purpose of this project is to evaluate the accessibility of HIRT? an injury self-management tool.

Relevance:
Young men with mild hemophilia have unique challenges with accessing relevant information for assisting with injury self-management.

Materials and Methods:
Twelve key informant young men aged 18-35 with mild hemophilia participated. A convergent parallel mixed methods design was used. The qualitative method, interpretative description, sought the opinions, through in-depth recorded and transcribed interviews. The quantitative data evaluated confidence levels and a self-report behavioural survey.

Analysis:
Qualitative data was analysed using inductive content analysis to identify themes and patterns. Quantitative data was analyzed using the Wilcoxon signed rank test to assess confidence levels, and the McNemar’s test to evaluate injury self-management variables with and without the app. Convergence of all the data verified the results.

Results:
Accessibility of HIRT? was unanimously appreciated. Confidence levels significantly increased (p =0.004). Themes included credibility, benefit of alarms and usefulness.

Conclusions:
Technology is rapidly advancing and education needs to be accessible. This study gives evidence that there is preference for mobile app interventions and that confidence can significantly improve in injury self-management with the use of HIRT?

Keywords: mobile app, self-management, mild hemophilia, knowledge-to-action
**A044  Using Simulation to Teach Internationally Educated Physical Therapists**

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**Purpose/Objectives and Rationale:**
The Ontario Internationally Educated Physical Therapy Bridging Program (OIEPB) at the University of Toronto assists physical therapists educated outside of Canada (IEPT’s) to bridge their educational and clinical practice gaps to facilitate successful integration into the Canadian health care system. Differences in entry-to-practice education and practice experience of IEPT’s with respect to cardiorespiratory knowledge and skills are thought to exist. To understand and address the IEPT’s potential learning needs, including clinical reasoning and psychomotor skill acquisition, simulation was embedded into the cardiorespiratory curriculum.

**Relevance:**
Implementing and evaluating innovative curricular approaches for cardiorespiratory content can help address disparity in training across source countries.

**Materials and Methods:**
A confidential online survey was sent to the 2014-2015 OIEPB cohort prior to the start of the cardiorespiratory module. Questions related to training/practice experience and confidence levels in application of knowledge and skills. Survey data then informed curriculum design and simulation use. Post curriculum delivery, the identical survey was distributed.

**Analysis:**
An online survey tool through the Blackboard Learning Portal was conducted pre and post module with downloaded to excel. A descriptive analysis was conducted.

**Results:**
Response rate was 92% for pre and 78% post survey respectively. Learners came from 13 different source countries, with 28% receiving no practical cardiorespiratory training in their programs. Post survey indicated confidence levels related to application of knowledge and skills increased by 52%.

**Conclusions:**
The use of simulation in the cardiorespiratory module of the OIEPB helped close identified learning gaps through a unique, safe and standardized learning environment. Overall learner confidence was also increased.

**Keywords:** Education, Simulation, Cardiorespiratory

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**A046  Worked Examples in Physical Therapy Education: Development and Evaluation**

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**Purpose/Objectives and Rationale:**
The purpose of this study was to develop 2 computer-based worked examples and evaluate student perspectives on their use in neurological physical therapy education.

**Relevance:**
Cognitive load theory supports the use of worked examples in education, especially when the learner is new to the material. Worked examples guide the learner through a problem to be solved providing explicit information about each step.

**Materials and Methods:**
Participants: Physical therapy students from the 2nd and 3rd year cohorts completed the modules and an evaluation form. Worked Example Development: Two worked examples were developed using Articulate software - one related to standing balance assessment and a second specific to gait assessment and treatment. Both modules incorporated patient videos, quiz questions, and expert therapist reflections on the therapeutic processes utilized.

Evaluation: Students answered questions related to practical issues (how long the module took to complete; whether there were technical issues) and learning (perception of knowledge and confidence gained related to neurological physical therapy). They also had the opportunity to provide written feedback.

**Analysis:**
Frequencies were calculated for responses to the quantitative questions. Written responses were grouped into themes (practicalities; learning).

**Results:**
The modules took 30-60 minutes to complete. Students indicated that the modules improved their learning (either agreed or strongly agreed). However, they were ambivalent about whether or not the worked example helped them feel more confident in a similar clinical situation. Feedback provided helped to improve the modules.

**Conclusions:**
Computer-based worked examples were received positively by students. They are easily updated and may be useful across education settings.

**Keywords:** education, computer based learning, neurological physical therapy
A060  Exploring the Development of a Cultural Humility Practice Approach Among MPT Students

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Purpose/Objectives and Rationale:
Challenges to cultural safety exist in our Canadian health care system, negatively impacting experiences of health services among Indigenous populations. Introducing cultural humility into physical therapy training programs may mitigate such challenges. This project explored the impact of an Indigenous community-based practicum on the development of cultural humility among MPT students.

Relevance:
Providing experiential learning opportunities in Indigenous communities may support development in cultural humility among MPT students.

Materials and Methods:
This retrospective qualitative design explored MPT student (n=6) experiences, living in an Indigenous community for 4 to 6 weeks. Practicums were supervised by an MPT instructor and guided by two community members. Participating students completed journals with personal reflections, and captured daily experiences in field notes. An exit interview was conducted upon completion of student field placements.

Analysis:
Thematic analysis was driven by a combined a priori and open coding strategy. This approach facilitated a link between community-based experiences and projected impacts on future practice, while allowing for unanticipated observations to emerge.

Results:
Several key ideas supporting experiential community-based learning opportunities were revealed. These include taking time to observe and listen, be present and open to community experiences, self-reflect on personal worldviews, and reflect on community strengths and resilience.

Conclusions:
Living in an Indigenous community context, outside of western-based policies and regulations of health system facilities, enhances MPT students’ opportunities to self-reflect, build strong relationships steeped in community culture and worldview, and explore health from a strength- and culture-based perspective. Findings may inform alternative clinical practicum environments supporting development of cultural humility among MPT students.

Keywords: Experiential learning, Indigenous health, Community-based, Cultural humility, Primary health care

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P008  Continuing Professional Development Needs of Physical Therapists in BC One Year Later

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Learning Objectives and Session Content:
In this session, participants will:
1. Discuss recommendations from the Continuing Professional Development (CPD) Needs Assessment of BC Physical Therapists (PTs).
2. Recognize roles of key stakeholders in CPD, and reflect on proposed guiding principles that contribute to a CPD framework that meets the needs of PTs in BC.
3. Discuss CPD structures and define current and evolving supports to CPD innovation.

Relevance to the Physiotherapy Profession:
The Needs Assessment of BC Physical Therapists completed in 2014 confirmed current understanding of CPD. It also identified the need to reimagine what CPD is and how it is delivered to further engage clinicians and promote the continuing competence of physical therapists across the province. The recommendations from this needs assessment helped to clarify the task of professional leaders, educators, advocates, and employers to develop a new CPD structure that coordinates the efforts of stakeholders. Central to this structure is a shared vision of innovative CPD programming that engages PTs in life-long learning for continuing competence and promotes better patient care and health outcomes.

Target Population:
This session will be of interest to educators, knowledge translators, professional and practice leaders, employers, researchers and practitioners interested in the implementation of best practice that improves patient care outcomes.

Description of Supporting Evidence:
The CPD Needs Assessment of BC PTs included a preliminary literature review and environmental scan to determine the issues and details related to PT participation in CPD activities. Little research investigated the relationship between PTs and their lifelong learning needs despite searching publications since 2005 limited to Canada, Australia, the United Kingdom and the United States. Key informant interviews designed to inform current CPD landscape provided background and context for the development of the CPD needs assessment. Formation and involvement of an Advisory Committee was important for obtaining high level direction on the development and interpretation of the needs assessment. Needs assessment survey results underwent content and descriptive analysis and the combined results from these sources allowed for development of recommendations to improve the organization and delivery of CPD of PTs in BC. From these recommendations, the CPD consortium was formed comprised of the UBC Department of Physical Therapy, College

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of Physical Therapists of BC (CPTBC), and Physiotherapy Association of BC (PABC) and the UBC Division of Continuing Professional Development (UBC CPD) in the Faculty of Medicine, with a shared vision to develop guiding principles for a CPD framework. Central to these principles was the need to align efforts and lead in the face of changes in areas of specialization, demonstration of continuing competence and development of clinical faculty. The CPD consortium identified the need for a CPD Coordinator supported by an advisory committee to advance the establishment of a CPD structure addressing the specific tasks outlined within the CPD framework.

Description of Session Format:
This session will be a lecture format with opportunity for participant discussion regarding their experiences with CPD delivery and considerations for future structures of CPD.

Conclusions and Implications:
Addressing the CPD needs of Physical Therapists in BC requires us to reimagine what and how CPD is delivered in order to engage clinicians and ensure continuing competency within the profession. A strategic partnership of key stakeholders has proven essential to break down barriers to CPD access, harness strengths and create efficiencies through relationship building and dialogue. Through the collaboration of the PT CPD consortium a CPD Coordinator position was established to work closely with the consortium to implement a model of CPD that benefits PTs in BC through collaboration with CPD providers, leveraging existing structures and mechanisms in the province to increase access to education, fostering a culture of life-long learning and promote continuing competence, and identifying inter professional healthcare CPD education opportunities where appropriate. The position was filled in August, 2015 and has been instrumental in the development of an advisory committee of key stakeholders, advocates and practical PTs to address current and evolving CPD needs within BC. The work of this committee and the CPD coordinator is unfolding as they continue to establish a CPD framework for BC Physical Therapists.

Keywords: Continuing, Professional, Development, delivery, structure, framework

P012 Prioritizing the Softer Side: The Value of Soft Skills Training for Rehab Outcomes

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Learning Objectives and Session Content:
This presentation will aid in identifying gaps in the Physiotherapy education system, as emphasis is generally placed on technical skills in contrast to the "soft skills" of Physiotherapy intervention. The discussion topics below are points that are proposed to be mandated into entry level practice and in continuing education, in order to ensure a more optimal practice model. This should ideally result in improved patient care and outcomes.

By the end of this session, participants will be able to:
1. Describe the importance of the Therapeutic Alliance and how it affects patient outcomes and treatment experience
2. Describe different clinical communication strategies and how communication affects patient adherence and outcomes.
3. Recognize and apply at least 2 common models of health behaviour change, and explain how these models can be used to improve patient adherence and outcomes.

Relevance to the Physiotherapy Profession:
Physiotherapists spend many post-graduate hours engaging in educational endeavors that are heavily weighted towards learning 'hard' technical skills. This trend is also reflected in most entry-to-practice professional programs and is highly represented on the Physiotherapy Competency Exam. However, the one constant amongst all treating physiotherapists is that all must forge a Therapeutic alliance (TA) with patients. The literature clearly shows the importance of a sound TA on patient outcomes (Potter 2003, Hall 2010, Hush 2011, Miciak 2011,Fuentes 2014). Furthermore, there is also evidence to show that one of the most integral aspects of the TA is communication (Pinto 2012). This begs the question: despite clear importance of human interaction 'soft' skills in every clinical encounter, why is Physiotherapy training more focused on 'put your hands here, feel there'-type technical skills?

Given the frequency and duration of our interactions with patients, the means by which we communicate should not be viewed as passive, but as a fundamental, strategized form of care that is thoughtfully selected for each patient in a similar manner to other interventions. The way we communicate has been shown to have a direct impact on patient outcomes and perceived disability (Crombez 1998, 1999, Roberts 2007, Vranceau 2011, Josephson 2015, Hiller 2015, Traeger 2015). Many aspects of the way we communicate and the empathy we convey can be nurtured and developed via an appropriate training process (Coulehan 2001,Stepian 2006, Cruz 2013). This process aids in developing skills that help to elicit and motivate behavioral change in clinicians and patients. Improving upon these skills stands to move physiotherapy practice dramatically forward. We believe it is therefore imperative that we scrutinize the current pre- and post-licensure curricula and challenge the focus on hard technical skills over soft interpersonal skills.

Target Population:
This Presentation will be structured to identify with all Physiotherapists involved in direct patient care. This will include Students and Physiotherapists practicing in either the Private or Public sectors. In addition, information presented will also be valuable and of interest to Educators, Managerial and Administrative personnel.

Description of Supporting Evidence:
The importance of establishing a strong TA and its effect on positive outcomes has been studied and supported in the literature. The strength of the TA has been shown to positively predict outcome in the chronic low back pain population (Ferreira 2012). A systematic review by Hall et al. (2010) also evaluated the effects of the TA on patient outcomes and found that a good TA was positively associated with treatment adherence and treatment satisfaction. The evidence also supports the notion that communication is an essential part of building the TA. Pinto et al. (2012) conducted a systematic review that looked at the interaction styles positively associated with the TA. Findings showed that patient centred communication styles including empathic
communication and active listening were strategies that helped to strengthen the TA. There have been many primary studies and reviews that explore professional development of empathy and communication skills (Stepian 2006, Roberts 2007, Mann 2007, Sanders 2009). Evidence suggests that developing these skills elicits behavioural change in clinicians, students, patients and peers (Freshman 2002, Kumar 2014, Czabonowski 2013).

**Description of Session Format:**
Each of 3 presenters will speak for 10-15 minutes. Once the Discussion points have been presented and addressed, a panel style discussion with 5 experts will be initiated and the floor will be open to broad discussion. A white paper-type publication is planned for the CPA monthly periodical ‘Physiotherapy Practice’ that will summarize the results of this discussion.

**Audio Visual Requirements:**
Table for Panel, LCD Projector, Screen, Podium with Microphone

**Conclusions and Implications:**
The current educational model places most emphasis on developing and honing technical (e.g. manual) skills. Given what we know of the importance of “soft skills”, acquisition and improvement of these skills should not be overlooked. Presented with these findings, one is forced to challenge the present education system and propose a framework that includes workshops and courses on soft skills training. Participants at this CPA session will hear from clinical and academic experts in the field and then participate in open discussion on the importance of these skills, how to develop a more balanced curriculum, and how to motivate other clinicians to attend more to their soft skills development such as empathy, communication, and motivating change.

**Keywords:** Therapeutic Alliance, Communication, Physiotherapy, Patient-centred care

**P017 Failure to Fail: Factors, Perspectives and Strategies**
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**Learning Objectives and Session Content:**
This interactive presentation will share results from the literature, build on participants’ personal experiences and use cases to illustrate the challenging process of working with a student whose performance is lower than expectations. By discussing the issues from the perspectives of the clinical instructors, the institutions, and professional regulations, we hope to explore the multifactorial, complex decisions that need to be made and the consequences of inaction. The workshop will provide strategies to facilitate the decision-making process and conclude with asking the participants for recommendations for the academic institutions to further support clinical instructors during the process. While this workshop will be geared towards a clinical instructor/student context, we hope that many of the principles will also be transferable to those who are supervising other professionals and are involved in performance assessment and management plans.

**Learning Objectives:** After attending this presentation participants will be able to:
1. Describe what the literature identifies as the key challenges of failing students from the institutional and clinical instructor perspective
2. Discuss the advantages and disadvantages of passing a student who does not meet the passing criteria
3. Identify important factors to consider to facilitate the decision-making process regarding student success or failure
4. Consider recommendations for academic institutions to help support and enable clinical instructors to make these difficult decisions when supervising students

**Relevance to the Physiotherapy Profession:**
Clinical education represents a significant component of the physical therapy degree program. When the students are completing their clinical placements, the academic institution relies heavily on the clinical supervisor’s assessment of the student. Teaching and assessing students who are performing poorly is a complicated process that requires thoughtful consideration of the multiple factors that influence decision-making. Physiotherapists carry a great deal of responsibility to provide the best care possible to patients and uphold high standards for the profession. Failure to fail a student limits the student’s potential to improve, minimizes their chances of attaining an acceptable level of competence, impacts the standards of care and diminishes the reputation of the profession as well as the public’s confidence in the physiotherapy profession.

**Target Population:**
This presentation is relevant to physiotherapy educators, clinical instructors, students, recent graduates, managers/administration and physiotherapists who work in various sectors such as private practice, hospital settings and home care.

**Description of Supporting Evidence:**
Several studies have been conducted exploring the difficult issues of failing a student in clinical education across a variety of health professions such as physiotherapy, medicine, nursing and social work. Factors such as the clinical instructor’s attitude towards an individual student, attitudes towards failing a student, normative beliefs and motivation to comply, efficacy beliefs, skills and knowledge an environmental constraints all play a role in the failure to report underperformance of students. The assessment process also contributes to this complicated process where the assessment form may not include important/relevant/specific information and, in additional, there may be a lack of knowledge regarding what to document on the form. Institutional factors such as the culture associated with failures, legal considerations, anticipation of an appeal process as well as lack of remediation options also come in to play. Strategies such as early identification of poor performance with specific documentation that explains the student’s behaviours with examples, accessible and facilitative coaching by the academic institution regarding the documentation process as well as effective communication strategies were cited as important. Having a good system in place to remediate students was also a suggested strategy to facilitate the decision making process by clinical instructors.

1. Clande JA, Knight LV, Rees CE, Tracey S, Bond CM. Is it me or is it them? Factors that influence the passing of underperforming students. Med Educ. 2008 Aug;42(8):800-809
2. Dudek NL, Marks MB, Regehr G. Failure to fail: the perspectives of clinical supervisors. Acad Med. 2005 Oct;80(10 Suppl):S84-7
3. Guerrasio J, Furfari KA, Rosenthal LD, Nogar CL, Wray KW, Aagaard EM. Failure to fail: the institutional perspective. Med Teach. 2014 Sep;36(9):799-803
Description of Session Format:
During this presentation, a variety of teaching and learning methods will be used including interactive lecturing, case based small group and large group discussions and individual reflection.

Conclusions and Implications:
Clinical education is an important component of the physiotherapy profession. It is important to understand the issues associated with the evaluation of a poorly performing student to ensure that educational institutions provide appropriate support to clinical instructors and graduate clinicians who are capable of providing quality care patients and upholding high standards for the profession. Failure to fail a student limits the student’s potential to improve, minimizes their chances of attaining an acceptable level of competence, impacts the standards of care and diminishes the reputation of the profession as well as the public’s confidence in the physiotherapy profession.

Keywords: clinical education, students, clinical instructors, teaching and learning

P018 Data! Data! Improving Physiotherapy Education Through Effective Program Evaluation
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Learning Objectives and Session Content:
Master’s level entry-to-practice Physical Therapy (MPT) education programs and Occupational Therapist Assistant/Physiotherapist Assistant (OTA/PTA) education programs tend to be very good at collecting data, often with a primary focus on curricular evaluation. Educators must have a “master plan” for making sense of various data collected from many aspects of running the program. This session will cover the theoretical foundation of program evaluation, including models and actual examples used by two Canadian Physical Therapy (PT) educational institutions that have recently undergone successful accreditation reviews by Physiotherapy Education Accreditation Canada (PEAC). Outcomes, key indicators, and processes used to gather and analyze relevant data will be shared. Participants will have an opportunity to reflect upon key components of the continuous quality improvement (CQI) cycle required for effective overall evaluation of their own program.

Participants will:
1. Gain knowledge shared about compliance with accreditation standards relating to program evaluation from the experiences of two PT education programs in Canada
2. Compare and contrast the successful program evaluation plans of two different PT education programs
3. Participate in interactive activities relating to program evaluation in educational programs

Relevance to the Physiotherapy Profession:
A documented plan for program evaluation is an accreditation requirement for MPT education programs (PEAC Standards 2012) and OTA/PTA education programs in Canada (OTA & PTA EAP Accreditation Standards 2012) in order to assure a cycle of CQI. The concept and process of collecting data for analysis in order to appreciate what is “working well” and to inform necessary changes is also relevant for physiotherapy managers providing services in both public and private sectors.

Target Population:
Educators and/or administrators in MPT and OTA/PTA Programs in Canada with a particular interest in accreditation standards and criteria relating to program evaluation. Other interested parties may include PT managers, business owners, and clinicians interested in concepts and processes related to a cycle of CQI.

Description of Supporting Evidence:
The concept of program evaluation originally came from the business literature in order to ensure that companies were meeting the needs of their customers in the most efficient and least costly manner for product or service delivery. Frameworks for program evaluation have also been embraced in healthcare and education in order to provide a systematic way to evaluate effectiveness and efficiency. Publicly funded programs often focus on evaluating outcomes.1

The steps included in performing an outcomes evaluation include: identifying and prioritizing relevant outcomes for your organization, determining appropriate observable measures (key indicators) associated with each outcome, setting targets for the measures that can be obtained, determining methods and sources used to collect important data, analyzing data, and reporting back to stakeholders.5,6 Finally, in order for evaluation to be effective, there must be tangible use of the results.

In order to ensure effective use of such results, systems are increasingly turning to quality improvement (QI) science as a means to support change when gaps are identified. QI science attempts to overcome the knowing-doing gap by assisting teams and individuals to apply evidence in real-life situations.3 It provides a set of tools and approaches that can accelerate the movement of knowledge into action by enhancing stakeholders’ understanding of complex systems, the psychology of change, variation, and the theories of knowledge. In order for systems to reach their true potential, it has been proposed that they need to view QI as the combined and unceasing efforts of everyone to make the changes that will lead to better outcomes, better system performance and better professional development.4

The component accreditation standards relating to effective program evaluation include: a documented plan for program evaluation based on clear and measurable goals; collection of data for systematic and comprehensive evaluation of effectiveness on a regular basis; identifying need(s) for change based on analysis and synthesis of program evaluation data; implementing change(s) in response to analysis of program evaluation data and evaluating the impact of such changes (adapted from Accreditation Standards for OTA/PTA Programs in Canada 2012 and for Physiotherapy Education Programs in Canada 2012).

References:
1. McNamara C. Field Guide to Nonprofit Program Design, Marketing and Evaluation. 4th ed. Minneapolis, MN: Authenticity Consulting, LLC, 2006.
2. Gelmon SB, Foucek A, Waterbury A. Program Evaluation: Principles and Practices. 2nd ed. Portland: Northwest Health Foundation, 2005.
3. Deming WE. (1998). A System of Profound Knowledge. In Neef D, Siesfield GA, and Cefola J (Ed.), The Economic Impact of Knowledge. Boston: Butterworth Heinemann.
4. Batalden PB, Davidoff F. What is “quality improvement” and
how can it transform healthcare? Qual Saf Health Care. 2007 Feb;16(1):2-3.

Description of Session Format:
The session format will be as follows:
1. Presentation of theoretical basis and component parts of program evaluation (10 min).
2. Description of PT education program evaluation processes employed by the XXXX and YYYY, including practical examples (30 min).
3. Interactive activities involving participants during the session (20 min).

Conclusions and Implications:
This session will introduce participants to the theoretical basis of program evaluation, review PEAC accreditation requirements and, using examples from two Canadian PT education programs, provide participants with practical suggestions for enhancing their own program evaluation plan.

Keywords: program evaluation, accreditation, education, continuous quality improvement

P020 Fit for Work, Fit for Life: Preparing OTA & PTA Students to Enter the Workforce
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Learning Objectives and Session Content:
Participants will learn about a newly developed general education course that supports students’ transition from new registrants to successful undergraduates and to healthy, resilient and flourishing employees. This session will describe the development and implementation of an innovative general education course that harnesses e-learning strategies and recent advances in lifestyle psychology combined with a supportive and student centered design to improve student health and student success. We will discuss why the phrase ‘starting tomorrow’ is pervasive in changing lifestyle behaviours and how advances in lifestyle psychology can help overcome one’s ambivalence about change. After attending this presentation, participants will be able to
1. use tools such as the Bridge Model for ‘Turning Good Intentions into Actions’ to self-monitor wellness decisions, or to facilitate discussions with team members
2. describe that mental health is not simply the absence of mental illness by way of the Dual Continuum model
3. describe the benefits of pedagogical models that enhance learner participation and community building such as the flipped classroom and cooperative learning

Relevance to the Physiotherapy Profession:
Health Care provision today is a team activity, and healthy, resilient and flourishing team members will ensure that the patient receives the best care possible. A mentally and physically resilient individual in the workplace will benefit the patient, the employer and the employee. PTAs who have learned how to protect and enhance their own wellness will continue to be productive employees and will be able to help the Physiotherapist support patients in a wellness model, as opposed to a disease model of care. Conestoga College’s Fit for Work, Fit for Life course addresses the overall health of the student who will become a member of the health care team.

Target Population:
Physiotherapists, Physiotherapist Assistants, employers of PTs and PTAs, and all members of the health care team who are interested in a wellness model of care and in personal wellness.

Description of Supporting Evidence:
Student health and student success are inextricably linked. We thus took a two pronged approach to develop a course that improves a student’s health and academic success. Tinto7 identified eight causes for leaving college. Four of these are particularly relevant to student well-being:
1. poor adjustment to university life
2. uncertainty about personal goals
3. lack of academic and social integration into university life
4. social and intellectual isolation

For these reasons, this course is delivered in the first semester of the OTA&PTA program at Conestoga College. This allows for early integration to College life and the opportunity to reduce social and intellectual isolation while providing tools to adjust to College life.

The course content is based on the Region of Waterloo Public Health initiatives and the Healthy Campus 2020 framework.2 Healthy Campus 2020 provides a framework for improving campus health that extends beyond traditional interventions of education, diagnosis, and treatment. The overarching goal of Healthy Campus 2020 is to create social and physical environments that promote good health for all. Healthy Campuses are described as those that:
• Support efforts to increase academic success, productivity, student and faculty/staff retention, and life-long learning.
• Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death.
• Achieve health equity, eliminate disparities, and improve the health of the entire campus community.
• Promote quality of life, healthy development, and positive health behaviors.

Chronic diseases and conditions—such as heart disease, stroke, cancer, diabetes, obesity, and mood disorders—are among the most common, costly, and preventable of all health problems. In 2011/12, 12.9% of Canadian adults aged 20 years plus had two or more chronic conditions. Arthritis, mood disorder and/or anxiety, and asthma were the most common chronic conditions.3 Chronic diseases are often referred to as lifestyle diseases because they are closely tied to the way a person or group of people live. Health risk behaviors are unhealthy behaviours that an individual can change. Data from McGinnis et al4 suggest that 40% of one’s health is attributed to lifestyle. Four of these health risk behaviors—lack of exercise or physical activity, poor nutrition, tobacco use, and drinking too much alcohol—cause much of the illness, suffering, and early death related to chronic diseases and conditions.

Mental health is not simply the absence of mental illness. The Public Health Agency of Canada defines mental health as:
“The capacities of each and all of us to feel, think, and act in ways that enhance our ability to enjoy life and deal with the challenges we face. It is a positive sense of emotional and spiritual well-being that respects the importance of culture, equity, social justice, interconnections, and personal dignity.”
The Dual Continuum Model of Mental Health and Mental Illness⁶ used by the Canadian Association of College and University Student Services (CACUUS) and the Canadian Mental Health Association (CMHA) will be used in this presentation to help explain the continuum of mental health and mental illness and highlight the fact that mental health is not simply the absence of mental illness. For example, a CDC report found that just 17% of U.S. adults are considered to be in a state of optimal mental health.⁷

Employers are also concerned about absenteeism and subsequent loss of productivity due to chronic illness. Presenteeism, when employees are present at their jobs but unable to perform at full capacity, is of equal concern.

Our presentation describes our efforts to help students become Fit for Work and Fit for Life, therefore decreasing absenteeism and presenteeism, and enhancing their ability to transition to school and the workplace and to ultimately bring a Wellness Attitude to their work and private life.

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5. Public Health Agency of Canada. Report from the Canadian Chronic Disease Surveillance System: Mental Illness in Canada, 2015 (2015). Retrieved October 14, 2015 from http://www.healthycanadians.gc.ca/publications/diseases-conditions-maladies-affections/mental-illness-2015-maladies-mentales/index-eng.php.
6. Westerhof, G. J., & Keyes, C. L. M. (2010). Mental Illness and Mental Health: The Two Continua Model Across the Lifespan. Journal of Adult Development, 17(2), 110–119.
7. U.S. Department of Health and Human Services. Mental Health: A Report of the Surgeon General. (1996). Rockville, MD: U.S. Department of Health and Human Services; Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.

Description of Session Format:
This presentation will be a hybrid model with some background information presented from the podium, and some workshop activities for participants. Participants will experience flipped classroom and cooperative learning activities while investigating issues of physical and mental wellness.

Conclusions and Implications:
PTAs, their employers, supervisors and patients all benefit when the PTA is healthy, resilient and flourishing. Conestoga College’s Fit for Work, Fit for Life course is designed to enable learners to take skills into their personal and work lives which will enhance their physical and mental wellbeing. In so doing, their wellness attitude can help decrease the burden of chronic illness and improve the effectiveness of employees.

Keywords: wellness, workforce, mental health, pedagogy, flipped classroom, lifestyle psychology

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**Physiotherapy Research: from Basic Science to Population Health**

**Abstract Presentations**

**A001 Risk Factors for Falls in People with a Lower Extremity Amputation: a Systematic Review**

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Purpose/Objectives and Rationale:
The purpose of this systematic review was to identify, critically evaluate and synthesize the evidence connecting risk factors to falls in adults with a lower extremity amputation (LEA).

Relevance:
Many fall risk factors (i.e. strength, balance, and gait) are within the clinical domain of physiotherapy. Physiotherapy features prominently in the rehabilitation of adults with LEA.

Materials and Methods:
Comprehensive searches were conducted in MEDLINE, Pubmed, CINAHL and EMBASE covering 01/1988 and 05/2015. Cohort and cross-sectional studies were included. Two reviewers independently completed data extraction and quality evaluation.

Analysis:
Data from the included studies was synthesized under the topic headings: prevalence, risk factors and patient setting.

Results:
From 209 articles identified, 11 met the inclusion criteria. Studies covered the acute hospital stay, inpatient rehabilitation and community living. Falls were common, with the cohort studies reporting 20.8% for acute hospital stay to 58% in the community. Injuries falls were also common, ranging from 40% to 60%. Fall risk factors, and shared with the general population of older adults, include lower extremity muscle weakness, increasing age, comorbidities and number of prescription medications. Fall risk factors that are unique to adults with LEA are dysvascular etiology of the amputation, trans-tibial level of amputation in the post-operative period and trans-femoral level post-rehabilitation, and reduced vibration sense.

Conclusions:
Falls in adults with an LEA are common from the time of the amputation to years later living in the community. Risk factors vary across care settings after the amputation and this has implications for physiotherapy with respect to safety and fall prevention strategies.
Keywords: falls, lower extremity amputation, risk factors, systematic review

A002  Does Fall Arrest Strategy Training (FAST) Improve Strength and Agility in Older Women

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Purpose/Objectives and Rationale:
Older women have a high risk of sustaining fall-related upper body injuries. The purpose of this project is to determine the effect of fall arrest strategy training (FAST) on upper extremity strength, agility and landing capacity in older women.

Relevance:
This pilot study will inform fall prevention exercise programming and drive future research investigating the potential for exercise training to improve fall arrest capacity.

Materials and Methods:
A randomized site design was used where 71 older women (mean age 83 years, range 67-95) participated in either Staying on Your Feet exercise (SOYF; balance, agility and leg strengthening), or FAST (upper body strength, agility and descent practice) combined with SOYF. Both groups exercised twice per week for 12 weeks. Participants were measured for fall risk factors, upper extremity strength and mobility before and after the interventions.

Analysis:
Two MANCOVAs, using pre-scores as co-variates, with intention to treat analysis were conducted for the primary outcomes of 1) fall risk, timed up and go, balance, balance confidence, chair stands and 2) shoulder, elbow and grip strength, wrist and shoulder range of motion.

Results:
Both groups (FAST n = 42; SOYF n = 29) improved fall risk status, with no significant differences between groups (p =0.991); however FAST training resulted in greater improvements in upper extremity strength and range of motion (p = .041).

Conclusions:
The addition of upper body strength and agility added to standard fall prevention exercises provided enhanced benefit that may improve the capacity to reduce upper body injury in the event that a fall is unavoidable.

Keywords: accidental falls, exercise, muscle strength, older adulta

A004  Integrating Physiotherapy Into Chronic Disease Self-Management: Concept Consensus

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Purpose/Objectives and Rationale:
The increase in chronic conditions and associated functional changes with aging results in an increase in population-based disability life expectancy. The goal of self-management (SM) is to empower patients to actively manage their health issues. Objective: To identify the core principles and major content areas for physiotherapy SM interventions to address unmet needs of people with chronic conditions.

Relevance:
A call for greater involvement of physiotherapists (PTs) in chronic disease SM will be expedited if the profession can arrive at a consensus about the common elements, principles and approaches to integrate PT into SM service delivery. This project involves 3 phases; results of phase one will be presented.

Materials and Methods:
National physiotherapy researchers participated in a web-enabled consensus meeting to generate major themes, concepts and principles for inclusion in a SM intervention within an interdisciplinary framework. Three case scenarios were used to generate responses.

Analysis:
The facilitator along with the group used Group Decision Support Software to rank order results.

Results:
Strategies unique to physiotherapy included increasing physical activity levels, exercise training, condition-specific education, pain management and health behavior change. A similar exercise was undertaken by occupational therapists (OTs) and mutual SM interventions and strategies included falls prevention, goal setting, self-monitoring, and use of cognitive behavioral strategies.

Conclusions:
PTs make unique contributions to chronic disease SM and complement the strategies undertaken by OTs. Next steps for this project will include developing and evaluating evidence-based, online self-management apps for both clinicians and patients derived from the concepts, issues and strategies identified in phase 1 of this project.

Keywords: rehabilitation, self-management, chronic disease, technology
**A007  Patient and Therapist-Identified Mobility Goals in Hospitalized Older Adults**

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**Purpose/Objectives and Rationale:**
Improved mobility is one of the most commonly set physiotherapy goals in inpatient rehabilitation. The purpose of this study was to describe and compare the content of patient and physiotherapist-identified goals related to safe mobility in a sample of older adults in hospital. In addition, this study explored how in-hospital goals change as patients transition to home.

**Relevance:**
Effective, patient-centred rehabilitation requires patient driven, participation related goals. Clinicians would benefit from increased awareness of current goal-setting practice in inpatient rehabilitation.

**Materials and Methods:**
Participants (N=6) were recruited from a short-stay inpatient rehabilitation unit. Patients underwent two semi-structured interviews; 1) during inpatient stay, and 2) 1 to 2 weeks after discharge home. Interviews included identification of a mobility-related goal(s), and questions related to falls, fear of falling, in-hospital fall prevention education. Physiotherapy documented mobility-related goals were obtained through review of inpatient charts.

**Analysis:**
Data were analyzed using content and descriptive analysis. Goals were labelled and categorized according to the ICF and SMART Goal framework and compared according to source (therapist vs patient) and setting (inpatient vs home).

**Results:**
Physiotherapist documented goals were almost exclusively focused on the Body-structure-function (BSF) and Activity domains of the ICF model. In addition, all but one goal (93%) lacked key SMART goal components. Similarly, patients tended to identify non-specific, impairment and activity focused goals while inpatients. However, patients more readily identified meaningful, participation-related goals once discharged home.

**Conclusions:**
Novel, explicit goal-setting strategies may be necessary to ensure inpatient rehabilitation of older adults is patient-centred and optimizes community reintegration following discharge.

**Keywords:** older adults, rehabilitation, mobility, goal setting

**A013  A Randomized Clinical Trial in Runners with Patellofemoral Pain**

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**Purpose/Objectives and Rationale:**
Patellofemoral pain (PFP) is the most common injury in runners. The aim of this study was to compare the effectiveness of three different rehabilitation programs on symptoms and function of runners with PFP.

**Relevance:**
While PFP accounts for a large proportion of running injuries, interventions based on a high level of evidence are currently lacking.

**Materials and Methods:**
Fifty-two runners with PFP (63.5% females, age=31.1±6.0) were randomized to one of 3 intervention groups (each included 5 visits with a physiotherapist over 8 weeks): 1) Education; 2) Exercise program; 3) Gait retraining. Before and after rehabilitation, symptoms and functional status were assessed using the Activities of Daily Living Scale of the Knee Outcome Survey (KOS-ADLS), visual analog scales (VAS) for usual pain, worst pain and pain during running, and running mileage. Lower limb isometric muscle strength was evaluated using handheld dynamometry.

**Analysis:**
Two-way ANOVAs were used to compare the programs’ effects on KOS-ADLS, VASs, strength and running mileage.

**Results:**
No significant Group x Time interactions were observed for KOS-ADLS and VASs. However, a significant Time effect was obtained and post-hoc analysis showed significant improvements for the three groups between weeks 0 and 8 (P < .05). However, no Group, Time or Group x Time interactions were measured for lower limb muscle strength (P > .05). Only a Time effect was found for increased mileage after 8 weeks (P=.011).

**Conclusions:**
The three programs were found to be equally effective in reducing symptoms and improving function of runners with PFP. Physiotherapists should emphasize the education component when treating this population.

**Keywords:** Patellofemoral pain, Running, Exercises, Gait retraining, Education, Randomized controlled trial
**A014  Evidence of Post-Traumatic Osteoarthritis 3-10 Years After Youth Sport Knee Injury**

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**Purpose/Objectives and Rationale:**
Meta-analyses indicate a 3.9 fold increased risk of post-traumatic osteoarthritis (PTOA) after knee joint trauma. There is a paucity of information about the period between joint injury and PTOA onset. This investigation examines the association between sport-related knee joint injury and PTOA outcomes, 3-10 years post-injury.

**Relevance:**
Improved understanding of the joint injury to PTOA onset period will inform rehabilitation aimed at delaying/preventing progression to PTOA.

**Materials and Methods:**
This cohort study involves 100 individuals (15-26yrs) who sustained a sport-related intra-articular knee injury 3-10 years previously and 100 age-sex-sport-matched controls. Outcomes included; Knee Injury and OA Outcome Score (KOOS), weekly physical activity (PA; Godin Questionnaire), normalized knee flexor/extensor strength (dynamometry), body mass index (BMI) and MRI-defined OA.

**Analysis:**
Descriptive statistics (mean within-pair difference, 95%CI) and unadjusted conditional logistic regression (OR, 95%CI) were used to compare study groups.

**Results:**
Injured participants had poorer KOOS scores; symptoms -8.1(-11.2,-5.0), pain -4.9(-7.0,-2.7), daily-function -2.8(-4.2,-1.4), sport-participation -5.8(-7.8,-3.7), quality-of-life -8.3(-10.2,-6.3]) than controls. No differences existed for quadriceps strength [-0.2Nm/ kg (-0.22,0)] however, injured participants had weaker hamstrings [-0.02Nm/kg (-0.03,-0.01)] were 3.75 times (95%CI;1.2,11.3) more likely to be overweight/obese (BMI) and 2.1 (95%CI;1.1,4.0) times more likely to be in the lowest PA quartile. Based on a subset (n=100), injured participants were 8.5 (95%CI;1.96,36.79) times more likely to demonstrate MRI-defined OA compared to controls.

**Conclusions:**
This study provides preliminary evidence that young adults with a sport-related knee injury history demonstrate greater symptomatology, poorer function, lower PA levels, greater BMI and more structural joint changes consistent with future PTOA 3-10 years post-injury compared to uninjured controls.

**Keywords:** Knee, Post-traumatic Osteoarthritis, Prevention, Youth

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**A015  Comparing Patient Reported Outcome Measures to Detect Change Post Knee Arthroplasty**

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**Purpose/Objectives and Rationale:**
To compare the ability of the Knee Injury and Osteoarthritis Outcome Score (KOOS), KOOS-Physical Function Shortform (KOOS-PS) and Lower Extremity Functional Scale (LEFS) to detect functional change after knee arthroplasty.

**Relevance:**
Physiotherapists need head-to-head comparison studies to identify the best patient reported outcome measure from a pool of competing measures.

**Materials and Methods:**
Participants completed the KOOS, LEFS, 6-Minute Walk Test (6MWT) and Timed-up and-Go (TUG) pre and postoperatively. KOOS-PS scores were abstracted from the full KOOS.

**Analysis:**
Descriptive data were summarized as means and standard deviations or frequencies and percentages. We examined correlations between measures’ change scores with a reference standard that combined 6MWT and TUG change scores. Coefficients were compared using Meng’s test for dependent data.

**Results:**
The sample was comprised of 109 participants (74 women, 35 men) with a mean age of 64.7 (9.7) years. Correlations between the reference standard and the change scores for the LEFS, KOOS-Function and KOOS-PS were 0.47, 0.40 and 0.31. There was no difference between the LEFS and KOOS-Function coefficients (p = 0.28); the LEFS (p = 0.013) and KOOS-Function coefficients (p = 0.050) were significantly greater than the KOOS-PS coefficient.

**Conclusions:**
The KOOS-PS did not detect change as proficiently as the LEFS and KOOS-Function scales. Although the point estimate of the correlation between the change scores for the LEFS and KOOS-Function scales was 0.47, there was no difference between the LEFS and KOOS-Function coefficients (p = 0.013) and KOOS-Function coefficients (p = 0.050) were significantly greater than the KOOS-PS coefficient.

**Keywords:** Outcome Measurement, Knee Arthroplasty, Patient Reported Measures, Sensitivity to Change
A016 Kinesiotaping Improves Strength and Balance in Patients with Patellar Tendinopathy
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Purpose/Objectsives and Rationale:
This preliminary study examined the effects of Kinesiotape (KT), Leukotape (LT), placebo tape (PT), and no tape (NT) on strength and balance in patients with patellar tendinopathy.

Relevance:
Patellar tendinopathy is a common injury found among active populations characterized by tendon pain and swelling. These symptoms range from mild to severe negatively affecting performance of functional tasks. Currently, there is no research examining the clinical utility of therapeutic taping.

Materials and Methods:
Ten physically active participants (2 females, 8 males; mean age 25 years; weight 86 kg; height 180 cm) with patellar tendinopathy were involved in four test sessions (NT, PT, LT, KT) evaluating knee strength (manual muscle tester) and balance with the Star Excursion Balance Test (SEBT).

Analysis:
A one-way ANOVA for the different taping conditions for strength and balance was used for the analysis.

Results:
A significant main effect was found for knee flexor strength (IF (3, 27) = 5.04, p < .05, η² = .32) with KT resulting in the greatest strength. In terms of balance, a significant effect was also found for the anteromedial (IF (3, 27) = 2.96, p < .05, η² = .25), lateral (IF (3, 27) = 7.2, p < .05, η² = .44), and posterolateral (IF (3, 27) = 3.8, p < .05, η² = .30) directions for the SEBT with the application of KT resulting in the greatest excursion.

Conclusions:
Knee flexor strength and specific directional balance performance measures were improved with KT application.

Keywords: Taping, patellar tendinopathy, strength, balance

A020 Accounting for Skin Tone, Dosage and Possibly Unpleasant Skin Heating when Using Lasers
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Purpose/Objectsives and Rationale:
To examine light transmittance and to determine skin tone, laser wavelength and dosage effects on skin temperature. Previous research using light-emitting diodes (LEDs) showed that red but not infrared light transmittance significantly decreased with increasing skin darkness. This study measures how skin tone and laser parameters affect transmittance when using true laser diodes, and investigates skin heating with higher dosages.

Relevance:
Although lasers are commonly used in physiotherapy practice, there are no guidelines for adjusting dosage using true laser diodes. Demands for accountability from healthcare professionals make it essential that physiotherapists use lasers on a sound basis rather than through guesswork.

Materials and Methods:
Skin tone and tissue thickness were determined at the test site, a forearm skin-fold (spectro-colorimeter and Jamar calipers). Transmittance and skin temperature were measured at baseline and at 2, 6, 9 and 12 Joules using 635 and 808nm lasers (light detectors and thermocouples).

Analysis:
Graphical analysis and Repeated-Measures ANOVA were used to examine transmittance and temperature changes.

Results:
Results were obtained for 30 volunteers. Skin heating and transmittance percentage were greater using 808nm than 635nm, regardless of dosage or skin tone. Skin tone effects were only significant using 635nm; darker skin decreased transmittance and increased skin temperature (p<0.03, p<0.03). Temperature also increased with increasing dosages; however, even at 12J the temperature increase of <3°C was imperceptible to subjects.

Conclusions:
Skin tone and light wavelength must be factored into laser dosage. Mean transmittance loss is demonstrated in this study under different patient and laser conditions and can be used to optimize dosage for individual patients.

Keywords: laser therapy, dosage prescription, light penetration,
Relevance:
Achieving the recommended 150 minutes per week of moderate intensity activity is challenging for PWS. They spend over 80% of their day in SB. Engaging in SB is associated with poor health and functional outcomes.

Materials and Methods:
Interviews were conducted, using a semi-structured guide, with 13 PWS. Self-reported sedentary time was assessed using SB questionnaire.

Analysis:
Interview data were transcribed verbatim and analyzed using interpretive phenomenological analysis (IPA).

Results:
Seven males and 6 females were interviewed; time since stroke varied from 3 months to 12 years. Sedentary time (excluding sleep time) ranged from 5 to 12.5 hours. Emergent themes were: meaning of SB, reasons for engaging in SB, barriers and facilitators, and strategies to sit less and move more. Only 6 participants had heard the term SB, and 2 were aware of the health risks associated with SB. Participants encountered multiple barriers in their daily lives that encouraged SB, including fatigue, pain, cognitive problems, and lack of motivation. Using wearable technologies and action planning to reduce SB holds promise as behaviour change strategies.

Conclusions:
There is limited awareness of health risks of SB among PWS. Strategies involving standing up and moving frequently throughout the day appears acceptable to PWS.

Keywords: Sedentary, stroke, qualitative, behaviour change

A028 Telephone Version of the Chedoke-McMaster Stroke Assessment Activity Inventory

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Purpose/Objectives and Rationale:
To develop a telephone interview measure of activity that can be used in follow-up assessments of individuals with stroke or their proxies. This measure is based on the Chedoke-McMaster Stroke Assessment Activity Inventory (CMSA-AI), a commonly used measure with demonstrated validity and reliability of scores.

Relevance:
An interview-based measure would enable follow-up of individuals in remote communities and promote use of patient-reported outcome measurement and minimal detectable change were calculated.

Results:
53 participants with stroke were on average, 62 years old; 41% female; 43% right side hemiparesis. Follow-up assessments were completed by 42. 18 proxies were included. Test-retest reliability (ICC (95% CI)): total score -0.98 (0.96-0.99); gross motor function index- 0.96 (0.91-0.98), and walking index- 0.96 (0.91-0.98). Client/proxy agreement- 0.75 (0.28-0.90) for total score. Construct validity (Spearman rho): correlation of CMSA-AI and TCMSA-AI total at discharge- 0.62 (lower sided 95% CI 0.42); at 2 months- 0.90 (0.82). Correlation of change scores were 0.50 or lower.

Conclusions:
There is potential for the activity of individuals with stroke to be evaluated by telephone, in clinical and research settings.

Keywords: outcome measurement, stroke, activity, patient reported outcome

A030 Who Benefits from Global Rehabilitation Research? A Qualitative Inquiry

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Purpose/Objectives and Rationale:
Physiotherapists and other rehabilitation providers are increasingly involved in global health research. Global health research typically frames high-income partners as the “givers” who bear the costs and the low-income partners as the “receivers” who enjoy the benefits. One strategy proposed to promote equity in international partnerships is to more openly identify the costs and benefits accrued by all partners. Therefore, this study explored the perspectives of Canadian rehabilitation researchers involved in HIV research in Sub-Saharan Africa regarding the diverse ways in which they have benefitted from global health collaborations.

Relevance:
Physiotherapists are trained to be collaborative and equitable with patients and partners. In this study, we use this philosophy to advance the field of global health research.

Materials and Methods:
This qualitative, interpretivist study was conducted as part of a broader project to describe the nature of HIV and rehabilita-
tion research in Sub-Saharan Africa that involves Canadians. We conducted in-depth, semi-structured interviews with 13 rehabilitation researchers.

**Analysis:**
We used Nixon and Flicker’s collaborative “DEPICT” approach to inductively identify themes within the data.

**Results:**
Participants perceived gains as a result of collaborating on HIV and disability research with Sub-Saharan African partners in 5 ways: enhanced capacity for critical reflection, increased insight about “disability”, enriched personal growth, insight about authentic partnerships, and support for instrumental aspects of research.

**Conclusions:**
Commitment to equitable partnerships means being proactive, thoughtful and transparent about the costs and benefits born by all parties. This is the first study to report how Canadian rehabilitation researchers accrue benefit from their participation in global health collaborations.

**Keywords:** equity, global health, international partnerships, research ethics

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**A036  Association Between Posture and WOB in Patients on Long-term Mechanical Ventilation**

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**Purpose/Objectives and Rationale:**
To examine the relationship between posture and the work of breathing, assessed by: airway-occlusion-pressure (P0.1), expiratory-time-constant (RCexp), peak-pressure (Ppeak), and expiratory-minute-ventilation (VE), among patients on chronic mechanical ventilation (CMV)

**Relevance:**
Few studies have assessed the effect of upright positions commonly used in physiotherapy on respiratory parameters among patients on CMV.

**Materials and Methods:**
Subjects aged ≥25, ventilated by ASV or SIMV+/PSIMV+ were included. Subjects were ventilated by Hamilton G5 ventilator in the supine (0FLAT), 45° Fowler (45ST), wheelchair sitting (65ST), and head-up tilt 45°/70° (45HUT/70HUT) positions. Respiratory parameters were evaluated for 15 minutes in each position.

**Analysis:**
Observations from the five “central” minutes were modeled using a repeated-measures analysis-of-variance model, as a function of position, ventilation mode, and the interaction between them, adjusted for background variables found to significantly influence the study variables.

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**A038  Pelvic Floor Properties of Women with Urinary Incontinence After Endometrial Cancer**

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**Purpose/Objectives and Rationale:**
To compare pelvic floor muscles (PFM) functional properties of women reporting urinary incontinence (UI) after hysterectomy and radiotherapy (RT) for endometrial cancer, to women with a history of hysterectomy without UI.  

**Relevance:**
Endometrial cancer is the fourth most prevalent cancer in Canadian women. RT is frequently recommended as an adjuvant treatment. There is a high prevalence (>80%) of UI after RT. It is plausible that UI is associated, at least in part, to alterations of the PFM.

**Materials and Methods:**
A cross-sectional, clinical study was conducted. N=11 women were recruited for the ONCO group and N=18 for the comparison HT group. They attended a 90-minute assessment where data was collected on personal characteristics, urogenital and bowel function using ICIQ questionnaires and on PFM properties using the Montreal dynamometer.

**Analysis:**
Comparison of continuous variables between groups was performed with Mann-Whitney U unilateral test, and Wilcoxon Rank-Sum test for categorical variables. Association between variables was measured with Spearman’s correlation coefficients.

**Results:**
Significant differences were found between groups for maximal opening in mm of dynamometer branches (p=0.0003), maximal vaginal length in cm (p=0.0004), PFM maximum voluntary contraction in N (p=0.03), PFM rate of maximal force development in N/s (p=0.02) and number of rapid contractions during a 10s-inter-
val (p=0.0001). No significant differences for the 60s endurance test. Severity of UI was found associated to maximal strength (p=0.03) and rate of force development (p=0.008).

Conclusions:
Some evidence of alterations of PFM properties are reported by this study. Some appear associated to UI, suggesting a possible role for pelvic floor rehabilitation.

Keywords: Pelvic floor muscle, pelvic floor dysfunction, radiation therapy, oncology rehabilitation.

A039 Clinical and Psychosocial Influences on Sexual Function in Patients with Low Back Pain

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Purpose/Objectives and Rationale:
To determine the prevalence of sexual dysfunction and influence of selected clinical and psychosocial factors on sexual function in patients with CNLBP.

Relevance:
Chronic Non-specific Low Back Pain (CNLBP) as other musculoskeletal conditions can affect all aspects of life including sexual functioning. It appears sexual concerns are not often spontaneously reported among patients with CNLBP. It is unclear whether clinical and psychosocial factors can affect sexual functioning in patients with CNLBP.

Materials and Methods:
Ninety-six individuals with CLBP participated in this cross-sectional survey. Participants’ sexual function, pain intensity, pain disability and quality of life were assessed using the modified version of questionnaire on sexual dysfunction in chronic low back, visual analogue scale, Oswestry low back pain disability questionnaire and quality of life questionnaires (male and female versions) respectively.

Analysis:
Data were analyzed using Chi square and independent t-test at p=0.05

Results:
More than half (60.4%) of the participants reported dysfunction in one or more of the sexual activities considered. Participants with or without sexual dysfunction did not differ significantly in age (p=0.07), pain disability (p=0.76) and quality of life (p=0.64). However, they differed significantly in pain intensity (p=0.00). There was significant association between sexual dysfunction and gender (p=0.000). Pain intensity (p=0.00) and psychosocial factors (willingness to have sex (p=0.013), expression of sexual feelings (p=0.000)) significantly influenced sexual functioning in these patients.

Conclusions:
Sexual dysfunction is prevalent among individuals with CNLBP. Increased pain intensity, willingness to have sex and expression of sexual feelings could interfere with sexual functioning in individuals with CNLBP.

Keywords: Sexual function, psychosocial factors, low back pain, pain intensity

A040 Monitoring Function Using the Personal Health Record in a Cohort with Chronic Disease

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Purpose/Objectives and Rationale:
The purpose of this study is to explore the use of technology, specifically the Personal Health Record (PHR) to engage patients with chronic conditions in self-monitoring of physical function as a form of self-management in primary care settings.

Relevance:
The global rise in chronic diseases, aging populations and associated rise in disability is a significant public health problem. Physiotherapists can support patients with chronic conditions in primary care in self-monitoring their physical functioning and provide interventions to prevent physical functional decline to promote optimal aging.

Materials and Methods:
A patient cohort with chronic conditions was followed for 6 months (n=73) within a family health team. They self-monitored their physical function by electronically completing assessments in the personal health record (PHR) which is linked to the electronic health record. The assessments they completed (baseline and 6 months) included the Rapid Assessment of Physical Activity (RAPA) and a self-reported mobility survey. The physiotherapist and occupational therapist provided “tailored rehabilitation strategies” to address the physical functional changes patients were experiencing.

Analysis:
Descriptive analyses and paired t-tests using STATA 13 were used to estimate summary statistics at baseline and the difference between baseline and scores at 6 months respectively.

Results:
There was a significant difference in the scores on the RAPA (p=0.05) but not on the mobility survey between the two time points.

Conclusions:
This approach using technology to monitor physical function and to provide strategies to optimize function was successful at increasing level of physical activity but did not improve mobility.

Keywords: technology, self-monitoring, function, chronic conditions
A041  Efficacy of Extended Role Physiotherapists in the Management of Shoulder Pathology

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Purpose/Objectives and Rationale:
To share the efficacy and successful five year results of an innovative team-based Shoulder Program supported by Advanced Practice Physiotherapists (APPs).

Relevance:
This newly introduced role in the field of physiotherapy involves referral triage, patient assessment and triage and post-operative follow-up for patients with shoulder conditions; examining its efficiency is warranted.

Materials and Methods:
Prospective observational study of consecutive patients. We examined agreement between surgeon and APP, change in surgeon’s wait time, patient satisfaction, indications for ordering imaging and impact of these investigations on patient management.

Analysis:
Descriptive statistics, chi-square analyses, Kappa coefficients and other appropriate tests were used.

Results:
We found good (k=0.68) to excellent (k=0.96) agreement between the APP and surgeon on major diagnostic categories. Agreement with respect to indication for surgery was good (k=0.75). The surgeon’s wait time reduced significantly over time. High satisfaction was reported in all components of care. The majority of patients (80%) required plain radiographs as the first line of investigations with a small percentage of patients requiring more costly investigations such as US (9%), MRI (13%), and MRA (2%). Finding a new diagnosis was the most important indicator of change in management regardless of the type of investigations ordered by the APP.

Conclusions:
Utilizing experienced physiotherapists with an extended role in a surgical centre reduces wait times without compromising clinical management and overall patient satisfaction. Skilled APPs rely on a comprehensive clinical assessment and do not over-utilize advanced diagnostic imaging for decision-making.

Keywords: Extended Role Physiotherapists Shoulder Pathology

A042  Reproducibility of Short Version of Western Ontario Rotator Cuff Index

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Purpose/Objectives and Rationale:
To determine reproducibility (reliability and agreement) of the Short-WORC among patients with rotator-cuff disorders (RCDs).

Relevance:
Recently, a shorter version of Western Ontario Rotator Cuff Index (Short-WORC) was proposed as a subset of 7 items from the original 21-item WORC. However, the reproducibility of the Short-WORC has not been established.

Materials and Methods:
Patients (n=153) diagnosed with RCD completed the WORC at baseline and at 3-months post-operatively (n=146). The Short-WORC was extracted from the full version of WORC. From this retrospective cohort, 43 patients were retested within 5-weeks.

Analysis:
Cronbach’s alpha (α) and intra class correlation coefficients (ICC2,1) were used to assess internal consistency and test-retest reliability respectively. Standard error measurement (SEM), minimal detectable change (MDC90) and Bland Altman (BA) plots were used to assess agreement.

Results:
No floor and ceiling effects were reported for either the Short-WORC or WORC. Cronbach’s α were 0.84 and 0.90 at baseline and 0.89 and 0.95 at 3 month of follow-up for Short-WORC and WORC respectively. The ICC2,1 were 0.89 and 0.91 for the Short-WORC and WORC respectively. The agreement parameters for the Short-WORC were: SEMagreement= 8.8, MDC90individual= 20.3, MDC90group= 5.1. We found substantial agreement between two versions of WORC on BA plots with minimal (mean difference<1) systematic differences between them. The limits of agreement (LOA) between two versions of WORC were similar across sessions and fell within range of -11.7 to 13.2 points at test and -14.7 to 14.7 points at retest.

Conclusions:
Short-WORC and WORC demonstrates strong reproducibility and can be used for evaluating health-related-quality-of-life (HRQoL) among patients with RCD.

Keywords: Rotator cuff tear, reliability, Western Ontario Rotator Cuff Index, quality of life, shoulder pain, minimal detectable change
A053 Motor Learning and Neurorehabilitation: A Survey of Canadian Physiotherapists

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Purpose/Objectives and Rationale:
A century of research in movement science has identified optimal conditions for motor-skill learning. These motor learning principles (MLPs) have been cited as a potential framework for the practice of neurorehabilitation. The purpose of this study was to explore the knowledge and application of MLPs of physiotherapists with neurorehabilitation interest and experience.

Relevance:
Understanding of clinician knowledge, application, and perceptions regarding motor learning may help identify future knowledge creation and translation priorities in neurorehabilitation.

Materials and Methods:
A e-survey was developed following: 1) a literature review, 2) expert review of content, and 3) pilot testing. Survey included assessment of knowledge of concepts and MLPs, application of MLPs, and barriers to application. The final survey of practicing members of Neuroscience Division (NSD) of the Canadian Physiotherapy Association was conducted in May, 2015 using FluidSurvey software.

Analysis:
Descriptive analysis conducted using MS Excel and SPSS software. Text-based responses were analyzed for themes.

Results:
Participants (n=116) had an average knowledge score of 11/14. Responses were most variable on benefits of external focus of attention (FOA), variable and random practice. 65% of participants reported utilizing the strategies of random practice and external FOA ≤50% of time; while 58% of participants reported utilizing reduced-frequency feedback, and patient self-evaluation ≤50% of time. Barriers to application included patient-related (e.g. cognition), administrative (e.g. time, length-of-stay), and environmental (e.g. difficulty replicating home setting) factors. Most respondents were interested in motor-learning-related continuing education.

Conclusions:
Despite adequate knowledge, application of MLPs was variable in neurorehabilitation physiotherapists. Clinicians may benefit from further population-specific motor-learning research and ongoing knowledge translation.

Keywords: motor learning, neurorehabilitation, knowledge translation, survey
**A054  Arthritis and Associated Limitations in Canadians Living with Stroke**

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**Purpose/Objectives and Rationale:**
Residual motor and gait impairment post-stroke may lead to musculoskeletal (MSK) complications such as arthritis. This study explored the prevalence of arthritis and associated functional limitations in community-dwelling Canadians aged 50+ with and without stroke.

**Relevance:**
The potential for MSK complications post-stroke has implications for the design of longitudinal studies and long-term clinical follow-up.

**Materials and Methods:**
Secondary analysis of the Canadian Community Health Survey; a cross-sectional Statistics Canada survey conducted in 2011 and 2012. Respondents who reported a stroke diagnosis (n=1892) were identified and age- and gender-matched with controls who did not report a stroke, randomly selected from the database (n=1892).

**Results:**
Compared to controls, a greater proportion of the stroke group reported arthritis (43% vs 53%), poor perceived health (5% vs 24%) and pain limiting most activities (6% vs 20%) (all p<0.0001). Among people with stroke, a greater proportion of those with arthritis reported poor perceived health (28% vs 19%), pain limiting most activities (28% vs 11%) and required assistance (63% vs 51%) than those without (all p<0.01).

**Conclusions:**
Findings suggest that arthritis is more prevalent in individuals with stroke, and is associated with worse perceived health, pain, and activity limitations. It is unknown if the arthritis pre-dated or followed the stroke. This work provides support for longitudinal investigation of secondary MSK issues post-stroke.

**Keywords:** stroke, arthritis, survey

**A056  Changes in Early Visual and Tactile Processing After Recovery from Concussion**

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**Purpose/Objectives and Rationale:**
To understand the changes in sensory information processing associated with concussion.

**Relevance:**
A common complaint among people who have sustained concussions is that busy environments can be overwhelming and exacerbate their symptoms. Understanding the deficits caused by concussion will improve clinicians’ treatment planning and decision-making.

**Materials and Methods:**
Twenty-five participants (13 control, 12 recovered from concussions) completed a randomized case-control paradigm where they graded the amplitudes of visual and tactile stimuli presented individually and simultaneously. Early event-related potentials (ERPs) were collected via electroencephalography from early modality-specific cortical sensory areas. Along with performance accuracy data, these were compared between groups.

**Analysis:**
Mixed-model ANOVAs with a within subject factor (attended modality) and between-subjects factor (conclusion or control group) were used to determine the significance of any differences in cortical responses between the control and injured groups. Two-way ANOVAs were also used to compare task accuracy between groups.

**Results:**
Changes in early ERPs were significantly different between the groups were significantly decreased in the post-concussion group on tasks requiring filtering relevant from irrelevant sensory stimuli in a stream of information, and on tasks requiring subjects to respond to only one of two simultaneously presented stimuli (p<0.05).

**Conclusions:**
Even after concussion symptoms have resolved, cortical responses to tasks requiring gating of irrelevant sensory information or selectively attending to relevant sensory information are decreased in participants who have sustained concussions. The clinical observation that functional status is restored once symptoms resolved raises questions about the role of neuroplasticity in concussion recovery.

**Keywords:** Concussion, post-concussion syndrome, sensory processing, clinical decision-making

**A058  Current Physical and Sedentary Activity Levels Among MPT Students: a Pilot Study**

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**Purpose/Objectives and Rationale:**
Eight-five percent of Canadian adults fail to meet the national physical activity (PA) guidelines and spend 69% of their time being sedentary. The purpose of this study was to identify physical and sedentary activity levels among Master of Physical Therapy...
(MPT) students and elucidate barriers and supports that influence activity levels during their training.

**Relevance:**
Physical Therapy Schools may want to consider alternative teaching methods and program design to support active lifestyles among MPT students during their training.

**Materials and Methods:**
Forty-three MPT students at the University of Saskatchewan wore accelerometers for 7 days while capturing the barriers and supports to being active through photographs. Focus group discussions were conducted.

**Analysis:**
Accelerometer data was analyzed for sedentary, light, moderate, and vigorous physical activity levels. A thematic analysis of photovoice discussions was informed by the socioecological model (SEM). Quantitative and qualitative data were analyzed separately, then explored collectively to allow for an integrative understanding of the data.

**Results:**
26% of participants met the national PA guidelines. Participants spent approximately 11.2 hours per day in SA. Photovoice revealed four main themes regarding supports and barriers to PA: 1) priorities and life balance, 2) the environment, 3) commitment and accountability, and 4) MPT program structure and demands.

**Conclusions:**
Participants suggested designing more ‘movement friendly’ classrooms with flexible programming to address the high levels of SA among MPT students. Participants identified that physiotherapists should be ‘living what they’re teaching’. Physical Therapy Schools and programs may want to consider innovative and alternative ways to support healthy lifestyles among MPT students.

**Keywords:** Health promotion, physical activity, sedentary activity, University students, Built environment

**A065 An Early Shoulder Repositioning Program in Birth-Related Brachial Plexus Injuries**
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**Purpose/Objectives and Rationale:**
To review the first 4 years of a novel approach used to treat the shoulder of children with birth-related brachial plexus injuries (BRBPI).

**Relevance:**
Even in children with good recovery, external rotation (ER) and supination (Sup) are often weaker, and permanent skeletal imbalance ensues. A preventive early infant shoulder passive repositioning program was created using primarily a novel custom splint holding the affected arm in full ER and Sup: the Sup-ER splint.

**Materials and Methods:**
A retrospective review of 12 patients with BRBPI managed with the Sup-ER protocol from 2008 to 2011 compared their Active Movement Scale (AMS) recovery scores to 12 matched historical controls selected from our database by two independent reviewers.

**Analysis:**
Results were summarized and reported using descriptive statistics. Mann–Whitney U test was used to analyze the differences in ER and Sup at 24 months of age.

**Results:**
The protocol was initiated in 18 children during the study period. Six were excluded due to insufficient data points, non-compliance, late splint initiation, and loss to follow-up. Of the 12 matches, the final score at 2 years of age was significantly better in the Sup-ER group compared to the controls by 1.18 AMS points (p=0.036) in Sup, and non-significantly improved by 0.96 AMS points in ER (p=0.13). Unexpectedly, during the study period, zero subjects were assessed to have the active functional criteria to indicate brachial plexus reconstruction, where previously 13% were surgical candidates.

**Conclusions:**
Early application of passive shoulder repositioning into Sup and ER may improve outcomes in function of the arm in infants with BRBPI.

**Keywords:** birth related brachial plexus injury, obstetrical brachial plexus injury, Sup-ER splint, shoulder repositioning.

**A066 Preliminary Data on the Role of Neuropathic Pain in Osteoarthritis**
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**Purpose/Objectives and Rationale:**
Suspected neuropathic pain (sNeP) in knee osteoarthritis (OA) may explain persistent pain after total knee replacement (TKR). The objectives of this study were to characterize sNeP in OA pre-/post-TKR and explore relationships between pre-TKR sNeP and post-TKR outcomes.

**Relevance:**
Identification of sNeP will improve physiotherapists’ capacity to provide comprehensive OA pain management.

**Materials and Methods:**
To date, 93 people with OA completed baseline and one-month post-TKR postal surveys for this ongoing observational study. Variables included: sNeP (Yes/No) measured by the S-LANSS scale (scores ≥12 suggest NeP), pain using the Intermittent and Constant Osteoarthritis Pain measure (ICOAP), pain catastrophizing (PCS), Patient Health Questionnaire-9 (depression), age, sex, body mass index (BMI) and co-morbidities.

**Analysis:**
Descriptive statistics summarized the proportion of people with sNeP pre- and/or post-TKR and characterized these groups based on demographics and outcomes. Point-biserial correlations ex-
explored the association between pre-TKR sNeP and early post-TKR outcomes

Results:
sNeP was absent in 36 (49%), developed in 14 (19%), resolved in 9 (12%), and persisted in 15 (20%) cases. At baseline, those with sNeP tended to be more likely female and have higher BMI, ICOAP, PCS and depression scores. One-month post-TKR, those with sNeP tended to be older, and have higher BMI, ICOAP, PCS and depression scores. Baseline sNeP was modestly associated with one-month intermittent pain (r=0.27, p=0.02) and depression (r=0.24, p<0.05).

Conclusions:
An important proportion of people with OA undergoing TKR have sNeP. Those with sNeP have higher pain, catastrophizing and depression scores. However, these preliminary data suggest pre-TKR sNeP may have limited prognostic value for early post-TKR outcomes.

Keywords: osteoarthritis, total knee replacement, neuropathic pain

A067 Core Outcome Measures for Complex Regional Pain Syndrome Clinical Trials (“COMPACT”)

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Purpose/Objectives and Rationale:
An international consortium of patients, clinicians and researchers was established under the auspices of the International Association for the Study of Pain Complex Regional Pain Syndrome (CRPS) Special Interest Group, to establish and agree to a minimum core set of outcome measures recommended for use in all CRPS clinical trials.

Relevance:
CRPS is a pain condition which left untreated can lead to poor quality of life and high disability. Currently, synthesis of clinical trial evidence is limited as there is no agreed upon standardised core measurement set.

Materials and Methods:
Four workshops informed the development of the first core measurement set using an iterative process of consensus. Attendees comprised patients, clinicians, researchers, and industry members which were recruited from the global CRPS community. Workshop 1 established the research question and core domains to be evaluated. Workshop 2 agreed constructs within the domains. Workshop 3 identified preliminary instruments for the first measurement set. Supplementary work included a systematic literature review, modelling of potential measurement sets, teleconference and email correspondence.

Analysis:
Workshop 4 brought all members together to analyze, discuss and reach consensus on the format and content of the final draft data set.

Results:
Key domains for evaluation in CRPS clinical trials were affirmed as: pain, disease severity, participation and function, emotional and psychological function, self-efficacy and patient’s global impression of change. The first “COMPACT” set comprises existing instruments integrated with an established item bank of outcome measures.

Conclusions:
The establishment of “COMPACT” will facilitate investigation of specific research questions for the advancement of treatment of CRPS.

Keywords: Clinical trials, Assessment, Outcomes, CRPS, Complex Regional Pain Syndrome

A068 Hand-Arm Vibration Syndrome: Part of the Job or Preventable Disease?

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Purpose/Objectives and Rationale:
Hand-Arm Vibration Syndrome (HAVS) is an occupational disease resulting from exposure to high frequency vibration from the use of hand-operated pneumatic and electric tools affecting the vascular, neurological and musculoskeletal systems. Objectives: To determine 1) perceptions of disability, 2) nature of functional compromise and influence of contextual factors in persons living with HAVS and 3) determine whether there is a role for physiotherapy in HAVS assessment and management.

Relevance:
Previous research is based on the biomedical perspective, with a paucity of information considering patient perspectives.
Materials and Methods:
The study was approved by St. Michael’s Hospital and University of Toronto Research Ethics Boards and used a qualitative descriptive design with one-on-one semi-structured telephone interviews. It aimed to obtain results from 10-15 participants using purposive sampling from a hospital-based Occupational Health Clinic.

Analysis:
Data was analyzed using conventional content analysis.

Results:
12 participants were interviewed (11 male, 1 female; mean age 46±11 years). Participants experienced numbness, tingling, pain; and impaired dexterity, strength and sensation. Participants reported feeling HAVS was part of the job and implemented strategies to complete job duties, compromising safety. Symptoms impacted home, leisure and social activities. Participants expressed frustration, loss and worry for the future, often minimizing their condition to help cope. Many viewed HAVS as a disability, commenting on lack of prevention in the workplace and management after diagnosis.

Conclusions:
HAVS has an appreciable impact on functional, social and emotional facets of life and work. The study identifies a potential role for physiotherapists in prevention, assessment, and management of HAVS.

Keywords: hand-arm vibration syndrome, occupational disease, disability, physiotherapy, biopsychosocial, quality of life

A069 Effect of Bracing vs Kinesiotape for Lateral Epicondylosis: a Crossover Trial

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Purpose/Objectives and Rationale:
The purpose of this study was to compare the efficacy of counterforce bracing and kinesiotape (KT) immediately upon application and following five minutes of repetitive upper extremity activity in patients with lateral epicondylosis (LE).

Relevance:
LE is a common condition treated by physiotherapists.

Materials and Methods:
Thirty patients aged (19-69 years) with LE (mean duration of symptoms =24.8 ± 27.6) were tested for pain free grip strength (PFGS), pressure pain threshold (PPT) and pain levels before and following five minutes of a standardized physical activity exposure (standardized task from the FIT-HANSA protocol) and compared with a control (no brace or KT) condition first, then compared to brace or kinesiotape in a crossed over design.

Analysis:
Two way Repeated Measures ANOVA were performed to assess within and between group differences for each outcome.

Results:
Patients with LE demonstrated statistically significant improvement in PFGS with both bracing (2.3 kgs) and KT (4.3 kgs) (p<0.01) immediately upon application. There was a significant decline in PFGS (2.2kgs) and a concurrent increase in pain level following the activity with brace ( p=0.001), but no significant worsening with KT. There was no statistically significant change in PPT across all treatment and time conditions (p>0.05) but an increase in pain levels with activity (p<0.05). Sixty percent (n=18) of patients preferred KT over bracing.

Conclusions:
While both bracing and kinesiotape alleviate symptoms of LE at rest; only kinesiotape maintained free grip strength after activity. The long term effects and the implications of patient preferences requires further study.

Keywords: lateral epicondylosis, tennis elbow, randomized trial, tendinosis

Proposal Presentations

P001 Exercise, Physical Activity, Fitness and Falls in People with Early Memory Problems

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Learning Objectives and Session Content:
At the end of this session, attendees will be able to:

1. Describe the research related to exercise and physical activity in community-dwelling people with early memory problems.

   Content: A review of the literature related to the benefits of exercise and physical activity in people with early memory problems will be discussed. An overview of recently conducted research related to exercise and physical activity in community-dwelling people with early memory problems living in rural and remote areas will be provided.

2. Describe the research related to falls in community-dwelling people with early memory problems.

   Content: A review of the literature related to falls in people with early memory problems will be discussed. An overview of recently conducted research related to falls in community-dwelling people with early memory problems living in rural and remote areas will be provided.

3. Discuss the concepts of ‘functional fitness’ and ‘physical fitness’ in community-dwelling people with early memory problems.

   Content: Functional and physical fitness will be described. An overview of recently conducted research related to “fitness” of community-dwelling people with early stage memory problems living in rural and remote areas will be provided.
Relevance to the Physiotherapy Profession:
With the shift to a self-management approach for people with dementia, physiotherapists play an important role in screening for and encouraging health and wellness promotion behaviours related to ‘functional fitness,’ ‘physical fitness’ and falls in people with early-stage dementia.

Target Population:
Physiotherapy students and physiotherapists interested in older adults, and older adult health and wellness; anyone interested in or concerned about older adults neurodegenerative conditions.

Description of Supporting Evidence:
Over 35 million people worldwide are living with dementia. Dementia is now viewed as a chronic disease, and countries across the globe are calling for a population health and a chronic disease management strategy approach to dementia, comprised of early intervention and treatment, risk reduction, and self-management. An important component of early intervention, risk reduction and self-management is maintaining or improving fitness and preventing falls. ‘Functional fitness’ is concerned with having the physical capacity to daily activities safely and independently without undue fatigue, and can be viewed from the perspective of enhancing health, function and mobility for persons with disabilities. ‘Physical fitness’ defined as “[a set of] measurable health and skill-related attributes” that include cardiorespiratory fitness, muscular strength and endurance.

Falls in people with dementia is an under-researched area. A dearth of studies exist examining those with early memory problems, with the large majority reporting about people with moderate to severe impairments living in specialized care units.

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4. Rikli RE, Jones JC. Development and validation of a functional fitness test for community-residing older adults. J Aging Phys Act. 1999;7:129-61
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Description of Session Format:
The session will be comprised of a 40 to 45 minute presentation, followed by a facilitated 15 to 20 minute question and answer period and group discussion.

Conclusions and Implications:
With the prevalence and incidence of dementia increasing and the shift to a self-management approach for people with dementia, physiotherapists need to be well equipped to understand their role in screening for and encouraging health and wellness promotion behaviours related to ‘functional fitness,’ ‘physical fitness’ and fall prevention in people with early-stage dementia.

Keywords: older adults, early memory problems, exercise, physical activity, falls, community-dwelling

Practice Models and Health Policy

Abstract Presentations

A003 A Systematic Scoping Review: Unmet need for Community Based Physiotherapy in Canada
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Purpose/Objectives and Rationale:
This systematic scoping review (SSR) investigates unmet need for community based physiotherapy services (CBPTS) for Canadian adults. The secondary purpose is to identify themes from the included papers related to unmet need for CBPTS using McIntyre et al’s access framework and Bradshaw’s taxonomy of social need.

Relevance:
This SSR is the first to explore reasons for unmet need for CBPTS across multiple populations and conditions in Canada. The results from this paper may inform policy decisions related to delivery of CBPTS to achieve health equity and improved quality of life.

Materials and Methods:
The SSR was completed between May - September 2015. The methodology proposed by Arksey & O’Malley and the recommendations to advance scoping studies by Levac et al. were followed

Analysis:
Two reviewers independently reviewed 2277 abstracts using specific inclusion criteria and selected 191 articles for full text review. Data extraction and thematic analyses related to unmet need was completed on 23 full text articles. We used McIntyre et al’s dimensions of availability, affordability, acceptability and Bradshaw’s definitions of social need – normative, felt, comparative, expressed - to categorize unmet need for CBPTS

Results:
Comparative need and availability of services were the most common type and reason identified in relation to unmet need. Individuals from rural communities and with chronic conditions more frequently identified barriers to accessing CBPTS

Conclusions:
Unmet need for CBPTS exists in Canada. Physiotherapists are challenged to adjust service delivery to maximize aggregated
health outcomes, including mobility and independence, and minimize stress on the health care system as the population ages.

Keywords: unmet need, access, service delivery, health equity

A018 Clinician Perspectives of Outpatient Rehabilitation Care: Ask and They Will Answer

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Purpose/Objectives and Rationale:
To define front line care provider’s perspectives and understanding of the current state of outpatient rehabilitation service delivery for Health Ministry directed clinical streams, for the purpose of informing priorities and process for implementation of evidence-informed care practices.

Relevance:
Physiotherapists are key members in outpatient rehabilitation service delivery teams. System driven change in front line care practices will not be readily adopted without direct engagement and input from clinicians.

Materials and Methods:
We conducted a semi-structured interview survey of 74 clinical groups with front line clinicians (n=65 PTs) across nine settings in a large health care region, ensuring we received perspectives from all disciplines providing outpatient rehabilitation care for key health populations. Surveys were conducted by senior clinicians in person or over the phone. The survey was seeking to elicit a greater understanding of clinician’s perspectives on models of care, evidence-informed practice decisions, and utilization of self-reported / performance measures and SMART goals.

Analysis:
Textual data from open ended questions in the survey were compiled for qualitative thematic analysis.

Results:
Key themes emerging from clinicians included: 1) person (client)-based considerations were essential for all care decisions, 2) flexibility in service delivery models that allow for clinical judgement are fundamental, 3) clinicians need to identify that some clients “Don’t fit” into current services, and 4) it is vital to ensure equitable and timely access to outpatient rehabilitation care.

Conclusions:
Front line clinicians can provide a unique and vital perspective for ways to improve rehabilitation service delivery which is often not considered by decision makers within the health system.

Keywords: Clinician perspectives, service delivery, outpatient, rehabilitation, evidence-informed

A023 Leadership Capabilities of Physiotherapy Managers: a Frame Analysis

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Purpose/Objectives and Rationale:
To explore physiotherapy managers’ perceptions of their leadership capabilities and challenges.

Relevance:
Investigation of the leadership capabilities physiotherapists is needed to allow better understanding of current leadership practice and to enable appropriate training programmes to be developed.

Materials and Methods:
In this qualitative descriptive study semi-structured interviews were conducted with a purposive sample of physiotherapy managers in Ireland. Interviews were conducted in person, audio-taped and transcribed verbatim by the researcher.

Analysis:
The interviews were analysed using a template analysis approach. The deductive codebook was based on the Bolman and Deal Leadership framework. This framework details four leadership frames: structural, human resource, political and symbolic. Additional codes in the data that did not fit into the initial deductive codebook were subsequently added to the codebook to allow further themes to be identified.

Results:
Interviews were conducted with eighteen physiotherapy managers from a range of clinical and demographic backgrounds. Physiotherapy managers reported use of all four leadership frames. However, strategies associated with the structural and human resource frames were more prevalent than strategies and behaviours associated with the other frames. The employment of the political frame varied between participants; some participants were comfortable working through this frame while others appeared less likely to take this approach. Within the theme ‘leadership challenges’ four subthemes were found: ‘changing structure’, ‘lack of resources’, ‘other professions’, and ‘time constraints’.

Conclusions:
Physiotherapy managers perceive the physiotherapy profession to be facing several leadership challenges. Physiotherapy managers need to demonstrate balanced and effective leadership skillsets if they are to successfully meet these challenges.

Keywords: Leadership, practice management, professional development, thematic analysis
**A024  Physiotherapy Managers’ Perceptions of Their Leadership Effectiveness**

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**Purpose/Objectives and Rationale:**
To investigate the leadership styles of physiotherapy managers by exploring their use of leadership frames.

**Relevance:**
To be effective leaders in today’s challenging healthcare environment physiotherapy managers must employ a comprehensive, adaptable and balanced leadership style.

**Materials and Methods:**
In this cross-sectional study a purposive sample physiotherapy managers (n=73) were surveyed using the Bolman and Deal Leadership Orientations Index (LOI). The LOI determines the frames that the respondent uses and also asks the respondent to rate their effectiveness as a manager and as a leader.

**Analysis:**
Frequencies and percentages were calculated for frame usage. The Jonckheere-Terpstra Test for trend was performed to investigate if there was a relationship between the number of frames that a respondent uses and their self-rating as a manager and/or leader.

**Results:**
Forty-five physiotherapy managers participated (response rate =62%). The human resource frame was used most frequently (60.5%) and the political frame least frequently (9.3%). The majority of respondents reported using only one or no frames at all (65.1%). A third of respondents (n=14) gave themselves the top rating of 5 for managerial effectiveness, whereas 19.0% (n=8) gave themselves the top rating for their leadership effectiveness. There was a statistically significant trend between the number of leadership frames a physiotherapy manager used and their perceived effectiveness as a manager (TJT=380, z=1.975, p=0.048) and as a leader (TJT=431, z=3.245, p=0.001).

**Conclusions:**
The physiotherapy managers’ use of the human resource frame demonstrates that they see the building of relationships as key to effective leadership. Development of physiotherapy managers’ underused skills may enhance their leadership skill set and make them more confident as leaders.

**Keywords:** Leadership, practice management, physical therapy specialty, Ireland

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**A034  Integration of Rehabilitation Into the Emergency Department: a Demonstration Project**

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**Purpose/Objectives and Rationale:**
To measure the effectiveness of implementing four Clinical Resource Therapists (CRT) positions to provide practice support to 400 frontline physiotherapists and rehabilitation assistants for urban, rural, and remote sites across Vancouver Coastal Health Authority’s three communities of care: Richmond, Vancouver, and Coastal.

**Relevance:**
Comprehensive and accurate assessment of patients’ mobility level, cognitive status, and self-care abilities is the expertise of rehabilitation professionals.

**Materials and Methods:**
The project integrated rehabilitation professionals into the existing ED team as the “Functional Assessment Consult Team” (FACTeam). A total of 164 older patients; with low medical acuity, requiring a functional assessment, were assessed by the FACTeam (either an occupational therapist or physiotherapist). Experience surveys were complete by patients and staff.

**Analysis:**
Decision Support used a cohort-comparison from the same three-month period in the previous year to determine outcome data.

**Results:**
Patients and staff reported positive experiences. Outcome data supported the use of rehabilitation professionals in the ED, with a 13% reduction in admissions of patients seen by the FACTeam. For patients discharged from the ED, the median PIA to disposition time reduced 26%.

**Conclusions:**
Staff engagement, leadership endorsement and a quality improvement approach contributed to a successful demonstration project. The organization continues to discuss integrating ongoing rehabilitation roles in the ED.

**Keywords:** rehabilitation, emergency department, complex older patients, functional assessments, demonstration project

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**Poster Presentations**

**A057  A Centralized Model of Practice Support Using Clinical Resource Therapists**

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**Purpose/Objectives and Rationale:**
To measure the effectiveness of implementing four Clinical Resource Therapists (CRT) positions to provide practice support to 400 frontline physiotherapists and rehabilitation assistants for urban, rural, and remote sites across Vancouver Coastal Health Authority’s three communities of care: Richmond, Vancouver, and Coastal.
Relevance:
An innovative model to support clinical practice focusing on the areas of Cardio-respiratory/Chronic Disease, Neurology/Spine, Musculoskeletal/Orthopedics, and Senior’s Health/Residential Care. CRT interactions enhance physiotherapy service delivery by improving clinical knowledge and skills, standardizing ‘best care’, and improving patient outcomes.

Materials and Methods:
Collection of qualitative data from tracking CRT utilization (location, time, type of support), a 10 minute response time, methods of access (phone, email, face to face), feedback from an online survey and regular staff meetings.

Analysis:
The data analysis focuses on where, how and why CRTs are accessed across the region. Themes emerged to assist with improvements in best practices, education delivery, use of ‘communities of practice’, new staff orientation, and career development.

Results:
The CRT utilization pattern aligned with the distribution of frontline staff across the region. Enhancements in staff satisfaction regarding the ease of access to timely practice support, access to high quality clinical and education resources, and measurement of foundational and enhanced clinical competencies.

Conclusions:
The implementation of a regional model to support physiotherapists and rehab assistants over a large geographic area improved the quality and efficiency of clinical leadership resources. The use of innovative technology to support clinical practice, education, and continuing competency improve the overall quality of patient care.

Keywords: practice support, regional model, clinical competence

A062 Evaluation of an Optimized Scope Physiotherapist Role in Pediatric Orthopedic Clinic
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Purpose/Objectives and Rationale:
To evaluate the effectiveness of an optimized scope physiotherapy role in reducing wait times for non-acute paediatric orthopaedic clinic patients.

Relevance:
Prior to the introduction of an Optimized Scope Physiotherapist role, wait times at our facility for non-acute referrals to paediatric orthopaedic surgeons fell outside of acceptable limits. While there are a number of advanced practice roles for physiotherapists described in Canada, none have used an optimized scope physiotherapy role as primary practitioner in the care of non-acute referrals to paediatric orthopaedic clinic such as normal variants, knee pain, or idiopathic toe walking.

Materials and Methods:
Wait time data for non-acute referrals was obtained from the Community Wide Scheduling module of Medical Information Technology Inc.’s software MEDITECH for: PRE= April 1st, 2012 – March 31, 2013 (n=266 days) prior to the introduction of the Optimized Scope Physiotherapist in April 2013, and POST= April 1, 2014 – March 31, 2015 (n = 388 days).

Analysis:
Data was analyzed using T-tests to determine PRE-POST differences in mean wait times.

Results:
There was a significant reduction (p < .0001) in wait time (days) from PRE 2012/13 (Mean = 381.50 ± 192.71, Min = 0, Max = 1152) to POST 2014/15 (Mean = 263.94 ± 142.74, Min = 0, Max = 748).

Conclusions:
Patient wait times for non-acute referrals were significantly reduced following the introduction of an Optimized Scope Physiotherapist role in orthopaedic clinic. Further evaluation of this role, examining variables such patient/family and staff satisfaction, is currently underway.

Keywords: Paediatric normal variants, Optimized Scope Physiotherapist, Orthopaedics, wait times

Proposal Presentations

P007 Exercise Is Medicine Canada - Physiotherapists Leading the Way
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Learning Objectives and Session Content:
The Exercise Vital Sign (EVS) is a key vital sign you need to monitor with the majority of patients seen in physiotherapy practice today. Explore the evidence on the impact of physical activity and exercise on your patient’s physical and mental health. Learn how to efficiently integrate the EVS into your daily practice and to provide basic exercise counseling and prescription for your patients to prevent, manage and treat chronic disease.

Learning Objectives
1. Discuss the health benefits and safety of regular exercise with patients.
2. Use the exercise vital sign as part of routine patient assessment and treatment planning.
3. Provide basic aerobic exercise counseling, prescription and monitoring for patients as part of routine patient care.
4. Become familiar with a motivational counseling framework for health behaviour change.

Relevance to the Physiotherapy Profession:
Physiotherapists are playing a leadership role within the Exercise is Medicine Canada (EIMC) initiative. CPA is represented on the EIMC Advisory Council. Despite this, many physiotherapists have
yet to be introduced to the Exercise Vital Sign and other EIMC tools and resources that facilitate assessment of exercise and physical activity levels, counseling, prescription and referral to community based resources for the prevention, treatment and management of chronic disease.

Target Population:
All physiotherapists working in primary care and concerned with the prevention, treatment and management of chronic disease.

Description of Supporting Evidence:
Low cardiorespiratory fitness is the highest attributable factor to mortality for all cause deaths for men and women; higher than obesity, smoking, hypertension, high cholesterol and diabetes. (Blair, SN. Physical Inactivity: the biggest public health problem of the 21st century, British J. Sports Med 2009; 43:1-2.) Only 15% of Canadian adults currently meet the Canadian Physical Activity Guidelines of 150 minutes of moderate-vigorous physical activity per week (Health Reports, CHMS 2007-2009); the amount of physical activity required for health benefits related to the prevention, treatment and management of chronic disease, both physical and mental (Canadian Society for Exercise Physiology, Canadian Physical Activity Guidelines, www.csep.ca).

Description of Session Format:
Lecture format with opportunity for 1-3 short case discussions and problem based small group discussion.

Conclusions and Implications:
Physiotherapists attending this session will review the evidence on the importance of cardiorespiratory fitness to health through a new multidisciplinary lens and will enhance their practice through the application of the new EIMC physical activity and exercise assessment, counseling, referral and prescription tools and resources for the prevention, treatment and management of chronic disease.

Keywords: physical activity, exercise vital sign, prevention, chronic disease,

P011 Exploring the Implications of the Truth and Reconciliation Commission: What is Our Role?
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Learning Objectives and Session Content:
The objectives of this session are to introduce the spirit, process and recommendations of the Truth and Reconciliation Commission report, which was released in June 2015, and engage physiotherapists in a reflective discussion in which we consider the implications of this report for Canadian physiotherapists and the profession as a whole.

Relevance to the Physiotherapy Profession:
Indigenous peoples make up just over 4% of Canadians and are a growing population. Health disparities exist across the lifespan among Indigenous populations living in Canada with more Indigenous peoples experiencing higher numbers of concurrent chronic health conditions at younger ages, compared to the general Canadian population. Physiotherapists have the knowledge and skills to help people manage both acute and chronic conditions and help to restore function, improve mobility and promote health. With such knowledge and skills, physiotherapists are well equipped to have a positive impact on the health and wellness of Indigenous individuals. However, we have a responsibility to adapt our model of care to provide care that is relevant and respectful to the diverse needs of First Nations, Mètis and Inuit populations. We need to examine our western-based physiotherapy practices and ensure the strategies used to engage clients are appropriate given the legacy of colonization, including residential schools.

Target Population:
The report from the Truth and Reconciliation Commission highlights the need for a collective effort on the part of Indigenous and non-Indigenous peoples across Canada to revitalize the relationship. With this in mind, all physiotherapists should reflect and engage in discussions on how to ensure that their practice creates an environment of understanding. Physiotherapy clinicians and those involved in administration, education and health policy have crucial roles to play in the reconciliation process and would benefit from participating in this session.

Description of Supporting Evidence:
The Canadian Physiotherapy Association (CPA) released its position statement ‘The Role of Physiotherapy in Aboriginal Health Care’ in 2013, stating that physiotherapists have the skills to address the unique needs of Indigenous peoples. This position statement was developed in response to a call by its members, as well as the background paper ‘Access to Physiotherapy for Aboriginal Peoples in Canada’. In June 2015, the Truth and Reconciliation Commission report was released. A number of the calls to action published by the Commission relate to health care services and health care resources. There is currently no information available to help physiotherapists understand how they can contribute to the reconciliation process.

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Description of Session Format:
The session will be organized as a panel presentation with Indigenous and non-Indigenous physiotherapists and non-physiotherapists. The session will begin with an introduction to the TRC Report and its ‘Calls to Action’ and then will engage the audience in reflective and progressive discussions. For instance, we will explore how physiotherapy might reflect on its models of practice and role in advocating for health policy change to be able to contribute to the reconciliation process.

Conclusions and Implications:
The Canadian Physiotherapy Association has published documents that support the role for physiotherapists in Indigenous health in Canada and the need to ensure that this population has access to physiotherapy services. We hope that this session will result in individual and collective action among physiotherapists that they can carry on in their respective work environments to further the process of reconciliation and help us as a profession, identify the next steps.

Keywords: Aboriginal, Indigenous, Practice Model, Advocacy

P013 Examination of an Unique Adult Day Slow-stream Rehabilitation Program for Older Adults
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Learning Objectives and Session Content:
Limited health care and system resources, and a focus on moving care to the community have resulted in much shorter hospital stays for older adults and discharge to home prior to full recovery. With the burden of care for older adults shifting to informal caregivers and family, and community-based formal care and services, unique Adult Day Services (ADS) may become important models to help older adults with the transition period from hospital to home. The overall aims of this session are to: (1) increase understanding of how a unique community-based ADS program [Goldies2Home (G2H)], as a model of care, targets the needs of older adults discharged from hospital; and, (2) examine Goldies2Home, as a model of care, from the perspectives of G2H participants, caregivers, G2H staff, and Community Care Access Centre Coordinators.

Objectives: At the end of this session, attendees will be able to:
1. Describe the foundations and availability of slow-stream rehabilitation programs for older adults.
   Content: A review of the literature related to the need for and the prevalence and impact of slow-stream rehabilitation programs for older adults.
2. Evaluate how a unique ADS program, Goldies2Home (G2H), as a model of care, targets the needs of older adults.
   Content: G2H as a model of care will be described. An overview of G2H will be presented.
3. Discuss the perspectives of G2H staff, G2H participants and their caregivers, and Community Care Access Centre Coordinators of the Goldies2Home program.

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Description of Session Format:
The session will be comprised of a 40 to 45 minute presentation, followed by a facilitated 15 to 20 minute question and answer period and group discussion.
Conclusions and Implications:
Unique community-based, slow-stream rehabilitation adult day service programs, such as G2H, have the ability to increase older adults’ levels of physical and psychosocial function and resiliency, quality of life, self-perceived health, and satisfaction with transitional care. In addition, caregivers of participants enrolled in G2H, often older adults themselves, may also experience positive effects as a result of community-based adult day transitional care programs.

Older adults and policy makers consider the maximization of time “aging in place” in the community, to be of critical importance. G2H, a unique ADS, has the potential to provide a key role for mitigating risk and maximizing mobility and resilience in older adults through the provision of primary care services and chronic disease management, while ensuring optimal aging at home.

Keywords: older adults, slow-stream rehabilitation, adult day services, community-based care

P014  Physiotherapists in Primary Health Care: Supporting Integration in Ontario

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Learning Objectives and Session Content:
This learning session will discuss how the commitment and investment by stakeholders across the province is helping enable the successful integration of physiotherapists in primary health care organizations in Ontario. From advocacy to operationalization, supporting the implementation and expansion of roles for physiotherapists in primary health care teams has been a longstanding priority for the Ontario Physiotherapy Association (OPA). Recent policy changes and a government investment in primary health care physiotherapy services created a dramatic increase in opportunities for physiotherapists in this sector. To foster success and excellence in these new positions, OPA entered a variety of collaborative partnerships with primary health care administrators, government, other associations, and experts across the province. Activities have included the development of a community of practice, support of the hiring and implementation processes, creation of webinars and other educational resources, development of evaluation and outcome measures and the ongoing work of the OPA's Primary Care Advisory Committee.

This session will describe the broad range of strategies, activities and partnerships that have supported the realization and success of these new roles for physiotherapists in primary health care in Ontario.

By the end of the session, participants will be able to:
1. Discuss and reflect on the collaborative work undertaken to support implementation and success of these new roles for physiotherapists in primary health care.
2. Appreciate the diversity of innovative models being implemented by primary health care physiotherapists in Ontario.
3. Evaluate the evidence for physiotherapy services in a primary health care model.

Relevance to the Physiotherapy Profession:
Two recent changes in health system policy and investments in publicly funded physiotherapy in Ontario have meant physiotherapists are integrating into primary health care teams on a scale that has never before been possible in Ontario. Though physiotherapists have been eligible to join Community Health Centres (CHC) and Aboriginal Health Access Centres (AHAC) since the creation of these models, policy barriers prevented physiotherapists (PTs) from practicing as PTs in other primary health care groups. In 2013, successful advocacy efforts saw these barriers removed and for the first time physiotherapists became eligible to join Family Health Teams (FHT) and Nurse-Practitioner Led Clinics (NPLC).

Then, in November 2014, Ontario's Ministry of Health and Long-Term Care (MOHLTC) invested $4.2 million dollars to fund 38.3 new full time equivalent (FTE) program-based physiotherapist positions in primary health care organizations across the province. Most of these organizations had never worked with a physiotherapist on their team, creating need and opportunity for external support in the hiring and implementation of these new positions.

Physiotherapists in primary health care teams are demonstrating an important role for physiotherapy services in a population-based and community-focused mandate. The successful integration of these roles is important to the profession; demonstrating value, scope and versatility of the profession in responding to the needs of an evolving health system.

The collaborative effort of organizations, associations, administrators, team members and physiotherapists in all sectors demonstrates a high perceived value of these roles across sectors and professions. It has created new and diverse opportunities for collaborative work and partnerships, to apply lessons learned from the integration experience of other health professions, and to champion excellence of physiotherapy services in trailblazing models of care.

Target Population:
This unique session will be of interest to primary health care clinicians and/or administrators. Congress delegates with an interest in stakeholder engagement strategies, health system policy, and Association activities/strategy will also enjoy this session.

Description of Supporting Evidence:
Across Canada the health care system is evolving to meet the challenges of increasing chronic and co-morbid conditions and the complex needs of an aging population. A key component of this change is a focus on comprehensive, collaborative models of primary health care. The evidence shows an important role for physiotherapy services in the delivery of effective primary health care including prevention and management of chronic and acute conditions (1).

Examination of primary health care physiotherapy services existing before the recent policy changes in Ontario found a great deal of diversity in models of care (1,2) and in roles for physiotherapists within these teams (3). This research, and studies describing the integration experience of other health care professionals (4), also identified a range of facilitators and barriers to the process of introducing novel service models and roles in this environment. The lessons-learned from these studies, as well as information gathered from primary health care organizations and physiotherapists, were used to guide work supporting the successful integration of these new positions for physiotherapists.

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**Description of Session Format:**
The session will be a presentation format describing the work undertaken to promote successful integration of physiotherapists into primary health care teams in Ontario. It will be followed by an open forum for questions and discussion about opportunities to support primary health care physiotherapy services across the country.

**Conclusions and Implications:**
An incredible range of work in advocacy, research, education, network-building, stakeholder engagement and best-practices has established an evolving framework of support for physiotherapy services in primary health care organizations. This work by organizations and individuals around the province has supported the successful integration of new models of physiotherapy services. It is also helping to foster excellence and best practices and to demonstrate the value of expanding opportunities for physiotherapy services in primary health care. The broad scope and effect of this collaborative work demonstrates the ability of a common goal to enable fundamental change in the system. Its implications reach beyond Ontario into all other jurisdictions working to implement or expand primary health care physiotherapy services.

**Keywords:** primary health care, models of care, stakeholder engagement, health system policy, community physiotherapy

**P016 “Build Back Better”: Developing Long-Term Disability and Rehabilitation Policy in Nepal**

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**Learning Objectives and Session Content:**
During the spring of 2015, Nepal experienced 2 mega-earthquakes that devastated much of country’s infrastructure and the affected lives of millions. Despite the wreckage, Nepal decided to apply the ‘Build Back Better’ principals to improve the political and policy milieu, and to initiate a strategic policy and action plan development process to meet the changing needs of the population. During this 60-minute educational session, we will draw on peer-reviewed evidence and our own ‘on-the-ground’ experience with the Nepal Office of the World Health Organization (WHO) and the non-governmental organization (NGO) community to discuss how the Nepal Ministry of Health and Population is developing health policy around disability prevention and rehabilitation. The participants will actively participate in a session that explores the structure and process of policy formulation and long-term strategic planning within the particularly complex political milieu of a post-disaster Nepal. We have two specific learning objectives for this session.

**Objective #1:** Participants will be able to articulate the policy premise of the ‘build back better’ approach, and how these policy principals are applied in complex emergency responses. Participants will also be able to develop an understanding of the policy challenges of prioritizing the needs of people with disabilities (PWDs) and provision of rehabilitation services.

**Objectives #2:** Participants will be able to establish a conceptual framework of the complex array of state and non-state actors involved in post-disasters settings, and the process through which short, middle and long term health policy and strategies are developed. Participants will also be able to develop an understanding of the challenges of positioning the needs of PWDs and rehabilitation provisions within the context of the ‘Build Back Better’

**Relevance to the Physiotherapy Profession:**

Driven by many variables ranging from longer life expectancy and increasing prevalence of non-communicable diseases, there are rising demands for rehabilitation services. Increased demand for services often engenders greater real and projected financial costs, a need to alter health systems priorities, and demands to change policy and practice to support such change. In order to understand policy, there is a need for physiotherapists to appreciate what policy means, how it is formed and under which circumstances, and practical ways to have an influence on policy change. Although this presentation will highlight policy formulation in a post-disaster setting in Nepal, it has relevance because the role of physiotherapy and physiotherapists in such as process transcend national boundaries and remains an instructive case study on health policy.

**Target Population:**
There will be two target populations who will likely express interest in this session. The first group is those interested in policy formulation, and the political process in general. We have ensured that the title of the presentation is such that it congress attended in policy are interested. The second group is those interested in global health and disability. We believe that the area of policy and global health may be of particular interest for student attendees.

**Description of Supporting Evidence:**
The ‘Building Back Better’ (BBB) concept highlights the opportunity to decrease the vulnerability of communities to future disasters during post-disaster reconstruction and recovery. The concept emerged following the Indian Ocean tsunami in 2004 and stresses that post-disaster reconstruction should be utilized to improve a community’s physical, social, environmental, and economic condition to create a new resilient state. The BBB concepts can be grouped into three main categories: risk reduc-tion, community recovery and implementation, and has been implemented in previous disasters. However, there are challenges when creating BBB policy that attempts to position the needs of people with disability and rehabilitation following a natural disaster.

In times of crisis, the vulnerable such as those living with an existing or newly acquired disability are most affected and often overlooked. Post-disaster reconstruction although tragic, provides a unique opportunity to decrease the vulnerability of people living with a disability to future disasters in the new social, political, and physical environments. The most recent natural disasters are the earthquakes that occurred in Nepal on April 25th.
and May 12th, 2015. The Government of Nepal stated that combined, the two earthquakes resulted in approximately 8,790 casualties and 22,300 injuries. It is estimated that 1,500 people with earthquake-related injuries require long term care and rehabilitation, including 40 amputees and 200 spinal cord injury patients. Nepal has seen a drastic increase in the number of people with a disability (PWD). Effective health policy is a priority to decrease the long-term effects of disability and meet the increasing demand for care of PWD. The disability and rehabilitation policy will build upon the existing health policies in Nepal. The National Health Policy of Nepal was adopted in 1991 to bring about improvement in the health conditions of the people of Nepal, with the primary objective of extending the healthcare system to rural areas. Since 2005, the Ministry of Health and Population (MoHP) initiated two five-year strategic plans with a priority on universal health care coverage. Despite these priorities, there continues to be inequity in health service deliveries and outcomes. Disability policy is essential to ensure equal access and accessibility to health care services for the entire population.

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Description of Session Format:
During the session, we will be using combination of different formats: some parts will be more traditional lecture style, there will be some use of video from Nepal, and the use of free online ‘voting’ systems to question that will be posed of the participants. Overall, the goals is to have high level of engagement among the participants, but to be cognizant that the time will be limited to 45 mins, thereby leaving about 15 for discussion and questions.

Conclusions and Implications:
There are rising demands for rehabilitation services globally. The difference in demand often requires changes to health care policy. In order to influence policy, there is a need for physiotherapists to appreciate what policy means, how it is formed and practical methods to do develop effective policy. This session explores the structure and process of disability & rehabilitation policy formulation and long-term strategic planning to develop well-accepted international policy. Policy development is applicable to all aspects of physiotherapy and rehabilitation. Effective policy allows equitable access to health care and rehabilitation services for PWD. Physiotherapists have an integral role in advocating for the rights of PWD at all levels of healthcare and policy development.

Keywords: disability, rehabilitation, health policy, emergency response

P022 The Business Model of Physiotherapy – What Next?
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Learning Objectives and Session Content:
After attending this presentation participants will be able to:
1. Describe conceptual frameworks of a business model and analyze health care business models in Canada.
2. Identify various physiotherapy business models, determine the business model at their own workplaces, and assess the implications of business model choice on physiotherapy practice.
3. Apply their learning so that they will be in a position to anticipate where the business model of physiotherapy could evolve in the future.

Business models in health care are transforming across the country. The business models chosen by individual practitioners, health care organizations (independent of sector), and health systems will have wide ranging impact on how health professions and individual health professionals practice in the future. Practical knowledge of business model concepts applied to the health care sector and the physiotherapy profession are essential so that physiotherapists will be in a position to remain indispensable to the health of Canadians.

Content will include an introduction to Clayton Christensen’s framework of a business model, and the application of the framework to the health care sector on the micro, meso and macro level. Other business model frameworks will be reviewed and discussed as well.

A proposed framework for analyzing physiotherapy business models will be reviewed, discussed, and refined with participation from seminar attendees. The concepts of practice and practice management (linked to the Essential Competency Profile for Physiotherapists in Canada) will be reviewed, and then Christensen’s business model framework will be applied to physiotherapy practice. Finally, participants will have the opportunity to utilize the seminar content by designing a physiotherapy business model “built to last” for the next 20-30 years.

Relevance to the Physiotherapy Profession:
Understanding the impact of business model choice has not been investigated to date in the physiotherapy literature. As key stakeholders throughout the health care system demand accountability, fiscal discipline, and an understanding of how health care resources can be utilized in a cost-effective manner, understanding business model concepts will enable Physiotherapists to make informed decisions regarding business model choices related to physiotherapy practice. The artificial borders between sectors and payers – private and public, profit and not for profit – are dissolving and an understanding of the impact of business model choice on one’s clinical practice, professional responsibilities, and curriculum development will contribute to how Physiotherapists evolve their practice.
Target Population:
The presentation will be targeted to a broad audience that is interested in the vital intersection of knowledge and competency in clinical practice, leadership, and business acumen, including practitioners, health care administrators, physiotherapy educators, and private clinic owners.

Description of Supporting Evidence:
There is a paucity of information in both the physiotherapy and health care literature in Canada describing and/or evaluating the impact of choice of business model on client care, the organizations which provide said care, and on the local, regional and provincial systems.

The “physiotherapy health service literature” to date has contributed to our understanding of how funding structure and market drivers impact health human resourcing in the physiotherapy profession (Landry, Williams, Verrier, Holyoke, Zakus, & Deber, 2008), (Holyoke, Verrier, Landry, & Deber, 2012), the impact of “de-listing” physiotherapy services in various jurisdictions (Paul, et al., 2008), how physiotherapists can contribute positively to emerging practice models (Cott, Mandoda, & Landry, 2011), and other health policy considerations. However, there has been no conversation and/or exploration of the impact of the choice of business model on the client experience, the health professional, and on the health system at the micro, meso and macro levels. The lack of exploration into a topic as fundamental as the business model is a significant gap in our understanding of how the physiotherapy profession can contribute to the overall health of Canadians.

Description of Session Format:
The session will be an interactive 60 minute session where participants will apply both lived experience and the material reviewed in further their understanding of the topic.

Conclusions and Implications:
As the physiotherapy profession continues to examine practice impacts of health policy decisions and legislative/regulatory changes (scope reviews and newly regulated professions), also understanding the possible impacts of business model choice is paramount to the health of our profession. This seminar will provide a forum for Physiotherapists to discuss how evolving business models in the health care system will impact physiotherapy practice, and hence our relationship with clients and families, and other key stakeholders in the health system. Following this seminar, participants will be better equipped to make decisions regarding business model choices related to physiotherapy practice.

Keywords: leadership, business model, practice, management

Abstract Presentations

A019 Clinician Decision-making for the Prescription of Ankle-foot Orthoses in Children

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Purpose/Objectives and Rationale:
Physiotherapists, orthotists, and physicians work collaboratively to facilitate successful prescription of ankle-foot orthoses (AFOs) for children with cerebral palsy (CP); however, clinicians lack evidence to optimize orthotic recommendations for each child. The study objective was to explore clinician perspectives about the factors that influence AFO prescription for children with CP in Canada.

Relevance:
Physiotherapists have an important role in AFO prescription and follow-up for children with CP, and a comprehensive understanding of the factors influencing the process may benefit clinical practice.

Materials and Methods:
Focus groups were conducted in five pediatric rehabilitation facilities in four provinces. In total, 32 clinicians (17 physiotherapists, 10 orthotists, 4 physicians, 1 kinesiologist) participated. The semi-structured interview focussed on the goals and types of AFOs used, referral and follow-up processes, and clinical evaluation measures.

Analysis:
An Interpretive Phenomenological Analysis approach was used to understand the clinicians’ perspectives and experiences with AFO prescription for children with CP. Transcribed dialogue was imported into NVivo 11 for data coding and analysis. Three researchers participated in coding to establish categories and themes.

Results:
Categories included: information that affects AFO design, processes to obtain and monitor AFOs, and factors that challenge outcomes. Strengths and challenges of the current prescription process were discussed, including funding, communication, and technology to enhance clinical evaluation. Throughout the interviews, the theme of prescription as a collaborative, iterative, and individualized process emerged.

Conclusions:
Factors that currently influence AFO prescription in Canada were identified. This is the first step toward the development of guide-
Conclusions:
Knee confidence may be a modifiable risk factor in those at risk of post-traumatic osteoarthritis. Further research should evaluate the association between knee confidence and PA or other clinical outcomes.

Keywords: knee injury, physical activity, post-traumatic osteoarthritis, modifiable risk factor

#### A027 Building Self-Efficacy for Aerobic Activity in Patients Post-Stroke: A Scoping Review

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**Purpose/Objectives and Rationale:**
To determine whether self-efficacy (SE) and adherence levels increase as a result of incorporating SE building components into aerobic activity (AA) based programming with patients post-stroke.

**Relevance:**
AA plays a key role in improving the physical and psychological health of patients post-stroke and is often prescribed by physiotherapists. However, research has shown that these patients have low levels of engagement in AA after discharge from rehabilitation programs. SE specific to AA accomplishment may serve to promote safe adherence to AA for these patients.

**Materials and Methods:**
The search strategy was developed by a university librarian, and included the databases MEDLINE, CINAHL, PsycINFO, Embase, Dissertations & Theses and Web of Science. To capture the full scope of available research, no year capping or quality guidelines were included. After removal of duplicates, n=1801 research reports (articles/abstracts/dissertations) remained.

**Analysis:**
The n=1801 reports were analyzed by three authors, resulting in an initial inclusion of n=99. Further analysis led to exclusion of 20, with a final total of n=79 included.

**Results:**
The available body of knowledge demonstrates level B evidence for use of SE development strategies to promote adherence to AA in patients post-stroke. Increased SE levels are correlated with increased engagement and maintenance of AA. Key motivators and barriers specific to SE are also discussed in the review.

**Conclusions:**
Findings indicate that increases in SE and adherence to AA must be accomplished using programs tailored towards these goals. Physiotherapists prescribing AA should therefore take on a concurrent role in the promotion of AA-based self-efficacy for this patient population.

**Keywords:** Self-efficacy, Aerobic Activity, Stroke, Exercise Adherence

#### A022 Knee Confidence in those at Risk of Post-Traumatic Osteoarthritis after Knee Injury

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**Purpose/Objectives and Rationale:**
To examine knee confidence in individuals who sustained a sport-related intra-articular knee injury in their youth (<18 years) compared to age, sex, and sport-matched uninjured controls, adjusting for fat mass index (FMI) and physical activity (PA).

**Relevance:**
After joint injury, low knee confidence may influence PA decisions. Physiotherapists may be able to address knee confidence to improve the health of these patients.

**Materials and Methods:**
Two hundred individuals (15-26 years); 100 who sustained a youth sport-related intra-articular knee injury 3-10 years previously and 100 uninjured controls, age, sex and sport-matched were recruited. Knee confidence was measured with a question from the Knee Osteoarthritis and Outcome Score and dichotomized into ‘not at all’ or ‘bothered.’ FMI was derived from dual x-ray absorptiometry (kg/m²). PA was obtained from the modified Godin-Shepard Leisure Time Questionnaire (total minutes/week).

**Analysis:**
Study groups were compared using descriptive statistics (mean within-pair difference; 95% confidence interval [95% CI]). Bivariable and multivariable conditional logistic regression examined the association between injury group and knee confidence adjusting for FMI and PA.

**Results:**
Nearly half, [49%(95% CI = 39.0%, 59.0%)] of injured participants were bothered by lack of knee confidence compared to 12%(95% CI = 5.5%, 18.5%) of controls. Bivariable analysis revealed injured participants were 5.0 times more likely to be bothered by knee confidence than controls [95% CI = 2.4, 10.2]. In the final multivariable model the odds of low knee confidence in injured participants was 7.5-fold that of uninjured controls [95% CI = 2.7, 21.1].

**Keywords:** Cerebral palsy, children, ankle-foot orthoses, clinical decision-making, phenomenology
**A035  Barriers to Implementing Exercise Recommendations for Osteoporosis in Long-Term Care**

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Purpose/Objectives and Rationale:

To identify the barriers to implementing evidence-based recommendations for physical activity and exercise for people with osteoporosis in long-term care (LTC), and make suggestions for future, targeted knowledge translation (KT) interventions.

Relevance:

The majority of residents in LTC have osteoporosis, and exercise and physical activity are recommended non-pharmacological interventions for people with osteoporosis. Evidence-based recommendations for exercise and physical activity for people with osteoporosis have recently been developed, however barriers to implementing them in the LTC context must be identified to develop tailored KT interventions.

Materials and Methods:

Qualitative data was gathered through individual interviews and focus groups.

Analysis:

Qualitative description and thematic content analysis were used to categorize the data into themes. The final themes were mapped onto the central behaviour system of the Behaviour Change Wheel by the research team, and all of the linked KT functions and policies were listed.

Results:

38 interdisciplinary rehabilitation professionals working in LTC participated in focus groups and interviews. The barriers identified were the residents’ physical capabilities (e.g., being unable to stand), physical and social opportunities within the LTC home (e.g., lack of physical space, poor interdisciplinary collaboration), and knowledge and self-efficacy of frontline staff for providing physical activity and rehabilitation. These map onto the KT functions of training, education, modeling, persuasion, incentivisation, and environmental restructuring.

Conclusions:

Future KT interventions should address the barriers and facilitators by providing resources and education regarding how to engage the complex residents who live in LTC in physical activity and exercise, promoting team work, and educating and empowering frontline staff.

Keywords: knowledge translation, osteoporosis, long-term care, exercise, physical activity

**A043  Early Mobilization Following Arthroscopic Rotator Cuff Repair**

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Purpose/Objectives and Rationale:

To evaluate the clinical outcomes following arthroscopic rotator cuff repair (ARCR) treated with early mobilization compared to a standard protocol.

Relevance:

Efforts to increase the efficiency of post-operative rehabilitation programs are needed.

Materials and Methods:

200 patients with full-thickness RC tear undergoing an ARCR were randomized to one of two groups following a preoperative assessment of shoulder pain, ROM, strength and health related quality of life (HRQL). During the first 6 postoperative weeks, subjects randomized to early mobilization (n=99) self-weaned from the shoulder immobilizer and performed painfree active ROM while the standard group (n=101) wore a sling for 6 weeks with no active ROM. Shoulder ROM, pain and HRQL were assessed at 6-weeks, 3- and 6-months postoperatively. At 6-months strength was re-assessed.

Analysis:

Independent t-tests, Chi-square and two–way ANOVA were used.

Results:

The two groups were similar preoperatively (p>0.12). The early mobilization group had increased forward flexion compared to the standard group (p=0.04). The early mobilization group had consistently more pain with activity than the standard group (p=0.02), but the group difference was less than 10%. The standard group had more bodily pain compared to the early mobilization group (p=0.04). There was no difference in strength (p=0.62) or HRQL (p=0.89) between groups.

Conclusions:

Early ROM did not show significant benefits for minimizing long-term stiffness and pain, but clinically there was no compromise of their postoperative strength or HRQL. Consideration should be given to allow painfree active ROM within the first 6 weeks following an ARCR.

Keywords: rotator cuff tear, arthroscopic rotator cuff repair, early mobilization, health-related quality of life (HRQL), functional outcome
**A047 Why to Integrate Quantitative Muscle Testing in Your Practice?**

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**Purpose/Objectives and Rationale:**
Quantitative muscle testing, a reliable, valid, and sensitive tool to assess muscle function, is increasingly used in neuromuscular clinics. However, it could take a greater role to guide decision making if optimally used with a standardized protocol to assess targeted muscle groups.

**Relevance:**
Muscle strength is a major outcome to monitor progression of patient physical health in physiotherapy.

**Materials and Methods:**
Using a cross-sectional design, strength (Muscular Impairment Rating Scale (MIRS), manual (MMT) and quantitative (QMT) muscle testing) and mobility capacities (Berg balance scale, Timed-up-and-Go, 10meter walking test) of 198 participants with adult and late onset phenotypes of myotonic dystrophy type 1 (DM1) were assessed.

**Analysis:**
Descriptive statistics of strength results (MIRS, MMT, QMT) and of mobility tests were reported. Boxplots of QMT results for each MMT score were performed.

**Results:**
For a given MMT score, QMT demonstrated a great range of muscle torque for all muscle groups. Among the late onset phenotype, although MMT showed normal strength, QMT revealed a loss of strength of up to 20%. Participants with MIRS of 1 or 2 (no lower limb weakness at MMT) presented significant quantitative weakness in three muscle groups. These results suggest earlier muscle impairment than what MMT alone would suggest. Unlike MMT scores, quantitative muscle strength loss is consistent with mobility capacity scores. Ankle dorsiflexors and knee extensors strength deficits significantly influenced the mobility scores.

**Conclusions:**
To detect muscle impairments in slowly progressive disease such as DM1, clinicians should use QMT assessment of targeted muscle groups, which would efficiently guide their interventions to optimize patient mobility.

**Keywords:** Muscle strength assessment, Lower limb, Neuromuscular diseases, Mobility capacities, Clinical decisions making

**A048 Can Physiotherapists Identify Patients Who Will Develop Persistent Low Back Pain?**

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**Purpose/Objectives and Rationale:**
This study aimed to identify findings, present during an acute low back pain (LBP) episode, which experienced musculoskeletal physiotherapists believe are important in predicting the persistence of LBP four months later.

**Relevance:**
Up to 20% of individuals who experience acute LBP develop persistent pain. Experienced musculoskeletal physiotherapists have expertise that may help them determine early on which LBP patients will develop persistent pain. Recognition of findings indicating which specific clients are most at risk would be of great utility in managing LBP.

**Materials and Methods:**
Experienced musculoskeletal physiotherapists (n=13) participated in a two-round Delphi study. Through a focus group (n=8) and online survey (n=5), participants identified subjective and objective assessment findings that they believe indicate increased risk of persistent pain in clients with acute LBP. In round two, participants rated whether each item was relevant to the risk of persistent pain (yes/no), and how often it was relevant, on a Likert scale.

**Analysis:**
Level of agreement on individual items was determined by computing the proportion of raters indicating if an item was relevant to increased risk, and also whether it was often or always relevant.

**Results:**
Five subjective and three objective findings reached greater than 80% agreement for relevance to risk of persistent pain. Only two items, catastrophic/overly emotional expressions of pain, and increased sensory sensitivity, reached greater than 80% agreement for being often or always relevant.

**Conclusions:**
These results provide a starting point for further research into the development of a clinical prediction rule to identify specific individuals at risk for persistent LBP.

**Keywords:** Low back pain, physiotherapy assessment, assessment findings, prediction of persistent pain
A089  Fostering Clinical Reasoning in Physiotherapy Using E-Learning with Concept Mapping

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Purpose/Objectives and Rationale:
Clinical reasoning represents a key element of expertise in physiotherapy. Concept maps are graphic representations of organized knowledge that can promote meaningful learning in health professions education. This study compares the effects of constructing a concept map (concept mapping) and studying a concept map (concept map study) on clinical reasoning skills in physiotherapy students engaged in e-learning.

Relevance:
This study gives insight into how educators can use concept mapping for fostering clinical reasoning in physiotherapy students engaged in e-learning.

Materials and Methods:
Sixty-one second-year physiotherapy students were randomly assigned to either concept mapping or concept map study condition. All participants engaged in a seventy-minute guided e-learning session during which, they studied three written examples presenting the clinical reasoning for selecting electrotherapeutic currents to treat patients with motor deficits. After each example, participants had to engage in either concept mapping or concept map study. Then, they participated in a three-week self-study phase during which they had unlimited access to the activities in the guided e-learning session. Two post-tests (after guided e-learning session and self-study phase) assessed students’ ability to solve new problems with similar solutions (near transfer) or different solutions (far transfer) from those in the examples studied.

Analysis:
Repeated measures ANOVAs on near and far transfer performance.

Results:
Learners engaged in concept mapping outperformed those engaged in concept map study on near (p = 0.015) and far transfer (p < 0.001) performance.

Conclusions:
Concept mapping led to greater transfer performance than concept map study, possibly because mapping allows students to deepen their understanding of problem-solving strategies.

Keywords: Clinical reasoning, e-learning, concept mapping, electrotherapy

A090  Efficience des méthodes de développement du raisonnement clinique en physiothérapie

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Purpose/Objectives and Rationale:
Comparer l’efficience de trois méthodes d’apprentissage par e-learning du raisonnement clinique en physiothérapie.

Relevance:
Le raisonnement clinique (RC) permet au clinicien de résoudre des problèmes de santé en choisissant les interventions appropriées (Higgs, 2000). Plusieurs méthodes pédagogiques permettent de développer le RC en physiothérapie. Cependant, peu d’études ont évalué l’efficience de l’apprentissage avec ces méthodes. Cette efficience est mesurée en considérant à la fois, l’amélioration de la performance aux tests d’apprentissage et la diminution de l’effort mental investi par l’apprenant pendant ces tests. Selon la théorie de la charge cognitive, l’efficience d’apprentissage est représentative de la qualité de la mémorisation à long terme des connaissances.

Materials and Methods:
91 étudiants de 2e année en physiothérapie randomisés dans trois groupes ont participé à des modules de e-learning basé sur des études de cas cliniques. Chaque groupe a participé à une activité complémentaire : 1) réflexion personnelle par auto-explication, 2) création de cartes conceptuelles et 3) étude de cartes conceptuelles.

Analysis:
Comparaison entre les trois groupes (ANOVA) de l’efficience d’apprentissage mesurée par la performance de résolution de cas et l’effort mental investi pendant la résolution (mesurée avec échelle validée de perception subjective).

Results:
L’efficience était plus grande (P<0.05) dans la condition « auto-explication » (performance : 63.2 ± 16.0% et effort mental : 5.9 ± 0.9) par rapport à la condition «construction de cartes conceptuelles» (51.0± 13.6%; 7.1 ± 0.8) et «étude de cartes conceptuelles» (53.3± 16.4%; 6.5± 1.0).

Conclusions:
L’auto-explication associée à des modules d’apprentissage en ligne est une méthode efficiente d’apprentissage du raisonnement clinique en physiothérapie.

Keywords: Raisonnement clinique, charge cognitive, efficience des apprentissages, modules en ligne, e-learning
A091  Demographics of Applicants to Ontario Physiotherapy Programs, 2004-2014
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Purpose/Objectives and Rationale:
The purpose of this study was to analyze demographics of potential future physiotherapists to determine if they were representative of the Canadian population. The specific objectives were to: examine data from all applicants and students in Ontario English-language Master’s of Physical Therapy programs in admission cycles 2004 to 2014, inclusive; extract relevant demographic variables; and analyze the results in light of the Canadian population. These programs have become increasingly competitive, with students from across Canada applying to one or more programs; thus, creating a large dataset to inform the research.

Relevance:
Very little is known about the demographics of physiotherapists in Canada. To develop a culturally competent physiotherapy workforce, we need to understand the diversity of Canadian physiotherapists, starting at the levels of applicants and students.

Materials and Methods:
Anonymized applicant records (n=14,135) were obtained for admission cycles 2004 to 2014, inclusive. Variables examined about applicants and students included their gender, geographical location from Canadian and international regions, and Aboriginal and immigrant status.

Analysis:
A descriptive analysis of counts and proportions was conducted for all variables.

Results:
The majority of applicants were female (70%), from southern Ontario (73%) and Canadian born (82%). Aboriginal and rural applicants comprised small proportions of the applicant pool (1% and 12%, respectively). There was a proportionally high number of applicants from British Columbia, relative to other Canadian provinces.

Conclusions:
While Ontario’s physiotherapy programs remain female dominated, the demographics of applicants and students were otherwise mostly representative of the diverse Canadian population.

Keywords: profession, health workforce, education, population diversity

A092  Management Strategies to Improve Timely Access for Outpatient Physiotherapy in Quebec
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Purpose/Objectives and Rationale:
Objective: The purpose of this study was to examine the association between waiting time and waiting list management strategies used in public outpatient physiotherapy services in Quebec.

Relevance:
The issue of extensive waiting lists for outpatient physiotherapy services has been raised in publicly funded healthcare systems across Canada. A few studies have reported strategies to manage wait lists. However, little is known about the actual association between these strategies and waiting time for outpatient physiotherapy services.

Materials and Methods:
We surveyed waiting list managers in publicly funded hospitals of Quebec that provide outpatient musculoskeletal physiotherapy services (n=98).

Analysis:
Associations between diverse management strategies (independent variables) and median waiting time (dependent variable) were assessed using bivariate and multivariate (generalized linear models) analyses.

Results:
Median waiting time was available for 83 of the 97 participating hospitals (mean median waiting time=230 days; standard deviation=342 days). Bivariate analysis indicated that the following two strategies were associated with a lower waiting time (p < 0.1): maximum waiting time targets and the use of an initial evaluation for prioritization that includes an intervention. In the multivariate model, only prioritization combined with initial intervention was associated with lower waiting times (p=0.008).

Conclusions:
Outpatient physiotherapy services that set a prioritization appointment combined with an initial intervention had significantly shorter waiting times. Implementation of this strategy could improve timely access to outpatient physiotherapy services.

Keywords: physiotherapy, outpatient, waiting list, management strategies, access, publicly funded health sector
To synthesize the literature on walking training in pediatric SCI, however, clinicians lack training guidelines. Walking is often targeted in the rehabilitation of pediatric spinal cord injury (SCI). Purpose/Objectives and Rationale:

- To assess the short- to long-term effects of therapeutic patient education (TPE) strategies on pain, function, disability, quality of life, global perceived effect, patient satisfaction, knowledge transfer, or behaviour change in adults with neck pain.

Relevance:

- Neck disorders are common, disabling, and costly. The effectiveness of patient education strategies for neck disorders is unclear.

Materials and Methods:

- We searched computerized databases for eligible randomized controlled trials (RCTs) investigating the effectiveness of TPE for neck pain. Paired independent review authors conducted selection, data abstraction, and ‘Risk of Bias’ assessment. Included studies were synthesized using the Cochrane GRADE Working Group grades of evidence.

Analysis:

- We calculated risk ratios (RR) and standardized mean differences (SMD), and performed meta-analyses after assessing heterogeneity.

Results:

- Of the 24 RCTs meeting selection, three TPE themes emerged: advice focusing on activation; advice focusing on pain & stress coping skills and workplace ergonomics; and cognitive-behavioural components. There was moderate quality evidence that an educational video focusing on activation is beneficial for pain reduction (1 trial) and a cognitive behavioural approach was beneficial for improving function in patients with neck pain (5 trials, 2 meta-analyses).

Conclusions:

- A cognitive behavioural educational approach may provide a small but beneficial improvement in function including fear avoidance beliefs for chronic neck pain and whiplash.

Purpose/Objectives and Rationale:

- Walking is often targeted in the rehabilitation of pediatric spinal cord injury (SCI), however, clinicians lack training guidelines. To synthesize the literature on walking training in pediatric SCI, a systematic review was conducted to: 1) describe participant characteristics, training parameters, and walking outcomes, and 2) compare training parameters and outcomes between pediatric and adult studies.

Relevance:

- Walking training is commonly delivered by physiotherapists, who use scientific evidence, including systematic reviews, to guide clinical decision-making.

Materials and Methods:

- Four databases were searched. Two authors independently screened all abstracts for inclusion (e.g., animal studies, reviews were excluded). One author extracted data on the participants (e.g., age), training parameters (e.g., mode, frequency) and walking outcomes from the included articles. Pediatric findings were compared to a similar review in adults with SCI (J Spinal Cord Med 2012;35:293). Two authors assessed the risk of bias using a domain-based approach.

Analysis:

- Descriptive statistics (i.e., mean, range, frequency) summarized the data.

Results:

- 103 abstracts were screened, 32 full articles reviewed, and 10 included. Eight were case reports. The overall risk of bias was high. Most participants were aged 10-17 years. Like adults, the training modes in pediatric studies varied, but always included practice of over-ground walking. In both groups the gains in walking were greater with higher training durations. The few children with motor complete walking showed similar gains as the children with incomplete SCI, contrary to previous findings in adults.

Conclusions:

- There is a paucity of high quality research on walking training after pediatric SCI. Intensive training with practice over-ground may be beneficial.

Keywords: walking, pediatrics, spinal cord injury, systematic review

Purpose/Objectives and Rationale:

- Adult survivors of a childhood brain tumour tend to have markers of poor cardiovascular and are more likely to develop overt cardiovascular disease. It remains unknown how early after treatment markers develop. The aim of this study was to measure the proportion of survivors of a pediatric brain tumour (PBT) with values of body mass index (BMI), waist circumference (WC), and
aerobic fitness meeting cut-offs associated with unfavourable cardiovascular health.

Relevance: Physiotherapists have an essential role in secondary disease prevention such as screening for markers related to poor cardiovascular health. Physiotherapists can serve an essential role in implementing interventions for these children.

Materials and Methods: 32 PBT survivors who had received cranial radiation were included in this cross-sectional study (age=12.3±3.4 years, age at diagnosis=7.0±2.5 years, time since treatment completion=4.5±2.8 years, 21/32 male). At a single visit, BMI, WC, and aerobic fitness were measured. Aerobic fitness was measured as peak mechanical power (Wpeak) according to the McMaster All-Out continuous cycle ergometer test. Wpeak was converted to peak oxygen uptake (VO2peak) and then expressed as the %predicted VO2peak.

Analysis: Measurements were compared to published cut-off values and percentiles (BMI≥+2 SDs, WC≥90th percentile, and %predicted VO2peak <85%).

Results: Of the participants, 15.6% had a BMI≥+2 SDs, 30.7% had a WC≥90th percentile, and 86.7% had a %predicted VO2peak <85%. 81% (26/32) of the participants had ≥ identified biomarker reflecting unfavourable cardiovascular health.

Conclusions: 81% brain tumour survivors have at least one biomarker indicating unfavourable cardiovascular health in childhood. Interventions designed to reduce biomarkers should be implemented early.

Keywords: Cardiovascular, paediatric, oncology, secondary prevention, exercise medicine

A064 The Validity of Body-Worn Sensors to Measure Gait in Pediatric Populations
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Purpose/Objectives and Rationale: Walking ability in children with neurological conditions can be assessed with the 10-m walk test (10mWT) and Timed Up and Go (TUG). However, these tests have a ceiling effect, which may be reduced with body-worn inertial sensors. These sensors measure gait parameters not easily evaluated in a clinical setting, such as trunk range of motion (ROM). The study objective was to determine whether instrumenting clinical gait tests with inertial sensors (Mobility Lab) improves their discriminative validity.

Relevance: Physiotherapists frequently assess gait, but lack valid, clinically-friendly tools for high-functioning, ambulatory children.

Materials and Methods: Children completed the 10mWT and TUG at self-selected speeds while wearing Mobility Lab sensors. Mobility Lab collected spatiotemporal data for each gait cycle, and for turning and transfers in the TUG.

Analysis: Gait parameters of interest were determined a priori (e.g., double support time, tri-planar trunk ROM, peak velocity of the 180° turn in the TUG). Independent t-tests or Mann-Whitney U tests were used to compare performance between children with a neurological condition and typically-developing (TD) children (α=0.01).

Results: Fifteen children with neurological conditions (8 spina bifida, 7 cerebral palsy, mean age 7.92±3.10 years) and 15 age- and gender-matched TD children participated. For the 10mWT, significant group differences were found for horizontal and frontal trunk ROM, horizontal trunk velocity, and lower extremity swing asymmetry. Children with neurological conditions took significantly longer to turn during the TUG.

Conclusions: Compared to timed scores, body-worn inertial sensors increase the discriminative validity of the 10mWT and the TUG for children with neurological conditions. 1Kane et al. ISPGR 2015.

Keywords: pediatrics, spina bifida, cerebral palsy, walking measurement, instrumented clinical gait testing, body-worn inertial sensors, discriminative validity

A070 Inter-rater Reliability of Physical Examination Tests for Meniscal Injuries
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Purpose/Objectives and Rationale: The objectives of the present study were: 1) to perform a systematic review on the reliability of physical examination tests for meniscal injuries and 2) to compare these results to results from a diagnostic study assessing the reliability of physical examination for knee meniscal injuries.

Relevance: Knee meniscal injuries are frequent reasons for consultation and are commonly diagnosed with specific physical tests. Evidence regarding their reliability is scarce.
Materials and Methods:
1) A bibliographical search was performed in 4 databases and quality of the studies was assessed with the QAREL methodological tool. A qualitative synthesis of the evidence was performed. 2) Consecutive patients consulting for a knee complaint in an orthopaedic clinic were recruited and underwent a complete physical examination by two independent evaluators (a physiotherapist and orthopaedic surgeons).

Analysis:
To evaluate inter-rater agreement, Cohen’s kappas (k) were calculated.

Results:
1) Methodological quality of included studies (n=4) was only moderate (mean ± SD). Results extracted indicate that inter-rater reliability was slight to fair for the McMurray test (k=0.0-0.38) and the Joint Line Tenderness (k=0.11-0.25) and moderate for the Thessaly (k=0.54). 2) Out 109 participants, 18 had a meniscal injury. The inter-rater reliability was fair for the McMurray test (k=0.26), moderate for the lateral Joint Line Tenderness (k=0.59) and substantial for the medial Joint Line Tenderness (k=0.64) and Thessaly tests (k=0.69).

Conclusions:
The literature reports variable inter-rater reliability of meniscal examination tests. The reliability results for the prospective diagnostic study present similar or higher reliability than previous published studies.

Keywords: knee, meniscal, physical examination, inter-rater reliability

A071  A Stand-Up MRI is Feasible and Reliable for Estimating Functional Knee Alignment

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Purpose/Objectives and Rationale:
Knee alignment in patellofemoral osteoarthritis (PF OA) is traditionally measured in supine in a closed bore MRI scanner. We aimed to evaluate the feasibility and reliability of a stand-up open bore MRI protocol to evaluate alignment in full weight-bearing to better understand the role of alignment in functional tasks.

Relevance:
Alignment may be influenced by pain or muscle activity in weight-bearing, thus upright MRI enables evaluation of functional alignment, which will enhance physiotherapy’s understanding of PF OA and guide treatment strategies.

Materials and Methods:
We recruited 6 people with PF OA (aged ≥ 40 years, knee pain ≥3/10 with activities that load the PF joint, pain most days of past month, radiographic PFOA severity ≥ Grade 1 on Kellgren & Lawrence) and 3 asymptomatic (n=9, 8 women). We scanned knees 3 times in a 0.5T upright MRI scanner (MROpen, Paramed, Italy) with a sagittal GFE sequence with participants standing, knees flexed ~30°. We also scanned in a 3.0T scanner (Achieva, Philips, Netherlands) using a sagittal T1 weighted TSE sequence.

Analysis:
We manually segmented bony outlines, then registered standing images to 3T models. We determined 3D PF alignment using a validated method, and estimated reliability with ICC(3,1).

Results:
Mean age was 50 (SD 14). No one reported pain during image acquisition, and motion artefact was not an issue. Mean tibiofemoral flexion was 35.3º (SD 7.8º). ICC values ranged from 0.75 (PF anterior tilt) to 0.99 (PF lateral tilt).

Conclusions:
Evaluation of 3D PF alignment in full weight-bearing using a stand-up MRI scanner is feasible and reliable.

Keywords: Patellofemoral osteoarthritis, magnetic resonance imaging, alignment, feasibility, reliability

A073  Predictors of Walking Ability Improvements in Sub-acute Stroke Patients

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Purpose/Objectives and Rationale:
To determine which factors may predict improvements in walking ability in both non-ambulatory and ambulatory sub-acute stroke patients during inpatient rehabilitation.

Relevance:
Rehabilitation admission, treatment, goals, and discharge are directed by a patient’s prognosis, which is often linked to whether an individual’s walking ability.

Materials and Methods:
Participant data was collected at admission (2 – 3 weeks post-stroke) to inpatient rehabilitation and 4 weeks later (near discharge) from five hospital sites. Baseline characteristics such as age, BMI, and stroke severity (Stroke Levity Scale) were recorded. Baseline outcome measures of executive function (Trail Making), physical function (BERG, FIM, 5MWT, 6MWT), and quality of life (CESD, SF36) were also taken.

Analysis:
Correlation matrices were explored between baseline variables with walking ability and significant factors were entered into two models: 1) binary logistic regression to predict ambulatory status at discharge in those non-ambulatory at admission, and 2) linear regression to predict walking speed (5MWT), measured at 4 weeks, for those ambulating at admission.
Results:
123 of 148 admitted participants were captured at discharge. For non-ambulators (n=84), a higher baseline BERG was the only significant variable (Odds Ratio=1.14, 95% CI: 1.07-1.23) to predict ambulatory status at discharge in the logistic regression model. For baseline ambulators (n=39), admission walking speed and Trail Making explained 53% of the variability in 4-week walking speed. Additional variables did not improve the model.

Conclusions:
Clinicians may need to consider early balance exercises in their management of acute stroke. Clinicians may also wish to consider executive function in addition to physical function when determining gait rehabilitation goals.

Keywords: stroke, walking, improvement, predictor, rehabilitation, gait

A075 Does Sensitivity to Physical Activity Differ by Pre-Surgical Rehabilitation Outcome?

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Purpose/Objectives and Rationale:
To describe the Sensitivity to Physical Activity (SPA) in people with knee osteoarthritis (OA) who experienced clinically meaningful changes in function during a pre-surgical rehabilitation program (pre-hab) and those that did not experience meaningful changes in function.

Relevance:
Many people with knee OA report that pain during movement is a barrier to activity engagement. Understanding changes in pain from before to after functional testing provides important pilot data to inform research aimed at validating clinical tools to better understand SPA and its clinical implications.

Materials and Methods:
This pilot study included data from 28 people with knee osteoarthritis. Prior to pre-hab, participants completed one self-reported functional measure and three physical function performance tests. SPA was estimated by subtracting the pain intensity rating on a numeric rating scale (NRS) before the functional tests from the pain intensity rating on the NRS after the functional tests.

Analysis:
We divided the sample into responders (participants who experienced clinically meaningful improvement in function) and non-responders. We described the mean SPA for both groups.

Results:
The direction of the relationship between functional outcomes and SPA was as expected with non-responders having higher estimates of SPA. The effects sizes ranged from small to moderate (Cohen’s d ranging from 0.10 to 0.46).

Conclusions:
This pilot data provides early support for the hypothesis that people who do not experience improvements in function with activity based rehabilitation programs may have greater sensitivity to physical activity in comparison to those that experience improvements in function with these programs.

Keywords: sensitization, osteoarthritis, pain, function, pre-surgical rehabilitation

A076 Get ‘er done: Experiences of Saskatchewan Farmers Living with Low Back Disorders

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Purpose/Objectives and Rationale:
Canadian farmers are at high risk of having low back disorders (LBD), but it is not known how this experience affects them. We explored the lived experiences of adult Saskatchewan farmers with LBD to gain a greater understanding of the impact of LBD on quality of life, as well as perceived access to healthcare.

Relevance:
LBD are a health issue commonly addressed by physical therapists. Knowledge of farmers’ lived experiences with LBD and their challenges regarding healthcare access can help inform physical therapists, contributing to more tailored services and management approaches.

Materials and Methods:
We employed a qualitative phenomenological approach, using semi-structured interviews that were audio recorded and transcribed verbatim. Interview items focused on perceived cause of LBD, impact on social and work life, coping strategies, and healthcare access/utilization.

Analysis:
An inductive thematic analysis was used. Interviews were separated into categories and selective coding was used to reveal themes and subthemes. The emerging themes were refined and confirmed with group discussion among the research team.

Results:
Thirteen face-to-face interviews were conducted with twelve men and one woman (ages 40-84). Two overarching themes of ‘seasonality’ and ‘isolation’ emerged. Related subthemes included: ‘pushing through despite pain and discomfort’; ‘doing less’ (i.e. work, leisure, getting help); ‘self-management’; and ‘barriers to healthcare access’.

Conclusions:
Our findings highlight shortcomings in Saskatchewan’s healthcare system, specifically regarding barriers to access among farmers experiencing LBD. Additionally, this study provides groundwork for future research addressing the unique occupational demands of farmers, such as seasonality, which ultimately affects the management of LBD in this population.
A077 Scoping Review on Exercise and Bone Metastases in Prostate Cancer

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Purpose/Objectives and Rationale:
This scoping review aims to (1) synthesize the data on risks and risk mitigation associated with bone metastases, (2) outline the potential benefits of participation in exercise, (3) provide guidelines to physiotherapists for safe and effective exercise.

Relevance:
Prostate cancer is the most common cancer among Canadian men, with 24,000 new cases expected in 2015. Approximately 60% of men with advanced prostate cancer will develop painful bone metastases over the course of their disease. Metastases commonly affect the spine, hips and ribs, and negatively affect bone health and strength. Primary risks of bone metastases include pathologic fracture and spinal cord compression.

Materials and Methods:
The stages implemented for the scoping review included: identifying the research question and relevant studies, study selection, charting the data, and summarizing the results. We searched the databases for systematic reviews, randomized control trials, clinical practice guidelines, and survivor resources examining exercise for prostate cancer survivors with bone metastases.

Analysis:
A descriptive analysis: (1) current recommendations for risk assessment, (2) considerations for safe exercise testing and training, and (3) efficacy of interventions.

Results:
This review identified 8 studies relating to the potential safety and efficacy of exercise. Preliminary evidence from 2 intervention studies supports the safety and benefit of supervised exercise in multiple cancer survivors with uncomplicated bone metastases.

Conclusions:
Studies surrounding the safety and efficacy of exercise for prostate cancer survivors with bone metastases are limited. A summary of the findings and recommended practice guidelines will be included in the poster.

Keywords: Cancer, Exercise, Bone Metastases, Prostate

A078 Cost Description of a Prospective Surveillance Program after Breast Cancer Surgery

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Purpose/Objectives and Rationale:
Breast cancer treatment and related side-effects constitute a large financial burden for the health care system. A prospective surveillance model (PSM) is potentially a cost-efficient model to improve early detection and management of physical side-effects after breast cancer surgery. The current work describes the cost of delivering a one-year PSM for arm morbidity after breast cancer surgery.

Relevance:
Early detection and targeted physiotherapy can improve upper-body function after breast cancer treatment. However, the cost of delivery of this model is an important consideration in allocation of the required clinical resources.

Materials and Methods:
Women with breast cancer were randomized to surveillance (n=21) or education (n=20) and followed from pre-surgery to 12 months post-surgery. Women in the surveillance group had an upper-body assessment at 3, 6, and 9 months post-surgery and were referred for physiotherapy if arm morbidity was identified. Cost of delivering the PSM program was calculated.

Analysis:
Number of PSM program sessions and costs (2015 Canadian Dollar) were summarized as totals, means (per participant) and standard deviations.

Results:
Total program cost for 21 participants was $11,641.50. Fourteen participants were identified with arm morbidity and each attended 11.6±12.6 physiotherapy treatment sessions. Program Operation cost was $147.61±34.50 and Program Treatment cost was $407.98±341.90 when arm morbidity was identified. Patient Out-of-Pocket Travel cost was $34.30±25.69 and increased to $150.74±341.90 for participants with arm morbidity.

Conclusions:
PSM may potentially be a cost-effective approach to identify women who develop arm morbidity after treatment for breast cancer.

Keywords: breast cancer, economics, surveillance model, side effects, rehabilitation
A Scoping Review of Physical Rehabilitation and Outcome Measures for Childhood Cancers
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Purpose/Objectives and Rationale:
This scoping review aims to (1) outline the state of the research involving physical therapy for children with cancer to inform clinical practice, and (2) identify gaps in literature for future research.

Relevance:
Children with cancer who undergo cancer treatment are at high risk of developing serious physical late effects, many of which are amendable to physical therapy. These effects include pain, fatigue, weakness and peripheral neuropathy, as well as limitations in strength, range of motion, function, and deficits in balance and gait.

Materials and Methods:
 Searches were conducted of the major databases including MEDLINE and EMBASE from September 2015 to February 1st 2016.

Analysis:
 We conducted a descriptive analysis of the included studies.

Results:
A total of 31 papers were fully screened. Twenty-five studies were related specifically to physical exercise including 1 meta-analysis, 6 reviews, 13 intervention studies, 2 outcome measure evaluations, and 3 observational studies. Six studies were related to physical therapy including 1 multidisciplinary protocol paper, 2 physical intervention studies, 1 outcome measure evaluation, 1 review, and 1 case series. Evidence supports the feasibility of hospital and home-based exercise programs for children with Acute Lymphoblastic Leukemia. As well, physiotherapeutic exercise was shown to improve motor performance, overall levels of activity, and emotional well-being after treatment completion.

Conclusions:
The research to date examining physical therapy for childhood cancer is sparse in comparison to the research available examining physical exercise. Future research is needed specific to physical therapy and in other types of childhood cancers.

Keywords: cancer, physical therapy, paediatrics, outcome measures

A Musculoskeletal Examination of the Knee by a Physiotherapist is Valid and Concordant
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Purpose/Objectives and Rationale:
Physiotherapists are often considered experts in the management of musculoskeletal disorders, but more evidence regarding their diagnostic abilities is needed.

Relevance:
The objectives of this study were to evaluate the diagnostic agreement between a physiotherapist and orthopaedic surgeons or sports medicine physicians and to assess the validity of the physiotherapists’ complete musculoskeletal examination (CME) to diagnose common knee disorders.

Materials and Methods:
A physiotherapist and physicians independently assessed and diagnosed 179 consecutive patients presenting at an orthopaedic clinic or a family medicine clinic for a knee complaint. The physiotherapist completed only the CME, while the physicians had also access to imaging tests results.

Analysis:
Raw agreement proportion and Cohen's kappa (k) were calculated to assess inter-rater agreement. Sensibility especificity (Se/Sp) and positive/negative likelihood ratios (LR+/LR-) were calculated to assess the validity of the CME compared to the physicians' diagnoses.

Results:
The majority of participants were women (64%), mean age was 50±16 years and knee diagnoses included: anterior cruciate ligament injury(n=8), meniscal injury(n=36), patellofemoral pain syndrome(n=45) or osteoarthritis(n=79). The raw agreement proportion for the primary diagnosis was 92.7% and inter-rater agreement was near perfect (κ=0.90; 95%CI:0.84 to 0.95). For the validity of the physiotherapists’ CME for the four most common knee disorders, Se and Sp ranged from 91.1 to 100.0% and LR+ and LR- ranged from 23.1 to 30.3 and from 0.03 to 0.1 respectively.

Conclusions:
Near perfect diagnostic agreement was found between the physiotherapist and the physicians. The CME performed by the physiotherapist was also valid to include or exclude common knee disorders.

Keywords: Knee, diagnosis, musculoskeletal examination, agreement, physicians.
Relevance:
Understanding injury mechanisms and developing prevention and rehabilitation strategies requires accurate identification of lower limb dominance (stability and manipulation).

Materials and Methods:
52 participants (M26:F26) completed questionnaires: Waterloo (10 questions: 5 manipulation, 5 stability) and Chapman (11 questions: 10 manipulation, 1 stability).

Analysis:
Specificity and sensitivity were evaluated using Receiver-Operating Characteristic curves (ROC) to characterize questions for classification. Binary logistic regression (BLR) was used to create 2x2 contingency tables for accuracy determination.

Results:
90.4% of participants exhibited Right Handedness, Right Footedness (RR) characteristics, and 9.6% had Left sidedness characteristics (1 LL, 3 RL, and 1 LR). As expected, 92.3% were right foot dominant for manipulation, but interestingly 58% were also right foot dominant for stability. Stability dominance was task depend-ent, ranging from 40% left sided to 77% right sided for the six stability tasks. For manipulation classification, ROC revealed very high true positive rates for two questions. BLR revealed only one question was necessary for accurate classification. Likewise, for stability limb classification, one question was identified by ROC and BLR.

Conclusions:
In common with established handedness evaluations, the best predictor of lower limb manipulation dominance was a question related to precision of movement. Contrary to convention, the limb contralateral to the manipulation dominant limb should not be assumed to be dominant for stability. These findings have important implications for interpretation of existing injury prevalence studies, and immediate implications for prevention and rehabilitation.

Keywords: laterality, dominance, footedness, stability, ACL injury, manipulation

A084 Is Knee Alignment or Morphology Associated with PFOA? A Systematic Review
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Purpose/Objectives and Rationale:
Patellofemoral osteoarthritis (PFOA) is associated with pain and impaired function, and may progress towards generalized knee OA. Abnormal loading is a predominant theory for OA onset and progression, and knee alignment and morphology may contribute to this. This systematic review aimed to evaluate the associations of alignment and morphology with PFOA.

Relevance:
PFOA is prevalent and clinically important. Physiotherapists commonly treat PFOA yet little is known about the risk factors and thus how best to assess and treat these individuals.

Materials and Methods:
Our review (PROSPERO #CRD42014007382) adhered to the PRISMA statement. We included studies investigating knee alignment or morphology in relation to PFOA in individuals with, or at risk of, PFOA. We included all study designs. We searched Medline plus 9 other databases.

Analysis:
Two authors independently screened titles/abstracts, extracted data and evaluated study quality with a modified Downs & Black tool. Papers with <50% of quality items endorsed were excluded. Best evidence synthesis was used where statistical pooling was not possible.

Results:
Initial search led to 8603 titles. After screening papers and assessing quality, we included 16 papers (5 longitudinal, 11 cross-sectional). Two studies targeted PFOA, 11 studies knee OA, and 3 various knee conditions. There were 2919 participants (65% women), mean age ≥55 years, BMI 26.1 to 31.4 kg/m². Study heterogeneity precluded statistical pooling.

Conclusions:
There is strong evidence of a relationship between PF alignment or morphology and PFOA features in knee OA or other knee conditions. Future studies should target PFOA in their eligibility criteria, and have longer follow-up times in cohort studies.

Keywords: patellofemoral osteoarthritis, alignment, morphology, systematic review

A085 Evaluation of a Physiotherapy Service for Post-Prostatectomy Urinary Incontinence
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Purpose/Objectives and Rationale:
The purpose of this study was to evaluate the outcomes of a new pelvic floor physiotherapy service for men post-prostatectomy.

Relevance:
Understanding the outcomes will help to determine whether clients’ needs are being met and can be used to improve service delivery.

Materials and Methods:
Chart review of all clients who underwent radical prostatectomy for prostate cancer and began physiotherapy for urinary incontinence between April 2013 and March 2014, the first year of this service.
A086  Resistance Exercise with Compression for women with Lymphedema: Systematic Review

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Purpose/Objectives and Rationale:
Evidence-based review examining the benefit of combined compression therapy and progressive resistive exercises (PRE) on breast cancer-related lymphedema (BCRL).

Relevance:
In 2015, it is estimated that 25,000 women in Canada will be diagnosed with breast cancer, and 88% of these women will live at least 5 years. Lymphedema is the most common concern among approximately 40% of these survivors, since it is presently incurable, progressive, chronic and psychologically debilitating. To date, evidence supports a neutral effect of exercise on arm lymphedema volume; however, little is known about the benefit of combining compression therapy with PRE for BCRL.

Materials and Methods:
Searches were conducted in Medline, EMBASE, CINAHL and PEDRO by two researchers (MO, MM) for articles that evaluated combined therapy using compression and PRE as an intervention for BCRL.

Analysis:
A qualitative analysis was conducted based on Sackett’s levels of evidence.

Results:
Forty-eight studies were found and eight met all inclusion criteria. Most studies prescribed mild to moderate intensity resistance exercise and use of a compression garment. Although the findings suggest that resistance exercise was not associated with increase in arm volume, details were lacking on compression garment features and use. Only one study reported adherence to use of compression, and this study showed improvement in self-reported severity of lymphedema symptoms, upper and lower body strength, and a lower incidence of lymphedema exacerbations.

Conclusions:
Findings suggest potential benefit from combined compression therapy and PRE. Further research is needed examining compression therapy, including compression wraps and specialized garments, and PRE on BCRL.

Keywords: Breast Cancer, Lymphedema, Physical Therapy, Compression Therapy

A087  Using Integrated Knowledge Translation to Inform Community Cancer Exercise Study

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Purpose/Objectives and Rationale:
The Alberta Cancer Exercise (ACE) program is a multi-centre randomized control trial examining the feasibility of implementing a cancer-specific community-based exercise program. The current project is a sub-study (Edmonton site: N =46) utilizing an integrated knowledge translation approach to inform local implementation of ACE.

Relevance:
Including cancer survivors and their families in the planning of community programming allows for person-centred care, identification of barriers and preferences to exercise and helps address issues on program feasibility and sustainability.

Materials and Methods:
A review of existing cancer-specific programs across Canada and in other countries was performed. Survivor input was then collected via questionnaires, focus groups and small group discussions to elicit preferences and barriers to programming options. Data was collected prior to, and mid-intervention of the ACE study.

Analysis:
Descriptive analyses were used to identify preferences and barriers of survivors.

Results:
Initially, survivors and families (n = 23) indicated a preference for (1) supervision by exercise specialists knowledgeable about cancer, (2) support from other healthcare practitioners (e.g., physiotherapy), and (3) accessible, affordable and variable exercise programming. At mid-intervention, survivors indicated high satisfaction with programming. Unique preferences emerged including (1) option for spousal inclusion, (2) earlier integration of exercise in cancer care pathway, (3) better healthcare practitioner awareness and promotion of ACE. The main barrier was cost of parking for the downtown location. Results from post study ques-
tionnaires are currently being collected and final focus group sessions will be held following study completion.

**Conclusions:**
An integrated knowledge translation approach can inform implementation and help optimize survivor program satisfaction.

**Keywords:** knowledge translation, cancer, exercise, physical therapy

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**A088  Barriers and Facilitators to Exercise Promotion for Women with Breast Cancer**

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**Purpose/Objectives and Rationale:**
Breast Cancer (BC) is the most common form of cancer in Canadian women. BC and its treatments result in numerous side effects that affect an individual's quality of life. Research has shown that these side effects can be controlled using regular exercise. However, less than 30% of survivors exercise regularly. The purpose of this study is to determine the barriers to exercise promotion by health care professionals (HCP's) who treat BC survivors.

**Relevance:**
Physiotherapists (PTs) are ideally suited to create, implement, and run exercise programs within cancer institutions. However, the role of PTs within cancer institutions varies substantially across Canada. This study explores potential roles of PTs within cancer centres in Ontario.

**Materials and Methods:**
Purposeful sampling was used to recruit HCP's working with women with BC in Ontario. Semi-structured interviews were conducted and explored the HCP's level of knowledge on the benefits of exercise, and perceived barriers and facilitators to exercise promotion for women with BC.

**Analysis:**
All interviews were recorded, transcribed and analyzed by two reviewers using content analysis.

**Results:**
Data analysis yielded three main categories of barriers for this group: (1) institutional barriers, (2) health professional barriers, and (3) perceived patient barriers. A limitation of this study includes using purposeful sampling to recruit HCP's, which may increase bias. Also, all interviews were conducted in Ontario, which decreases the generalizability of the findings to other provinces.

**Conclusions:**
The results of this study can be used to inform stakeholders on what future interventions should be included in order to overcome these barriers to exercise promotion and implementation.

**Keywords:** breast cancer, oncology, knowledge translation, exercise