Main Outcome Measure(s): Primary measures at start of the study comprised Sensory Organization Test (SOT) using computerized dynamic posturography and visual tests including stereoacuity, convergence, accommodation, oculomotor, developmental eye movement, visual motor integration and visual tracing.
Results: Data were available for 75 children in typical group and 73 in sensory group; one child was untestable, one excluded on vision. Normality tests revealed population was not from normal distribution. Non-parametric and parametric tests were used to compare differences on SOT and visual test scores; Spearman correlation was used to show association between SOT and visual tests. Groups differed significantly on most vision and all SOT tests (p values from 0.001-0.030). Correlations varied for the groups; some correlations were weak but significant.
Conclusion/Discussion: Special vision tests may be useful to screen children with potential SPD. Balance may be an issue more in children with SPD than those developing typically.
Key Words: Postural Balance, Vision Screening, Autistic Disorder, Sensation Disorders, Children
Disclosures: None.

Research Poster 316225

Baseline Dependency of Minimal Clinically Important Difference (MCID) Derived Using the Global Rating of Change

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Research Objectives: The minimal clinically important difference (MCID) cut-off points are patient derived scores that reflect changes in the outcome of interest that are meaningful for the patient. The purpose of this study was to examine whether MCID is dependent on patients' functional status (FS) baseline score and select demographic characteristics at intake.
Design: Cross-sectional observational cohort study.
Setting: Outpatient rehabilitation.
Participants: 41,310 patients with orthopedic lumbar spine impairments treated in 888 outpatient rehabilitation clinics in 26 states (U.S.).
Interventions: NA.
Main Outcome Measure(s): FS was measured using the lumbar CAT survey (0-100 scale). We employed an anchor-based longitudinal method using a 15-point Likert-type scale (-7 to +7) to provide a global rating of change (GROC). The MCID threshold was determined using non-parametric receiver-operating-characteristic (ROC) curve analysis for each of the following variables quartiles of baseline FS scores, gender, acuity, age group, exercise history, BMI category, pain intensity, and reporting source (i.e., patients vs. therapists).
Results: When patients were grouped by baseline FS measures and four ROC analyses were run (one per quartile of FS intake measures), results supported that 17 or more, 11 or more, 7 or more, and 5 or more FS change scores represented MCID for patients in the first, second, third, and fourth quartile of FS intake measures. All the MCID comparisons were significant ($P < .05$) except gender ($P = 0.433$). Patients who were more acute, younger, exercise more often, not underweight, and/or with higher pain intensity at intake reported higher MCID values.
Conclusion/Discussion: Our data supports the use of patient specific levels of MCID for more accurate analyses of meaningful clinical change and more accurate determination of responders to therapeutic interventions.
Key Words: Minimal Clinically Important Difference, Sensitivity To Change, Computerized Adaptive Testing
Disclosures: None.

Research Poster 314883

Biomechanical Evaluation of Exoskeleton-Assisted Gait in Patients with Spinal Cord Injury

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Research Objectives: To investigate the biomechanics of exoskeleton-assisted gait in patients with Spinal Cord Injury (SCI) and compare it with the biomechanics of gait in healthy control subjects.
Design: Pilot Study.
Setting: Rehabilitation Hospital.
Participants: Outpatients with SCI.
Interventions: 6-week training period (60-minute sessions of exoskeleton-assisted gait, 2-3 per week), gait analysis post-training.
Main Outcome Measure(s): Exoskeleton training parameters, Spatiotemporal gait parameters, kinematic parameters.
Results: Three patients were enrolled in the study (2 Male, 1 Female; 23-54 years of age; weight range 123-205 lbs; height range 5'9" - 5'10"; ASIA impairment level A; time from injury 14-88 months). Training was well tolerated, with no adverse events. During the 6-week training period, subjects spent a total of 249±85 minutes (average ± standard deviation) walking and performed 6,531±3,477 steps. Improvements in walk time and steps per session were observed for all subjects. Subjects achieved an average walking speed of 0.19m/s with a cadence of 17.1 steps/min. The average stride length and stride time were 0.66m and 3.54s, respectively. We observed an average hip range of motion (ROM) of approximately 36°, an average knee ROM of approximately 45°, and an average ankle ROM of approximately 17°.
Conclusion/Discussion: Exoskeleton-assisted gait mimics a physiological pattern of motion. However, significant differences were observed between exoskeleton-assisted gait in patients with SCI and physiological patterns of gait in control subjects. Cadence, walking speed, and stride time were below the normal range. Stride length was normal. All joints showed a decrease in ROM compared to normative data. Further analyses are warranted to explore the distribution of loads and their effects on the user.
Key Words: Exoskeleton Device, Spinal Cord Injuries, Gait, Biomechanical Phenomena
Disclosures: None.

Research Poster 314879

Biomechanical Parameters to Evaluate the Outcome of Total Knee Arthroplasty (TKA)

Lauren Chu (New York University Hospital for Joint Diseases), Peter Walker

Research Objectives: Investigate the use of biomechanical outcome parameters, useable in a clinical setting, as a sensitive measure to evaluate total knees.
Design: Prospective, single-arm IRB study involving five surgeons. A shoe insole device (Moticon OpenGo) used as an accelerometer to determine gait and static parameters, with the new Knee Society Scoring System (KSSS) as the PROM. Three cohorts used for comparison: normal knees, pre- and post-operative TKA patients. A symmetry ratio (SR) was obtained for pre- and post-op patients (force applied by symptomatic or TKA knee/total force). Patients were asked to complete the new KSSS, the Timed-Up and Go (TUG) test, and stand bilaterally.

Setting: Institutional practice.
Participants: Seventy-two patients in 3 groups; normal, with unilateral OA, and TKA follow-up > 1 year. Age 50-90 years old, with no major comorbidities that may impair function or mobility.
Interventions: N/A.
Main Outcome Measure(s): The symmetry ratio will show major differences between all three groups.
Results: The gait SR's for OA, normal, and TKA were .48+/-.04, .52+/-.02, and .49+/-.04, respectively; the static SR was .47+/-.13, .54+/-.04, and .53+/-.08. Average TUG test times were 13.72s+/-3.85, 10.90s+/-6.63, and 11.36s+/-2.6, respectively. Average pain scores (out of 25) were 7.5, 23.9, and 20.03. Satisfaction scores (out of 5) were 1.85, 4.69, and 4.4. Average function scores (out of 100) were 34.15, 83.13, and 68.1.
Conclusion/Discussion: The SR surprisingly didn't vary substantially between groups; the standard deviations were small and thus may not be sensitive enough for distinguishing function. The TUG times, pain and function scores however pointed to TKA still not reaching normal levels. Further research is necessary to determine whether any other biomechanical parameters determined with the present or modified system can be used as indicators.
Key Words: Total Knee Replacement, Surgical Outcome, Stability
Disclosures: None.

Research Poster 303732

Bridging the Gap: Incorporating Exercise Evidence Into Clinical Practice in Breast Cancer Care-A Study Protocol

Jenna Smith (McMaster University), Julie Richardson

Research Objectives: To determine whether knowledge translation strategies, focusing on accessible exercise locations and self-management education using technology, are feasible and impact exercise knowledge and behaviour, quality of life, and need for additional health care services among women with breast cancer.
Design: This project is a pilot RCT. Follow-up will occur post intervention, at 2 and 4 month follow up.
Setting: The study will take place within a cancer institution in Hamilton, ON.
Participants: Participants (20) include community-dwelling, English-speaking women, over 18 years, who are currently undergoing chemotherapy for Stage 1-3 BC and have been cleared by their oncologist to participate in moderate intensity aerobic exercise.
Interventions: This pilot project will implement a multi-dimensional knowledge translation intervention including exercise and self-management. The exercise intervention will involve an 8 session evidence-based moderate intensity aerobic exercise program delivered in near proximity to the chemotherapy waiting room. The self-management component will include 8, 30 minutes sessions with a physiotherapists prior to each exercise intervention using online modules.
Main Outcome Measure(s): The main outcome of this study is feasibility. This will be measured through recruitment, retention, and adherence rates. Secondary effectiveness outcomes will include level of exercise knowledge and behaviour, quality of life, and need for additional health care services.
Results: To be determined.
Conclusion/Discussion: The findings of this knowledge translation pilot study will help to determine the feasibility and preliminary effectiveness of a novel implementation strategy. This project will inform a larger intervention trial which has the potential to change the way rehabilitation services are provided in clinical practice and impact all levels of breast cancer prevention; secondary and tertiary prevention of treatment-related side effects, and primary prevention of disease recurrence through sustained behaviour change.
Key Words: Breast Neoplasm, Exercise, Translational Medical Research, Self Care
Disclosures: None.

Research Poster 304151

Can an External Breast Prosthesis Influences on Biomechanics of Trunk During Functional Movements?

Katarzyna Hojan (Greater Poland Cancer Centre), Faustyna Manikowska

Research Objectives: To assessed if 'the golden standard' of using external breast prosthesis of weight of amputee breast is reasonable. Therefore, we examined the changes of the erector spinae muscles (ES) activity using the surface electromyography (SEMG) in post-mastectomy women without and with the breast prostheses during functional body movement tests.
Design: Observational, clinical study.
Setting: Outpatient clinic in locally cancer center.
Participants: Fifty-one women with a history of unilateral mastectomy due to breast cancer, between the ages of 35 to 70 yrs.
Interventions: Not applicable.
Main Outcome Measure(s): Amplidtude of the SEMG of bilateral ES activity was assessed during symmetrical and asymmetrical tasks in both static and dynamic activities in a counterbalanced manner with different weight of breast prosthesis or witout it. Range-of-motion measurements were taken for forward bending, backward bending, lateral bending, and rotation.
Results: The mean level of ES activity in lumbar sides was not affected by the weight of external breast prosthesis during most functional body tests ($p>0.05$). The activity of ES during functional body tests without and with different external breast prosthesis were not differ between sides of the trunk (mastectomy and non-mastectomy) for the most of the movement tests ($p>0.05$).
Conclusion/Discussion: The weight of the external prosthesis not affects the symmetry of the activation level of ES activity between the side of the body in many functional tests. From a clinical perspective, ES activity not associated with wearing different weight of external breast prosthesis in post-mastectomy women during functional tests. It means that total weight compensation of the amputee breast is not necessary for the proper biomechanics of the trunk.
Key Words: Oncology, Biomechanics, Rehabilitation, Breast Cancer
Disclosures: None.

Research Poster 304288

Can The AMP Test and Patient Demographics Predict K-Level in People With Lower Limb Amputation?

Michael Dillon (La Trobe University), Matthew Major, Brian Kaluf, Stefania Fatone

Research Objectives: The Amputee Mobility Predictor (AMP) is frequently used to quantify mobility and categorize K-levels, which influences the type of prosthesis prescribed. Research has shown different average AMP score between K-levelss, but not discrete cut-scores to allow classification into mutually exclusive K-levels.There is a need to determine