The Illinois Physical Therapy Association meets for another fun filled Annual Conference & Conclave! Held in conjunction, the Conference and Student Conclave is an action packed 3 day event full of activities that include educational seminars, networking opportunities, exhibitions from industry professionals, key note speakers and much more! This yearly event is open to the public so spread the news, and bring family and friends.

This year our exhibit hall will be stocked with 16 different poster presentations. This final luncheon is where you will hear about new research that fellow professionals are working on.
**EFFECT OF CARDIOVASCULAR FATIGUE ON POSTURAL STEADINESS OF YOUNG ADULTS**

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**Background:** Numerous studies have reported the impact of muscle fatigue on physical performance and postural control. The observed changes in postural control usually are attributed to the decline in the performance of the fatigued muscle group. Recently developed models of fatigue, however, attribute a number of factors to force decline of muscles after exercise, including neuromuscular fatigue, cardiovascular fatigue, and changes in the control of the central nervous system over muscles. Isolated fatigue of muscle groups, therefore are expected to affect the performance of other muscles.

**Purpose:** The purpose of this study was to identify the direct impact of cardiovascular fatigue on postural sway without having the key muscles associated with postural control involved.

**Number of Subjects:** 15 healthy young adults (22-30 years)

**Materials/Methods:** Participants were instructed to stand as motionless as possible on the force platform with bare feet and to look straight ahead at a point on the wall (eye level, 1 inch diameter, 6 feet away). Force platform data were collected for two trials (30 seconds each) prior to the fatiguing exercise. Tests were repeated in two standing conditions, (i.e. heels together and tandem), and were repeated once. Participants then performed a fatiguing protocol, consisting of upper body ergometer exercise until the target heart rate [computed using Karvonen method] was reached and kept for two minutes. Following the fatiguing exercise, the tests were repeated in the two conditions of tandem and heels side by side. Force platform data were collected for 30 seconds. Anteroposterior and mediolateral time series data were filtered through a fourth-order zero phase Butterworth low-pass filter with cutoff frequency of 5 Hz. The first 10 seconds of data were cut off to remove potential lead-in effect on the postural sway. The last 2 seconds were cut off to avoid any sway effect due to anticipation of the end of the trial. The middle 18 seconds were used in the analysis.

**Results:** Analysis of the heels side-by-side condition did not reveal significant differences between the two measurements of before and after fatigue protocol. In tandem trials resultant mean distance increased after cardiovascular fatigue (F(1,13)=4.82, p=0.0366). The directional mean distance showed that changes were happening primarily in the mediolateral direction. Unlike anteroposterior, mediolateral mean distances showed a significant increase following fatigue protocol (F(1,13)=4.36, p=0.046) in the tandem standing condition. Similarly, the root mean square distance from the mean position of COP showed a significant increase following cardiovascular fatigue (F(1,13)=4.69, p=0.0391). The 95% confidence circle area (F(1,13)=5.51, p=0.0262) and resultant power (F(1,13)=6.02, p=0.0207) also showed a significant increase following the cardiovascular fatigue exercise. Centroidal frequency increased significantly (p=0.0073).

**Conclusions:** Cardiovascular fatigue per se influenced postural steadiness, even though muscles that are known to be detrimental to control of posture were not involved.

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**EFFECT OF COGNITIVE PERFORMANCE IMPROVEMENT ON POSTURAL STEADINESS**

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**Background:** As the population ages, accidental falls become a greater problem. More than one third of those 65 years or older fall each year, and this risk increases in the presence of cognitive impairments or with a history of previous falls. Moreover, falls and cognitive decline have been associated with an impaired ability to maintain balance while simultaneously performing cognitive tasks. Although falls and cognitive decline are problems that appear to be linked, the exact link between the two remains unknown.

**Purpose:** We hypothesized improvements in cognitive function would lead to improvements in balance function in older adults.

**Number of Subjects:** 10 older adults (71.25±8.103 years old)

**Materials/Methods:** Participants were assigned to one of the following groups: a- cognitive training group (COG) played computerized cognitive training games (HAPPYneuron, Mountain View, CA) at least 30 minutes per day for a period of 4 weeks, b- cognitive training and exercise group (COE) participated in a fitness class at the local YMCA three times a week; in addition to the cognitive exercise assigned to the COG group. To measure cognitive performance and balance confidence, the Stroop test, and the Activities-Specific Balance Confidence scale (ABC) were utilized respectively. Postural steadiness was measured using force platform measures for 30 second trials.

**Results:** Stroop test and the ABC scale showed consistent improvement over time for both groups. The pattern of postural sway during the tandem conditions of standing significantly changed following both COG and COE trainings. During tandem standing, the COE group showed a significant reduction on total excursion of sway (F(2,7)=3.67, p=0.0330), mean velocity of sway and fractal dimension of sway (F(2,7)=5.82, p=0.0055). The COG group during tandem stance also showed a significant change in total excursion of sway.
Background: Professional membership benefits are explored with student physical therapist assistant (SPTA) through faculty and clinical experiences during an academic program. The American Physical Therapy Association (APTA) 2012 market share analysis reported 7.65% of PTAs are members, 28.62% of SPTAs are members, and the PTA retention rates after graduation were 34% 1 year post graduation and 51% 2 years post graduation. During the revision of a PTA program curriculum several initiatives were taken to demonstrate benefits of APTA membership through classroom and clinical assignments.

Purpose: The purpose of this study was twofold: first, to compare the numbers of SPTA members before and after the development of the curriculum and secondly, to explore the retention of the PTA members after graduation.

Number of Subjects: 86 PTA program graduates from 4 years (2010-2013) were searched within the APTA membership data base to establish current membership. Through an electronic survey, 2 consecutive years of graduates, 30 total subjects, were compared. 18 graduates prior to curriculum development (sample 1) were compared to 22 graduates after the curriculum development (sample 2).

Materials/Methods: All 86 graduate names were searched within the APTA members only database to establish current membership. Membership at graduation was assessed by student participation in a 50% membership reimbursement program offered by the academic program. An electronic survey of graduates was performed with a raffle prize incentive for survey completion. A survey comprised of 7 questions assessed samples 1 and 2 self-reported responses to membership initiation and retention or discontinuation of membership.

Results: 30/86 PTA program graduates from 2010-2013 were current members. 29/30 graduate members were students after the development of the curriculum. Retention of membership could not be assessed with the most recent graduates, therefore the survey results of 2 consecutive years of graduate responses were analyzed. 18/30 (60%) graduates responded. Of sample 1, 14/18 (78%) were APTA members at graduation, 1 (0.06%) remained a member more than 2 years after graduation, 7/18 (39%) graduates responded to the survey. Of sample 2, 22/22 (100%) were members at graduation, 4/22 (18%) remained members more than 1 year after graduation. For samples 1 and 2, all members at graduation listed either their academic instructors or assignments as a reason for membership. There were no graduates who transitioned to membership from nonmembership after graduation. Of sample 1, 6/7 respondents did not renew membership, and all 6 sites financial reasons. Of sample 2, 7/11 did not renew membership; 2 site plans to renew, 2 state they are not yet licensed, and 1 sites financial reasons.

Conclusions: The academic assignments and instructor influence appear to be the greatest for membership of SPTAs. There was greater retention of membership by sample 2 than sample 1 but this could be accountable to factors outside of the curriculum development. There was no single factor which predicted retention or discontinuation of membership but all members of sample 1 and 2 initiated membership while students.

AN ANALYSIS OF THE RELATIONSHIP BETWEEN PREPROFESSIONAL ACTIVITIES AND PROFESSIONAL MEMBERSHIP
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Fran Wedge PT, DSc, GCS

Background: Few studies have investigated the effectiveness of standardized patients (SPs) in doctor of physical therapy (DPT) curriculums. Additionally, research suggests that licensed PTs do not adequately screen for mental health conditions in patients. The specific aim of this study is to investigate how well PT students screen, evaluate, refer, and treat mental health conditions within the context of a PT initial encounter with a SP.

Purpose: Study hypotheses are that 1) Students will demonstrate improved confidence in identifying depression in patients and knowledge of when to refer patients with depression to other health care providers. 2) Student self-assessment of addressing the patient’s mental health condition will correlate with the patient evaluation of the student performance and 3) Students will report the SP experience to be a valuable learning experience.

Number of Subjects: S1 2nd year DPT Students

Materials/Methods: Students and SPs completed a pre-patient encounter and post-patient encounter survey with a response rate of 91% for the pre-encounter survey and 75% for the post-encounter survey. Survey questions asked students to rate their knowledge,
confidence, and ability to assess the mental health condition (KAMH, CAMH and AAMH respectively) using a 5 point Likert scale. SPs also rated how well the student addressed their mental health condition in the context of the patient encounter. The Likert scale was anchored with 0 reflecting no knowledge, confidence, or ability and 5 reflecting extreme knowledge, confidence, or ability in managing the mental health condition. Students were also asked to rater their perception of the learning experience a 11 point Likert scale where 0 indicates that the use of standardized patients was not a valuable learning experience and 10 indicates that the use of standardized patients was a highly valuable learning experience. T-tests were calculated with SPSS to compare mean responses to the survey before and after the patient encounter.

Results: Post SP-encounter students reported significant improvements in KAMH (p=0.001) and CAMH (p<0.001) in physical therapy practice. Students’ mean rating for how they felt that the patient’s mental health condition was addressed in the encounter was significantly higher (mean=3.41, SD=.85) than that of the standardized patient’s mean rating on student performance (mean=2.57, SD=.87), p=0001. Students reported a mean of 8.02 on a 11 point Likert scale for their perception of value of the learning experience.

Conclusions: The use of standardized patients in DPT programs contributes significantly to improved knowledge, confidence, and learning experiences for DPT students. Significant difference between student and patient perception warrant further investigation as these differences may potential contribute to sub-optimal patient outcomes. Clinical Relevance: This research supports the use of standardized patients in DPT programs as an effective tool to enhance student learning, but that further research is needed to understand how best to improve DPT students’ ability to address mental health conditions within SP encounters.

PROGRESSIVE MOBILITY OF A PATIENT USING A CENTRIMAG EXTRACORPOREAL CIRCULATORY RIGHT VENTRICULAR ASSIST DEVICE: A CASE REPORT

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Background: A CentriMag right ventricular assist device (RVAD) is a circulatory support device that circulates blood outside of the body with tubes connecting it to the heart, providing hemodynamic stabilization to patients in need of cardiopulmonary support. Typically, patients connected to a CentriMag are confined to bed. Bed rest results in muscle atrophy, increased inflammatory markers, insulin resistance, tachycardia, and decreased cardiac output.

Purpose: The purpose of this case report is to show the benefits of progressive mobility with a patient using a Centrimag with a femoral artery tube exit site.

Case Description:

Patient: The patient was a 56 year old male admitted to a hospital intensive care unit (ICU) with decompenated heart failure. While awaiting heart transplant surgery, he was connected to a CentriMag RVAD on ICU day 38. Initial Evaluation: Informal evaluation of extremity range of motion and strength reveal no range deficits and the presence of active motion of bilateral upper and lower extremities. He required maximal assistance for rolling and moving from side lying to and from sitting, as well as, moderate assistance to maintain sitting with both upper extremity support. The score on the Minnesota Living with Health Failure Questionnaire (MLHFQ) score was 83 out of a maximal score or 105. The patient was unable to perform the six-minute walk test.

Interventions: The patient received 17 physical therapist visits over 8 weeks. Interventions included strength exercise, balance activities, and a progressive program of bed mobility, sitting balance, and standing balance. The physical therapist and respiratory therapist collaborated to safely progress transfer training and ambulation using an assistive device. On post hospital admission day 100, the patient underwent a heart transplant.

Results: At the time of heart transplant the patient ambulated 186 feet in 6 minutes with a rolling walker and standby assistance. The MLHFQ score was 86 out of 105.

Discussion: The patient increased his functional mobility prior heart transplantation and discharge home. At least for this patient, there were no adverse events associated with progressive mobility activities while connected to an extracorporeal RVAD. Unlike patients confined to prolonged bed rest, this patient did not demonstrate losses in functional strength and mobility.

Conclusion: Progressive functional mobility may be beneficial for patients connected to RVAD devices. Research comparing outcomes comparing bed rest and progressive mobility among patients using RVAD should be conducted.
PATIENT OUTCOMES IMPROVE WHEN TRAINED INTERPRETERS ARE UTILIZED DURING CLINICAL ENCOUNTERS WITH ADULTS WITH LIMITED ENGLISH PROFICIENCY: A SYSTEMATIC REVIEW

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Background: Twenty percent of Americans speak languages other than English at home and half of these demonstrate low English proficiency (LEP). Research demonstrates that the utilization of trained interpreters improves accuracy in communication between healthcare providers and patients with LEP.

Purpose: The purpose of this systematic review is to investigate if the utilization of trained interpreters also improves outcomes among patients with LEP. Hypothesis: Utilization of trained interpreters will improve the following outcomes among patients with LEP: Satisfaction with clinical encounter, comprehension of clinical information, compliance with healthcare interventions, and functional status.

Case Description:

Types of Participants: Non-psychiatric adult patients, 18 years and older, with LEP. Studies of family members or non-patients were excluded.

Types of Studies: Qualitative and quantitative studies including case reports, observational studies, randomized controlled trials (RCT) and systematic reviews (SR).

Types of Interventions: Usage of trained, untrained and/or family interpreters during clinical encounters.

Types of Outcomes Measured: Primary outcomes include patient satisfaction, comprehension of clinical information, compliance with healthcare interventions and functional status. Secondary outcome is quality of care.


Data Collection and Analysis: First author performed searches. Both authors independently reviewed abstracts to identify studies clearly meeting exclusion criteria. Both authors independently reviewed full-length articles to include or exclude them based on inclusion/exclusion criteria. The first author assessed risk of bias using the PRISMA checklist for SRs and the Cochrane Collaboration method for RCTs.

Results: 92 unique studies were identified. 32 of these studies were determined to be potentially relevant based on abstract reviews. 9 of the 32 studies were selected based on application of inclusion/exclusion criteria to full-length articles. Across included studies, results demonstrated that use of interpreters improved patient satisfaction, comprehension of clinical information, compliance with healthcare interventions and/or functional status as well as process of care measures. Greater improvement was associated with utilization of trained compared to untrained interpreters.

Discussion: Because studies demonstrating differences between groups are more likely to be published compared to studies showing no difference between groups, the benefits trained interpreters may be less than suggested by the results of this SR.

Conclusion: Trained interpreters should be utilized during clinical encounters with adults with LEP.

DOCTOR OF PHYSICAL THERAPY STUDENTS’ ACCURACY AND CONFIDENCE IN MEDICAL SCREENING AND REFERRAL DECISIONS IN ASSOCIATION WITH WEB-BASED PATIENT CASES PRACTICE

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Purpose/Hypothesis: To determine if the use of web-based patient cases in a Doctor of Physical Therapy (DPT) curriculum was associated with improvements in students’ confidence and accuracy in referral decisions and rationales.

Number of Subjects: 9

Materials/Methods: 77 first year DPT students were invited to participate; 11 were consented and 9 completed the study. Blackboard Course Sites (BCS) was used to administer 3 custom web-based, multimedia patient cases of increasing complexity that integrated course content from the first weeks of the curriculum. Cases presented students with referral information, chief complaint, clinical signs and symptoms. Students generated relevant interview questions and selected appropriate screening examinations. Answers to their interview questions and screens provided the necessary information to hypothesize the patient’s underlying physiologic condition, make a referral decision and provide a rationale. After each case, students ranked their confidence in their referral decision and then received information regarding the correct referral decision and appropriate rationale. Investigators scored referral decisions as correct/incorrect and ranked the accuracy of students’ rationale on a 0-2 scale. Students also completed pre/post study confidence surveys and a post study satisfaction survey. Group mean values were compared.

Results: Mean confidence referral decision confidence remained high, while the mean accuracy of their rationale and referral decisions declined with increasing case complexity. Students’ mean confidence in making referral decisions improved by 27.78% after
IMPACT OF DAY OF SURGERY PHYSICAL THERAPY EVALUATION ON MEETING CRITERIA FOR DISCHARGE IN PATIENTS WHO HAVE UNDERGONE TOTAL KNEE REPLACEMENT

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Background: Joint replacement surgery is predicted to experience exponential growth. Physical therapists in the acute care setting need to be prepared for this growing patient population. In addition, our health care system is on the verge of significant change and implementation of cost containment measures. Collaboration among healthcare professionals is becoming even more important to prepare patients undergoing total joint replacement surgery for earlier discharge.

Purpose: To explore whether having a physical therapy (PT) evaluation on day of surgery (DOS) results in patients who have had a total knee replacement (TKR) being able to meet criteria for discharge from the hospital sooner than patients who did not have a physical therapy evaluation on DOS.

Subjects: Convenience sample of patients undergoing TKR by one orthopedic surgeon in a community hospital. Patients with a 3 day length of stay (LOS) were selected to eliminate outliers due to complications. Patients all received continuous femoral nerve block. Group 1 (N = 60) consisted of patients before the enhancement of PT evaluation on DOS. Group 1 patient activity on DOS was performed only by nursing staff. Group 2 patients (N = 87) were those patients who received PT evaluation on DOS.

Methods/Materials: Non-experimental correlational, retrospective design. Institutional Review Board approval obtained prior to starting data collection. Literature review was conducted. Principal investigator was a nurse; co-investigator was a physical therapist. For this research, criteria from a PT perspective were established to indicate readiness for discharge from the hospital. Two discharge criteria of ‘needing no to minimal assistance’ and ‘ambulate 50 feet’ were selected. Fifty feet is a functional ambulation distance in most homes. Collaboration between PT, nursing, and surgeons for the DOS activity initiative was critical to its success. Patients were informed to expect DOS activity during the mandatory Joint Replacement Pre-Operative Class.

Analyses: An independent t-test was run to determine if there was a difference between the two groups with last pain score and with time discharge criteria were met. A CHI square was run to see if the groups had a difference in the various criteria met.

Results: There were no statistically significant results, however there were some interesting discoveries. Slightly fewer patients who received PT evaluation on DOS (46.9%) met criteria for discharge home than those mobilized by nursing only (53.1%). A significantly lesser percentage of patients who received PT on DOS (25.7%) were actually discharged home as compared to those who were mobilized by nursing only (40.0%).

Conclusions: PT evaluation on DOS does not increase the likelihood that patients will be discharged directly home from the hospital following a total knee replacement. Limitations of this study include the small sample size and use of just one surgeon’s patients. Regarding discharge directly to home, the investigators perceive a bias within this community toward discharge to skilled nursing facilities. This is purely anecdotal, so research needs to be conducted to investigate the reasons for this preference rather than directly to home. Also, future research might include patients of surgeons who utilize pain management modalities other than continuous femoral nerve block.
PHYSICAL THERAPISTS AS RESOURCES FOR HEALTH AND WELLNESS: A SURVEY OF THE PATIENT’S PERSPECTIVE
Katie Siemer, SPT, Andrew Aberle, SPT, Melissa L. Peterson, PT, PhD, GCS

Background: Millions of Americans suffer from chronic disease, many due to modifiable risk factors, including lack of physical activity, poor nutrition, excessive alcohol consumption, and tobacco use. While physical therapists are qualified to address many of these issues, especially under direct access, the public may not be aware of their ability to do so.

Purpose: The purpose of this study was to investigate patients’ perceptions of physical therapists as resources for health promotion and wellness concerns.

Number of Subjects: A total of 71 patients (44 females, 26 males, 1 anonymous) receiving outpatient physical therapy participated in the study.

Materials/Methods: A survey was distributed to current patients of 10 outpatient clinics. The survey included questions about demographics, rehabilitation purpose, and previous physical therapy exposure. On the second page, patients were asked whether they would seek information from a therapist on a list of topics, including reasons for rehabilitation for which physical therapists are either trained to treat, such as improving fitness or reducing falls, or trained to recognize as a necessary referral to another specialist, such as depression or medication side effects. Frequency analyses were conducted to determine the number of participants indicating a willingness to discuss the respective topics with a physical therapist. Chi-square analyses were conducted to explore possible relationships between this willingness to discuss health and wellness topics and demographic characteristics.

Results: Over 75% of participants indicated a willingness to discuss topics including improvement of fitness, selection of appropriate footwear, body mechanics, and fall prevention. However, the majority of participants reported they would not discuss topics including incontinence, depression, memory loss, and confusion over medications. Males were more likely to discuss alcohol use (p=0.04), while older adults were more likely to inquire about medication side effects (p=0.04).

Conclusions: While several topics commonly associated with physical therapy were identified as likely topics of inquiry, participants were much less likely to discuss other equally important topics. Results of this study suggest an under utilization of physical therapists’ knowledge and expertise.

FACTORS INFLUENCING OLDER ADULTS’ PARTICIPATION IN WELLNESS PROGRAMMING: A QUALITATIVE STUDY
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Background: Despite growing evidence that physical activity provides a multitude of benefits for people of all ages, older adults are the least likely to regularly engage in exercise. As the average age of our society increases, so does the prevalence of chronic disease, making participation in physical activity increasingly important for the older adult population.

Purpose: The purpose of this study was to explain this phenomenon of older adult exercisers and to determine the underlying motivation and reasoning behind why individuals in a specific older adult population who do participate in wellness programming choose to do so.

Number of Subjects: The participants were nine adults (5 male, 4 female; ages 58-91).

Materials/Methods: Participants were drawn through a purposive sample from two senior living communities in Central Illinois. Staff members within the facilities recruited participants to be interviewed based on participation in wellness programming. Phenomenological, semi-structured interviews were used to explore participants’ experiences with physical activity, including perceived benefits of exercise, exercise history, and barriers to participation. Voice recordings were transcribed, and common themes were identified.

Results: The most common reason to exercise cited by participants was preserving physical function, specifically walking and performance of activities of daily living. This included following professional advice to continue physical activity in order to maintain gains achieved in physical therapy following an injury or illness. Other common motives for exercising included both psychological and social benefits, enjoyment and personal fulfillment, and the convenient and free access to exercise equipment.

Conclusions: The participants’ experiences offer insight into older adults’ decisions to participate in physical activity. According to this study’s findings, there is an increased likelihood of participation among older adults if exercise programming is structured around the following principles: (1) community education and emphasis on the role of exercise in preserving mobility; (2) enjoyable forms of exercise available (i.e. appropriate level of intensity, variety of equipment, pleasant setting/location, etc); (3) offered in a convenient and accessible location at no cost to participants; (4) emphasis on social aspects of exercise and promotion of exercising with others; (5) education on potential psychological benefits of exercise; and (6) education on potential strength/flexibility benefits, as well as proper training and monitoring during exercise.
TAILORING PHYSICAL THERAPY TREATMENT TO ACHIEVE OPTIMAL FUNCTION FOR A PATIENT WITH MULTIPLE SCLEROSIS RECEIVING INTRATHECAL BACLOFEN THERAPY: A CASE REPORT

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Background: Many patients with multiple sclerosis (MS) have symptoms of spasticity that ultimately lead to a decline in their daily function. Intrathecal baclofen therapy provides relief to these symptoms with fewer adverse side effects such as fatigue and dizziness than oral baclofen medication. Beyond the prescribed titration parameters, few studies have documented how the healthcare team tailors their treatment for the individual receiving intrathecal baclofen therapy to achieve optimal function.

Purpose: The purpose of this case report is to describe how patient feedback combined with the treating physical therapists’ evaluation of spasticity and function can be used to guide baclofen administration to improve patient function after placement of an intrathecal baclofen pump for a patient with MS.

Materials/Methods: This study was approved by a local university IRB and the patient provided written, informed consent prior to participation. The subject was a 51-year-old Caucasian female diagnosed with secondary-progressive MS more than 20 years prior to this episode of care. Her spasticity had been managed primarily by oral baclofen medication prior to admission and she was admitted to an acute care hospital for a trial of intrathecal baclofen. Spasticity was assessed on the Modified Ashworth Scale (MAS) and function was evaluated with the Functional Independence Measure (FIM) as intrathecal baclofen was titrated during physical therapy. Physical therapy interventions were modified based on the subject’s spasticity and prevalent impairments during each treatment session. The patient’s subjective response and functional outcome were used to describe her tolerance for and response to therapy interventions.

Results: The subject was seen in an acute care setting for a total of 12 days and started on an intrathecal baclofen pump at day 3. As the intrathecal baclofen level was increased, there was a decrease in the MAS score. As the MAS score decreased to 1+ /4, the subject reported a decline in function, but as the dose of baclofen was tapered, the subject’s FIM scores significantly improved in transfers, self-care tasks and ambulation. Overall, the subject’s function significantly improved with intrathecal baclofen and rehabilitative therapy compared to her functional level on admission to the acute care hospital.

Discussion: Detailed documentation of function and spasticity during a flare up and trial for an intrathecal baclofen pump for a patient with MS may help provide guidelines for titrating baclofen and for physical therapy management. This case also demonstrated how a patient’s subjective feedback may help the healthcare team to achieve an more favorable outcome.

THE EFFECT OF TEXT MESSAGING ON REACTIVE BALANCE ABILITY AND THE TEMPORAL AND SPATIAL CHARACTERISTICS OF GAIT IN UNIMPAIRED INDIVIDUALS

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Background: Texting on cell phones has become a pervasive means of communication in our society. The deleterious effect of texting while doing a concurrent motor task such as driving is well documented. However the effect of texting while walking or performing a balance task is less studied.

Purpose: The aim of this study was to explore the effects texting on gait characteristics and reactive balance.

Hypothesis: Three hypotheses were made in this study: 1) The accuracy and speed of text messaging will be negatively affected during the balance and gait trials, as indicated by a higher number of errors and decreased text messaging speed. 2) Text messaging will decrease walking speed, cadence, step length, and increase heel to heel base of support and time spent in double support during gait, as measured by the GAITRiteTM. 3) Text messaging will be negatively affected during the balance and gait trials, as indicated by increased DMA scores, as measured by the PROPRIO 5000TM.

Materials/Methods: Thirty-two adult subjects were recruited (mean age 23.6). Data was collected on texting ability (character/second and number of errors) in standing, while walking and while in perturbed stance. Data on spatial and temporal gait parameters using the GAITRiteTM was collected during 3 trials of walking normally and while walking and texting. Data on reactive balance in perturbed stance (DMA score) was collected using the PROPRIO 5000TM while standing and while standing and texting. The DMA score is a calculated sum of center of mass movements that is recorded during a standardized 2-minute test of progressive platform perturbations. Repeated measures statistics were applied.

Results: No practical difference in texting ability was found between the three conditions of standing, walking and perturbed stance. A statistically significant difference was found between mean gait characteristics of velocity, cadence and double limb support, and step length during normal walking and walking while texting (p = .00). No statistical significance was shown between mean heel to heel support. A significant difference was found between reactive balance ability (mean DMA score) in perturbed stance and perturbed stance while texting (p = .01).

Conclusion: The data implies that gait and reactive balance is negatively impacted while texting and that subjects will maintain their baseline texting speed and accuracy at the expense of gait speed and impaired balance. Further research should be done to...
determine the impact of texting on gait and balance in individuals with known gait and balance impairments. Texting while doing gross motor movement might also be an appropriate real world challenge to use in gross motor dual task treatment interventions.

Background: Foot position has been viewed as a risk factor for lower extremity injury and current methods for assessing foot position have often been found to be lacking. The Foot Posture Index – 6 is a relatively new method to assess foot position in the clinic.

Purpose: The purpose of this review was to evaluate the reliability and validity of the Foot Posture Index – 6 as a clinical tool for assessing static foot position.

Methods: CINAHL, PubMed and Medline databases were searched for the term “foot posture index.” The search yielded 45 unique results. Following title/abstract review, 8 articles were included in full manuscript review. Of these, 5 Studies met the selection criteria. Studies were excluded if they had only pediatric patients, poor methodology, used patients with identified foot pathology, or were epidemiological/case studies.

Results: The FPI-6 was found to have high intrarater reliability, but only moderate interrater reliability. Validity was supported in the rearfoot and to a lesser degree the forefoot. Validity was also supported in both dynamic and static postures. Discussion: Studies were evaluated on multiple specific criteria instead of the broad focus of common measures. The FPI-6 was found to have high intrarater reliability, but only moderate interrater reliability. Validity was supported in the rearfoot and to a lesser degree the forefoot. Validity was also supported in both dynamic and static postures.

Conclusion: This review supports the use of the FPI-6 in the clinic due to its efficiency, broad scope of foot position, and low cost to implement. The FPI-6 measures multiple aspects of foot position and provides an objective scoring system to determine the severity of pronation/supination and need for intervention.

Background: Lateral ankle sprains are one of the most common musculoskeletal injuries. Lateral ankle sprains can lead to decreased range of motion impairing functional mobility. One treatment option to improve dorsiflexion range of motion is mobilization with movement (MWM). MWM is a technique involves joint mobilization techniques with simultaneous active joint motion.

Purpose: The objective of this review is to analyze relevant literature to determine the effectiveness of MWM for improving dorsiflexion range of motion after an ankle sprain.

Case Description:

Search Strategy: Initial search of CINAHL, MEDLINE, Rehabilitation & Sports Medicine, SPORTSDiscuss, and PubMed databases for articles from 1985 to present. Key terms included “ankle,” “sprain,” and “mobilization.” This search yielded 91 articles.

Selection Criteria: Articles were selected with the following inclusion criteria: 1. RCT, 2. Written in English, 3. Participants had lateral ankle sprains, 4. Ankle dorsiflexion as an outcome measure, 5. Intervention included MWM of talocrural joint. Articles were excluded if participants had medial or high-ankle sprains, MWM was not an intervention, and/or other interventions were provided with MWM Data Collection & Analysis: Initial search found 91 articles. After title and abstract review, eight articles remained. A full article review of the eight articles was performed and five were excluded because they were not RCT and/or MWM was performed in conjunction with other treatments. Of the three studies that fit inclusion/exclusion criteria, 54 participants with subacute, recurrent, and chronic ankle sprains were studied. Intervention included MWM and was compared to no treatment or sham treatments.

Results: All three articles found significant improvements in dorsiflexion range of motion immediately following MWM treatment as compared to control groups.

Conclusion: The patient population differed among the three studies (subacute, recurrent, chronic), although all patients had lateral ankle sprains. All of the studies compared MWM to sham or no treatment. Based on the findings, MWM is an effective technique for improving dorsiflexion ROM following ankle sprains. However, studies comparing the effects of MWM with joint mobilization or other techniques should be considered.
Background: Measurement of leg length discrepancy (LLD) represents an important part of evaluation in physical therapy, especially during musculoskeletal examination. Many methods including the tape measure method (TMM) have been established along with their reliability and validity. However, no current research is available documenting normative values of LLD.

Purpose: The purpose of this study was to determine the normative range of values for LLD among healthy individuals using the TMM and to establish an association between LLD and a history of back pain.

Hypothesis: It was hypothesized that this study would find an increase in LLD with age and an increase in LLD in individuals with a history of back pain.

Subjects: This analysis of relationships study found both inter-rater and intra-rater reliability of the TMM for measuring leg length using a subset of 16 individuals. Fifty individuals, 31 females and 19 males, aged 21 to 57 years, were measured for LLD.

Materials/Methods: Prior to data collection, all participants filled out a questionnaire about back pain. Leg length was measured bilaterally, from the anterior superior iliac spine (ASIS) to medial malleolus, using a tape measure and was repeated three times. The normal range of LLD was defined as one standard deviation from the mean. Independent t-tests were run for differences in LLD for females vs. males, those with back pain vs. without back pain, and those with back pain related to a specific event vs. no specific event. A one-way ANOVA was run for differences in LLD based on age. A p-value of <0.05 was used. To assess whether LLD values change with age, a Pearson Correlation Coefficient was used.

Results: The two examiners that collected data demonstrated high inter-rater reliability (ICC=0.879) while intra-rater reliability in all examiners was very high (ICC=0.99). The normal range of LLD for the entire data set was found to be 0.76-12.70 mm. There was no statistically significant difference in LLD values between: ages (p=0.244), males and females (p=0.097), individuals with and without back pain (p=0.730), or those with back pain related to a specific event vs. no specific event (p=0.640). There was a negative correlation between LLD and age with an r-value of -0.036.

Conclusion: This pilot study established a normal range of LLD among healthy individuals of varying ages with high inter-rater reliability and very high intra-rater reliability. The results of this study also showed that there are no significant differences in leg length values between ages, males and females, individuals with and without back pain, and individuals with back pain related to a specific event and no specific event. This pilot study lays the foundation for future researchers to find a standard range of LLD that can be applied to the general population.
Background: Total knee arthroplasty (TKA) is a procedure commonly performed for advanced arthritis of the knee used primarily to relieve pain, return patients to or near their prior levels of function, and improve quality of life. It is indicated in patients for whom conservative treatment has failed as any sort of invasive surgery should be a method of last resort. There is limited evidence for the management of soft tissue dysfunction in patients post-TKA. Sevier suggests that internal scar tissue or adhesions can build up in joints, muscles, tendons, and soft tissues as a result of injury, disease, or surgery. ASTYM® uses specific tools and protocols to “activate a regenerative response via induction of leakage from dysfunctional capillaries, which leads to fibroblast activation, macrophage mediated phagocytosis, and local release of growth factors that result in additional fibroblast recruitment.”6 In contrast to mechanically breaking down tissue, ASTYM® focuses on “activating an underlying physiological response leading to the regeneration of soft tissue.”6 Sevier claims that ASTYM® is effective at reducing or eliminating internal scar tissues or adhesions, resulting in less stiffness, aching, and pain.

Methods: A 66 year old female s/p TKA received physical therapy from Pettygrove Physical Therapy and consented to participating in a case report. Traditional interventions, including passive and active stretching, strengthening, and modalities, were used to reduce pain, increase ROM, and return the patient to her prior level of function. ASTYM® was introduced when the patient’s ROM plateaued with traditional intervention.

Results: The patient gained 12° of flexion and 4° of extension after 17 days of initiating traditional therapy. AROM was measured before initiating ASTYM® to get a baseline measurement before beginning the new intervention. The patient gained a significant 26° of flexion and 10° of extension 13 days after initiated ASTYM®. On the patient’s last visit during the student clerkship, she reached 125° of flexion and 3° from full extension. She gained 50° of flexion and 22° of extension compared to her initial evaluation.

Conclusion: The patient subjectively felt that her ROM plateaued with conventional manual therapy and therapeutic exercises. She felt that ASTYM® is what got her “over the hump with ROM.” Based on the patient’s subjective feelings about her objective gains in ROM after ASTYM®, there are implications that soft tissue dysfunction may play a role in limiting ROM post-TKA. Because this patient’s treatment plan was not isolated to ASTYM®, it cannot be concluded that her later improvements in ROM were due solely to ASTYM®. And although the patient’s subjective feelings toward ASTYM® were positive, future research is required to determine if ASTYM® alone is capable of improving ROM post-TKA.