Abstracts
For the Fall
2013
Annual
FPTA
Conference
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Effects of a physical training program on quantitative neurological indices in mild stage type 2 spinocerebelar ataxia patients.
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Introduction: Type 2 spinocerebelar ataxia (SCA2) is a neurodegenerative disease with higher prevalence and incidence in Holguín province, Cuba. At present, there is not any drug to counteract the loss of coordinative motor capacities of these patients. Thus physical training seems to be the only way to attenuate the course of disease. This study was designed with aimed at evaluating the effectiveness of a physical training program on quantitative neurological indices in SCA2 patients.

Methods: A sample of 87 SCA2 patients was studied. All subjects underwent a six month physical exercise program based on coordination, balance and muscular conditioning exercises. Quantitative tests were applied to all patients both before and after the application of the exercise program. Comparisons between pretest versus posttest values were made to evaluate the improvement in neurological indices.

Results: All neurological indices both with open eyes and closed eyes significantly improved from pretest to posttest. Static balance, evaluated by Romberg test, also enhanced with training.

Conclusion: The exercise training program significantly improved the neurological indices in SCA2 patient with mild stage of disease.

Key Words: Physical therapy - Rehabilitation - Type 2 spinocerebellar ataxia

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The use of sensory re-weighting for a woman with persistent mal de debarquement: a case report

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Background and Purpose: Persistent mal de debarquement is an uncommon disorder that occurs after a sea voyage, plane or train trip. Symptoms include unsteadiness, rocking sensation, visual motion intolerance, cognitive slowing and excessive fatigue. It is thought to be a result of faulty multisensory adaptation. The purpose of this case report was to describe the use of sensory reweighting as a therapeutic approach to decrease symptoms and increase functional abilities of a woman with persistent mal de debarquement.

Case Description: A 69 year old female with a four year history of persistent mal de debarquement after a plane trip complained of a constant feeling of rocking, unsteadiness, and a loss of balance in low lighting or visually rich environments. She experienced a previous fall and had limited her social activities due to her symptoms.

Interventions: Sensory re-weighting therapy was administered twice a week for ten weeks. Activities included balance training using vestibular, somatosensory and visual challenges to vary the sensory input available.

Outcomes: A five point increase was observed in the Berg Balance Scale, she doubled her balance time in tandem stance position, and improved from moderate to low impairment on the Dizziness Handicap Inventory. She had a significant change in the Global Rating of Change Scale. Subjectively, she felt she had improved 50% and was less disabled.

Discussion: A rehabilitation approach aimed at sensory re-weighting improved this patient's function and community reintegration. Her symptoms were reduced and stability and balance improved.

Key Words: Mal de Debarquement, Sensory re-weighting; Balance training

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Introduction: Temporomandibular joint (TMJ) hemiarthroplasty is a relatively new surgical procedure for the treatment of TMJ pathology. No research currently exists describing the effectiveness of physical therapy following TMJ hemiarthroplasties. The purpose of this case report is to demonstrate the effectiveness of an impairment-based manual physical therapy approach to reduce facial pain, cervicogenic headaches, dizziness, and cervical spine pain in a patient following bilateral TMJ hemiarthroplasties.

Methods: The patient was a 33 year old female who presented with pain in the left ocular region, left frontal sinus region, left cervical spine with frequent headaches since September of 2011. The patient had an extensive two year history of facial pain and bilateral TMJ dysfunction without being referred to a physical therapist. The patient’s right TMJ hemiarthroplasty occurred in September of 2010 and her left TMJ hemiarthroplasty occurred in September of 2011. The patient’s symptoms continued to progress after the bilateral surgeries. The patient was referred to a physical therapist in February 2013 when musculoskeletal impairments were identified and treated within an eight week period.

Results: Outcome measures demonstrated favorable results for this patient. There was complete resolution of facial pain, neck pain, cervicogenic headaches, and dizziness. Active and passive cervical mobility and muscle strength and length was restored to within normal limits. Full functional recovery was achieved for this patient. The outcome
measures used were the verbal analogue scale, neck disability index, goniometry, passivertebreal mobility testing scale, manual muscle testing, cranio-cervical flexion test and the neck flexor muscle endurance test.

**Conclusion:** An impairment-based manual physical therapy approach was effective at reducing facial pain, cervicogenic headaches, dizziness, and cervical spine pain in a patient with post-surgical bilateral TMJ hemiarthoplasties. A physical therapist should be considered as a conservative health care option before patients choose TMJ hemiarthoplasties.

**Key words:** Temporomandibular, Hemiarthroplasty, Impairment
Do scores on a curriculum based exit examination correlate with the National Physical Therapy Examination (NPTE) scores?

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Introduction: Physical therapy programs use pass rates on the National Physical Therapy Examination (NPTE) to evaluate the efficacy of their programs. Students, administrators and those involved in curriculum development have a vested interest in achieving and maintaining high pass rates.

There is little research on the use of comprehensive tests to predict student success on national licensure exams. The University of St. Augustine for Health Sciences (USA) developed a comprehensive written exam based on the curriculum. The purpose of this study was to determine if there is an association between student performance on the USA written exit exam and the NPTE.

Methods: This study utilized a retrospective correlational design. Exit exam and NPTE scores were collected from the records of 434 students between 2009 and 2011. SPSS was used for descriptive and correlational data analysis.

Results: The most commonly reported measure of correlation is the Pearson product-moment correlation coefficient. This measure of covariance was computed to assess the relationship between the continuous variables of the students’ exit exam scores and their respective NPTE scores. There was a good and positive linear relationship between the two exam scores with an R^2 value of .439 and a p value of <.01.
**Conclusion:** There is limited research on the incorporation of a comprehensive curriculum based exit exam in health care education and the exit exam scores relationship to the respective national licensure exam score. Most research is from nursing programs with varied and inconclusive results. This study demonstrates a good and positive correlation to student performance on the USA written exit exam and the NPTE. More research is needed to establish additional predictors of success on both examinations. Physical Therapy educational programs may want to consider incorporating a written exit exam to assist in identifying students at risk of having difficulty passing the NPTE.

**Key words:** Comprehensive exams; NPTE pass rates; Education
The Consequences of Successful Rehabilitation of a Large Rotator Cuff: A Case Report.
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Introduction: This report illustrates through MRI imaging studies the case of a patient who successfully rehabilitated a large rotator cuff tear only to later reinjure his shoulder rendering it non-functional.

Methods: The patient was seen by an orthopedic surgeon for the original surgery in 2005. Despite not having any imaging, surgery was recommended. Without counseling the patient chose to conservatively manage the tear. He underwent physical therapy evaluation and intervention and made steady progress towards goals. Upon discharge the patient had shoulder weakness but was able to perform all functional daily and recreational activities. In 2012, the patient injured his shoulder and presented to physical therapy with impairments of pain, decreased active range of motion, decreased strength at the right shoulder. The examination of the shoulder demonstrated signs and symptoms consistent with a full thickness tear of the rotator cuff. The patient was referred to an orthopedic physician who obtained an MRI. MRI findings were extensive showing an absent subacromial space, acetabularization of the acromion, an old full thickness tear of the supraspinatus and the superior majority of the infraspinatus. Acute changes were seen with new tears extending through the remaining portion of the infraspinatus and into the teres minor.

Result: The patient was counseled on surgery and opted for surgical repair of the infraspinatus and teres minor. The patient was seen in physical therapy for further conservative management of the condition. His function, pain, and disability scores sharply improved, but he was unable to return to his previous level of function.

Conclusion: This case report demonstrates the necessity of surgical counseling and it shows through the use of MRI the possible long term consequences of rehabilitating a large rotator cuff tear without surgical intervention.

Key words: rotator cuff tear, physical therapy
The Treatment of a Complex Case that Traverses Several Practice Patterns

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Introduction: This case report uses photography and video to document progress of a 27 year old with a complaint of foot and ankle pain. The case shows the value in using the Guide to Physical Therapist Practice to guide treatment. It also displays the benefits of having flexibility in a working diagnosis in physical therapy. This patient was treated using diagnoses related to neurology, orthopedics, and cardiopulmonary physical therapy.

Methods: The patient came to physical therapy for treatment of foot and ankle pain. He reported having pain for 6 months and that the pain was a direct result of a stroke that occurred from an innate cardiac condition 1 year ago. The patient was seen in physical therapy once a week for a total of 7 weeks. The patient progressed from a statically dorsiflexed great toe as a result of spasticity (Neuromuscular Practice Pattern 5D) to a toe that lacked the plantar flexion range of motion (Musculoskeletal Practice Pattern 4D) to an individual that lacked the ability to appropriately exercise due to his underlying heart condition (Cardiovascular/Pulmonary Pattern 6D).

Result: The patient was able to return to his previous level of recreational exercise as needed for heart health and was pain free at the foot and ankle after completing his course of physical therapy.

Conclusion: The ability to navigate a complex case using flexible diagnoses to guide physical therapy treatment resulted in rapid progress in a 27 year old male with ankle and foot pain.

Key words: complex case, physical therapy, diagnosis
Physical therapy management of a patient with venous entrapment in the costoclavicular space: a case report

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Introduction: Thoracic Outlet Syndrome is a controversial diagnosis due to lack of anatomical specificity. This case report presents Physical Therapy management of venous entrapment in the costoclavicular space.

Methods: The patient was a 26 year old female physical therapy student and runner with a history of asthma. She reported onset of right sided neck pain, right arm swelling and nondermatomal paresthesia during a half marathon. Following the race, she was unable to run greater than 10 minutes due to anterior shoulder pain and upper extremity swelling. Examination performed two weeks post onset found visible trophic changes and edema, positive costoclavicular maneuver, limited passive upper thoracic and rib mobility and impaired diaphragm excursion. Accepted interventions yielded no significant change in patient function over a two month treatment course. An original technique was created to improve costoclavicular mobility and used in combination with rib mobilization and neuromuscular reeducation.

Result: The patient experienced immediate decrease in upper extremity edema and paresthesia. She was able to run 10 miles pain free.

Conclusion: The hypothesis was based on the scissoring effect reported to occur at the costoclavicular space. Clinical reasoning for this hypothesis was that the patient's overuse of accessory muscles of breathing combined with mobility limitations of the clavicle, ribs and thoracic spine altered the normal mechanics of the costoclavicular space during running. Post treatment, the costoclavicular maneuver remained positive for symptom provocation. The authors question the predictive value of this maneuver for functional outcomes.

Key words: Thoracic Outlet Syndrome, Costoclavicular Space, Running
Work-Related Musculoskeletal Disorders among Physical Therapists
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Introduction: Physical therapists (PTs) often develop musculoskeletal disorders (MSDs) in the process of performing their jobs. PTs work in variety of practice settings and specialties that require diverse skills and impose different biomechanical demands on PTs. The prevalence of MSDs and the body parts affected may be different among specialties and settings; however, little information is known about this. Therefore, the objective of our study was to conduct a survey to evaluate the rates and characteristics of WMSDs in a sample of PTs practicing in Florida according to their specialty and setting.

Methods: An electronic questionnaire was designed and administered online using the Qualtrics software. It included 15 demographic questions, 7 work-related questions, and 8 injury-related questions for 9 different body parts. The questionnaire was advertised four times in the Florida Physical Therapy Association's (FPTA) electronic newsletter between September and November 2012.

Results: Complete responses were obtained from 122 PTs; 96% of the respondents reported MSD symptoms in at least one body part during the previous 12 months; 64% in three or more and 30% in five or more body parts. The highest prevalence of MSDs was found in PTs who specialized/worked in outpatient clinics, acute care, and orthopedics. The low back and neck were the most commonly affected body parts for PTs who specialized/worked in acute care, geriatrics, orthopedics, skilled nursing facilities, outpatient clinics and hospitals. Neck pain was most common in PTs who specialized/worked in neurology, academics and in home health. Low back and knee pain were more prevalent in PTs who specialized in pediatrics.

Conclusions: MSDs are common among PTs and the body parts affected depend on both practice setting and specialty area. The body parts most often affected were the back and wrists/hands.

Key Words: Musculoskeletal Disorders; Questionnaire; Physical Therapists