BEHAVIORS OF STUDENT PHYSICAL THERAPISTS DURING UNSUCCESSFUL FULL-TIME CLINICAL INTERNSHIPS by Kay Tasso, PT, PhD, PCS, DLC Nurse & Learn; Debra Gray, PT, DPT, M Ed, University of St. Augustine; Joanne Laslovich, PT, MA, DPT, University of St. Augustine

Introduction. Research regarding physical therapy students who fail full-time clinical internships is scarce. This retrospective qualitative study examined the behaviors of students who failed a full-time physical therapy clinical internship.

Methods. Seven students failed a full-time physical therapy clinical internship from the fall of 2005 through the fall of 2006 terms at one physical therapy program in the southeast United States. Comments from clinical instructors (CIs) written on the Clinical Performance Instrument during 4 trimesters were analyzed for themes of behaviors students exhibited that contributed to failing their clinical internship.

Results. Nine categories of behaviors emerged from comments cited by clinical instructors. The categories included: unethical behavior; unprofessional behavior; lack of commitment to the clinical internship; difficulty with time management; difficulty with problem solving and/or critical thinking; difficulty performing examination, evaluation, or intervention; difficulty with documentation; difficulty with communication; and unsafe practice. Each student who failed exhibited between 2 to 8 different behaviors. The categories most commonly cited included unprofessional behaviors, unsafe practice, and a lack of commitment to the clinical internship. Although no single category of behavior was exhibited by all students, the majority of students demonstrated unsafe practice.

Conclusion. The CI comments cited in this study may assist faculty with teaching students what behaviors contribute to unsuccessful clinical internships in hopes that it assists students with a successful rotation.

Key Words. Clinical education, Physical therapist, Professional behaviors

THE EFFECTS OF ADDING A HOME FITNESS PROGRAM (HFP) TO A CLINICAL PHYSICAL THERAPY PROGRAM (CPTP) ON THE CANCER-RELATED FATIGUE REPORTED BY PATIENTS UNDERGOING CONCURRENT CHEMOTHERAPY AND RADIATION (CRT) FOR HIGH-GRADE GLIOMA (HGG) by Lindsay A. Perry PT, DPT Shands Rehab Center at the Davis Cancer Center, Department of Physical Therapy at the University of Florida; Meryl J. Alappattu, PT, DPT Shands Rehab Center at the Davis Cancer Center, Department of Physical Therapy at the University of Florida; Gwen Creel, PT, MHS Department of Physical Therapy at the University of Florida; Barbara Bour, PT, Shands Rehab Center at the Davis Cancer Center, Department of Physical Therapy at the University of Florida; Mary T. Thigpen, PT, PhD Department of Physical Therapy at the University of Florida; Erin Dunbar, MD Department of Neurosurgery, University of Florida.

Introduction: Cancer related fatigue (CRF) is a costly, debilitating condition experienced by individuals with cancer during and after chemotherapy and radiation therapy (CRT). For patients with high grade glioma (HGG), CRF often peaks at one month post-CRT (Jereczek-Fossa). CRF rehabilitative interventions using aerobic and strength conditioning programs have been successful in reducing fatigue and improving function in patients with breast and prostate cancer, but this is insufficiently evaluated in patients with HGG (Dimeo). The purpose of this study was to evaluate the addition of a Home Fitness Program (HFP) on the pattern & severity of CRF and functional outcome measures in patients with HGG undergoing CRT and a clinic physical therapy program (CPTP).

Methods: The design was an investigator-blinded, intent-to-treat trial addressing HFP, Karnofsky performance scale (KPS), clinical, and fatigue data collected at baseline, six weeks, and one month post-CRT (ten weeks). Participants were randomized to control (C) (routine CPTP) versus HFP group (C + HFP).

Results: Four participants completed one month post-CRT data (two HFP, two C). Mean data for the experimental participants remained within normal limits of normal values for all functional outcome measures at one month post-CRT compared to the control group who fell below normal. The Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) values were all below normal values at baseline; however, the experimental group demonstrated a clinically meaningful improvement at one month post CRT. Conclusions: Initial report reveals CRF was well managed and functional outcomes for CPTP + HFP stayed within normal values one month post-CRT compared to control, suggesting CPTP + HFP may be protective during CRT in patients with HGG. This case series represents a novel approach to optimizing the management of CRF in patients with HGG.

Key Words: High Grade Glioma, Physical Therapy, Fatigue
THE EFFECT OF THE ANGLE OF INCLINATION OF THE TIBIA ON STANDING POSTURAL STABILITY IN A CHILD WITH SPASTIC DIPLEGIC CEREBRAL PALSY by Lourdes Ferreiro, PT, DPT*, Physical Therapist, Department of Rehabilitation, Miami Children’s Hospital; Melissa Harrell, PT, DPT, Physical Therapist, Department of Rehabilitation, Miami Children’s Hospital; Leonard Elbaum, EdD, PT, Department of Physical Therapy, College of Nursing and Health Sciences, Florida International University; Cheryl Gimenez, PT, DPT, PCS, Rehabilitative Services Manager, Department of Rehabilitation, Miami Children’s Hospital.

Introduction: Traditionally the use of ankle foot orthoses (AFOs) positions the tibia of the wearer at an angle perpendicular to the floor in the sagittal plane. A recent proposed clinical algorithm for the design and tuning of AFO-Footwear combination (AFOFC) by Elaine Owens, MSc, SRP, MCSP suggests that allowing the tibia to be inclined anteriorly 7-15 degrees in the sagittal plane may place the wearer of the AFOs in more optimal alignment in relation to ground reaction forces. Thus, allowing for increased stability in stance. The purpose of this case report is to describe the effect of changing the angle of inclination of the tibia on the standing postural stability of a child with spastic diplegic cerebral palsy.

The subject was a 15 year old male with spastic diplegic cerebral palsy who was ambulating independently using a posterior walker and bilateral AFOs. The subject recently entered high school and had the goal of independent standing without upper extremity support.

Methods: Static standing balance wearing bilateral AFOs without use of an assistive device was examined for a period of 10 seconds. The initial trial was performed with the subject standing flat on the floor, with the tibia perpendicular to the floor. The second trial was performed with the subject standing on two wedges, with the tibia inclined 10 degrees in the sagittal plane.

Results: The standard deviation of sway of the center of pressure (COP) was the primary outcome measure used. With the tibia inclined 10 degrees, the standard deviation of sway decreased 76% in the anterior/posterior direction, and decreased 48% in the medial/lateral direction.

Conclusion: These results suggest that the construction of AFOFCs which allow anterior inclination of the tibia in the sagittal plane may allow for improved standing postural stability in children with cerebral palsy.

Key words: Orthotics, cerebral palsy, postural stability

CUBOID INTERNAL ROTATION HYPOMOBILITY AS PRIMARY CAUSATIVE FACTOR FOR CHRONIC POSTERIOR TIBIALIS TENDINOSIS: A CASE REPORT by Patla, CE, Lwin, JM, Johnson, LJ, University of St. Augustine for Health Sciences, San Diego CA.

Purpose: This case identifies a decrease in cuboid internal rotation and midtarsal pronation in the presence of posterior tibialis tendinosis.

Description: A 23-year-old female reported a 3-year history of chronic posterior tibialis tendinosis preventing her from running any distance due to pain. 9/10 pain on VAS scale was present over navicular and posterior tibialis tendon with any attempts to run. PT examination revealed a hypomobility of cuboid internal rotation and lack of full midtarsal pronation. Treatment with internal rotation thrust manipulation of the cuboid was performed. Post manipulation, emphasis on gait training using midtarsal pronation as well as neuromuscular manual resistance was carried out.

Outcome: After manipulation, full midtarsal pronation and cuboid internal rotation was achieved. On treatment day, patient ran 2 miles with 1/10 posterior tibialis and navicular pain.

Discussion: Posterior tibialis tendinosis commonly arises from midtarsal overpronation. Consequently, the cuboid is generally mobile in internal rotation. With this patient, midtarsal pronation was not available hence the posterior tibialis tendon was not able to function eccentrically. As a result, pain was reproduced during weight bearing attempts to pronate while running when the cuboid was unable to internally rotate. By restoring cuboid internal rotation, pain at posterior tibialis tendon and navicular resolved and patient was able to return to running with less pain. This case demonstrates the importance of investigating cuboid internal rotation mobility even in the presence of a posterior tibialis tendinosis which is commonly associated with midtarsal overpronation and internal rotation hypomobility.

Key words: Cuboid, pronation, posterior tibialis
THRUST MANIPULATION AT SCAPHOID CAPITATE JOINT, STATUS POST CYST REMOVAL – A CASE REPORT by Patla CE, Bourgeois TJ, University of St. Augustine, St. Augustine, Florida.

**Purpose:** To relate the manipulation treatment of scaphoid capitate (S/C) joint secondary to scar restrictions from a surgical cyst removal with subsequent full and pain free weight-bearing wrist extension. Medical professionals should be aware of specific post surgical carpal limitations that can limit wrist function. **Description:** A 23-year-old female had a surgical cyst removal over the proximal volar and radial side of the wrist. The main complaint was limited functional weight-bearing extension and lifting heavy objects. The Upper Extremity Functional Index (UEFI) was 52/80 and Visual Analog Scale (VAS ) 3/10. Examination identified specific tissue impairments: wrist radial collateral ligament adherence, fascial restrictions of extrinsic musculature, radio-humeral joint adhesion, decreased eccentric strength of wrist extensors and painfree S/C dorsal adhesion. **Outcomes:** Six treatment sessions consisted of interventions of wrist and elbow impairments, with minimal changes of wrist extension. On the seventh session, only thrust manipulation of capitate dorsally was carried out. Immediate post treatment pain free weight-bearing wrist extension resulted. UEFI was 79/80, weight-bearing wrist extension was full and pain free. VAS of 1/10 was reported only with carrying heavy objects overhead. **Discussion:** On the seventh session, the surgical report was made available and identified an internal incision along the S/C ligament. The surgical report guided the examination of the S/C joint. It is speculated that this ligament had been adhered secondary to the internal incision, which therefore limited the dorsal glide of the capitate at the S/C joint and restricted the patient's wrist weight-bearing extension.

**Key words:** Scaphoid capitate joint, wrist pain,

IDENTIFICATION OF PRE-SEASON FACTORS CORRELATED WITH THE DEVELOPMENT OF SWIMMERS SHOULDER by Christy Martin PT, Kathy Swanick PT DPT OCS, Dennis Hunt EdD, CSCS, Florida Gulf Coast University

**Introduction:** Swimmer’s shoulder is reportedly seen in 40 to 69% of the competitive swimming population. Little research exists that investigates the causes of swimmer’s shoulder. The purpose of this study is to determine if preseason demographics, ROM, and/or shoulder strength correlate with the development of swimmer’s shoulder in season. **Methods:** Subjects included 22 NCAA Division I female swimmers. Preseason and postseason surveys were taken on shoulder pain and demographics. Measurements were taken including postseason ROM and strength. Independent t-tests were used to find a correlation between any dependent measurements and development of shoulder pain by the end of the season. Chi-square of independence was used for primary stroke, years swimming, and preseason pain. **Results:** For all instances of postseason shoulder pain, positive correlations were found with preseason pain (p=.002), right-sided preseason external rotation to internal rotation strength ratios (t=2.359, p=.035), right-sided preseason flexion strength (t=2.262, p=.035), right-sided abduction strength (t=2.222, p=.038), and right-sided abduction ROM (t= 2.359, p=.035). For new incidences of postseason shoulder pain, correlations were found with left-sided abduction ROM (t=-2.155, p=.044), difference in side to side flexion ROM (t=2.083, p=.050), left-sided flexion strength (t=2.098, p=.049), left-sided abduction strength (t=2.478, p=.022), right-sided flexion strength (t=2.698, p=.014), and right-sided abduction strength (t=2.593, p=.017). **Conclusion:** Positive correlations were strongest between preseason pain and shoulder flexion and abduction strength deficits with development of shoulder pain during the swimming season. This may point to supraspinatus weakness, as it is an active mover during those motions, and is commonly inflamed in swimmers. By focusing on shoulder flexors, abductors, and scapulothoracic musculature in a “prehab” program, a decrease in incidences of shoulder pain during the swimming season may occur.

**Key words:** Swimmer, Shoulder, Pre-season
THE EFFECTIVENESS OF CONVENTIONAL WOUND CARE AND ADVANCED WOUND CARE TREATMENTS ON DIABETIC ULCERS: A CASE REPORT by Andrew Carlson SPT, Kathy Swanick PT DPT OCS, Arie van Duijn PT EdD, OCS, Florida Gulf Coast University

Introduction: An estimated 23.1 percent of individuals in the United States, over the age of 60 suffer from diabetes. Diabetes can lead to the development of diabetic ulcers, which can lead to significant amounts of suffering, financial burden, and possible amputation. Diabetic foot ulcers form by a combination of neuropathy, peripheral vascular disease, deformity, and trauma. The purpose of this case report is to describe the PT conventional and advanced interventions used with a patient with a diabetic ulcer.

Case Description: Patient is a retired 62-year-old Caucasian male referred to The Wound Care Institute at Lehigh Regional Medical Center with a diabetic ulcer on the plantar surface of the right foot. Patient presented with a Wagner grade 2 diabetic ulcer, decreased proprioception and sensation of bilateral lower extremities.

Outcomes: Measures included wound measurements. Wound care management included conventional wound care treatments, and advanced wound care treatments consisting of low-frequency ultrasound using the SonicOne MISONIX Ultrasonic Wound Care System. Initial wound measurements were 3.93cm² in area. After surgical intervention wound measurement increased to 12.7cm² in area. At this time the implementation of MISONIX US treatment with continued conventional wound care helped reduce wound measurements to 1.38cm², and addition of a Total Contact Cast System led to closure of the wound. Discussion /Conclusion: Upon discharge, the patient demonstrated wound closure and understanding of importance of preventing diabetic ulcers. This case indicates that a variety of treatment methods including conventional wound care and advanced wound care are beneficial to healing diabetic ulcers. The interventions used in the case have been shown to have good results with diabetic ulcers. This case report also shows that PTs are needed in the management of diabetic ulcers. The use of low-frequency ultrasound is an exciting new intervention that PTs can provide to facilitate the healing rates of various wounds.

Key Words: Diabetic Ulcer, MISONIX, Wound

ASSESSING BALANCE IN GERIATRIC ORTHOPEDIC AND NEUROLOGIC POPULATIONS USING TWO STANDARD MEASURES by Katie Butera¹, SPT and Steven Z. George², PT, PhD, Department of Physical Therapy, University of Florida.

Introduction: Balance is a large contributor to functional mobility, including locomotion and ADLs. There has been limited research regarding specific recommendations for selection of balance measures. Purpose: The primary purpose of this study was to compare two geriatric populations—orthopedic and neurologic—and the application of the Brunel Balance Assessment (BBA) and the Berg Balance Scale (BBS) within these two populations. Methods: Twenty participants recruited from an outpatient physical therapy clinic were sub-categorized into orthopedic and neurologic populations. Participants completed an SF-36 and falls history report and also underwent balance assessments using the BBA and BBS. Results: The orthopedic population performed at a significantly higher level than the neurologic population. The two balance assessments were found to be significantly associated for the orthopedic population only. The two balance assessments were also moderately correlated (approaching significance) with the general health portion of the SF-36. Within this sample, fall risk appeared to be associated with those who did not fall, but not with those who did. Discussion: No association between measures in the neurologic population suggests selecting the most appropriate balance measure may be more essential when evaluating these patients. Physical functioning may have less association to these balance assessments due to geriatric patients having an inaccurate perception of functional performance. Future research should focus on establishing measures that evaluate multiple types of balance and are clinically feasible.
COMPARISON OF SUBTALAR JOINT ARTICULAR JOINT WEAR IN CADAVERS WITH TWO TYPES OF ANTERIOR CALCANEAL FACET CONFIGURATIONS: A PILOT STUDY
by Margaret M. Nonnemacher, PT, PhD, Erin Conrad, PT, DPT, MS, OCS, FAAOMPT, MTC, Will Conrad, PT, DPT, MS, MTC, Bonnie Decker, OTR/L, EdD, University of St. Augustine for Health Sciences, St. Augustine, FL.

Introduction: Anatomical variations in the anterior calcaneal facet have been identified as Type A with two articular surfaces and Type B with a single large surface. However, no studies have looked at the potential affect of articular wear on the subtalar joint. Differences in wear may impact the stability and biomechanics of the joint. Methods: Bilateral subtalar joints of 11 females and 5 males (age 88 ± 9; N=16) were completely disarticulated. Using magnification, the articular horizontal (h) and vertical (v) lengths of the inferior surfaces of the talus and superior surfaces of the calcaneus were measured as were perimeters of wear. Horizontal zero was the anterior articular limit and vertical zero was the medial articular limit. Wear areas were calculated and plotted using X –Y positions. Findings for those joints with Type A and those with Type B were compared. Results: Wear patterns were not distinct in 37.5% of the specimen on the talus anterior/medial; 15.6% of the specimen on the talus posterior/lateral or on the calcaneous center point in 37.5% of the specimen. In those showing wear patterns, total wear area, average center point wear area, and percent total surface wear area were identified in these same locations. ANOVAS found no significant differences between the joint surface wear patterns and Type A or Type B facets or between gender or side. Conclusion: The subtalar showed minimal yet distinct wear areas which cannot be attributed to Type A or Type B facet configuration. Further studies will investigate wear patterns at the subtalar and talonavicular joints relative to facet type. Key words: subtalar, joint surface wear patterns, Type A vs. Type B

THE EFFECTS OF AQUATIC PLYOMETRIC TRAINING ON VERTICAL JUMP AND MUSCLE SORENESS by Shannon Chambers SPT, Dennis Hunt, Ed.D., CSCS, Kathy Swanick PT DPT OCS, Florida Gulf Coast University.

Introduction: The purpose of this study was to determine the effects of an aquatic plyometric program (AqP) on vertical jump and muscle soreness compared to a land-based plyometric program (LbP).

Methods: A total of eleven male and female college students were randomly placed into either an AqP group or LbP group. They participated in a 6-week, 3 times per week plyometric program. Vertical jump was measured using the Vertec® Vertical Jump Test at pre-test, mid-test, and post-test. Muscle soreness was measured using a Visual Analogue Scale (VAS) and body charts at the end of the last session of each week and again at post-test. Results: Both groups increased in vertical jump from pre-to post-test, although not statistically significant. A mixed model repeated measures ANOVA was used to analyze the difference in vertical jump between the AqP and LbP groups as well as to measure the difference in muscle soreness through the VAS tests between the two groups. An alpha value of 0.05 was standard. The AqP group averaged lower muscle soreness compared to the LbP group in all six weeks of the study. However, no significant differences were noted in muscle soreness between groups. Conclusion: Performing an AqP program can be as beneficial as performing a LbP protocol in individuals desiring increases in vertical jump height (i.e. power) but with less muscle soreness. Key words: Aquatic, Plyometric, Vertical Jump
ADDING BLENDED LEARNING TO A HEALTH SCIENCE GRADUATE-LEVEL PROGRAM: THE SUCCESSES AND THE CHALLENGES by Lisa Nichols, PT, MHS and Wanda Nitsch, PT, PhD, MTC, University of St. Augustine, St Augustine, Fl and San Diego, CA.

Introduction: Emerging technology has resulted in a surge in the use of electronic delivery of education at higher education institutions (Allen and Seaman, 2010). The most common use of electronic delivery mechanisms is blended learning. Blended learning is defined as the use of electronic media in combination with traditional classroom activities (Strickland, 2009). This type of learning is based on the concept that each learner has unique learning needs and that learning is a continuous process (Kliger and Pfeiffer, 2011). Although recommendations for successful implementation of blended learning are plentiful from universities experienced in online education, such recommendations are not specific to physical therapy education. This study examined the introduction of blended learning at the University of St Augustine as a representative graduate-level program for physical and occupational therapy education in order to determine how the incorporation of blended learning was perceived and propose ways to enhance the acceptance of this educational delivery method.

Methods: This study utilized a mixed methodology approach. A web-based survey tool was developed consisting of open and close-ended questions focusing on issues associated with the introduction of blended learning. The survey was made available physical and occupational therapy students, faculty, and program administrators.

Results: Students and faculty were both initially more dissatisfied than satisfied with the addition of blended learning but both groups perceived they could be successful with blended learning. The most commonly identified barriers to blended learning were: decreased classroom contact time, technology problems, time requirements, and attitudes. The most commonly identified advantages were: 24 hour access to course materials, access to course media, and reflection time.

Conclusion: Issues to consider when implementing blended learning into a physical therapy curriculum include strategic decisions among administrators and faculty, considerations of students’ needs and the format of the materials to be presented.

Key words: Blended learning; Physical therapy; Education

Background & Purpose: With scoliosis, the articulations of the thorax become compromised as a result of the lateral displacement and rotation of the vertebral bodies. Disproportionate hemithoraces play a large role in the causation of respiratory impairment that accompanies scoliosis. The pathophysiology of scoliosis almost always results in loss of torso mobility, reductions in chest wall mobility, and decreased vital capacity. Interventions that focus on muscle activation to offset the asymmetric loads placed on the ribs and spine are predicted to have a positive impact on prognosis. With breathing mechanics as one of the main goals of Pilates, this method of exercise is proposed to be beneficial in improving and/or maintaining respiratory function in patients with scoliosis. Research identifying strategies to successfully manage these complications will contribute to current treatment options. The purpose of this study is to examine the respiratory impairments that accompany scoliosis and to explore the possibility that Pilates exercises and breathing techniques will improve respiratory function in a patient with mild scoliosis.

Case Description: A 20-year old female college student with left thoracic right lumbar scoliosis of approximately 25 degrees was recruited to participate in a 5-week Pilates-based intervention consisting of two 60-minute sessions per week with a Pilates certified physical therapist. Outcome measures included vital capacity, chest expansion, 6-minute-walk test, Walter Reed Visual Assessment Scale, and SRS-24 questionnaire. Outcomes: All outcome measures linearly increased over the course of the 5-week treatment period. The results of this case study indicate that functional and respiratory deficits associated with adult idiopathic scoliosis may be managed or reduced measurably using a Pilates exercise program. Since the subject was not deconditioned and her physical activity was otherwise constant, the Pilates intervention is hypothesized to be the only source of activity for these improvements to be based on.

Discussion: The results indicate a uniform increase across all outcome measures after five weeks of Pilates, suggesting that the Pilates intervention had a positive impact on the patient’s respiratory function. The literature acknowledges that very little research has been done to examine the beneficial effects of therapeutic exercise on respiratory function in individuals with scoliosis. However, the minimal evidence that is available supports the use of conservative treatments and reveals success using these approaches. Despite past beliefs, further research is warranted on the use of non-surgical interventions for the treatment of adult idiopathic scoliosis.
Background and Purpose - Few advances have been made in the non-operative management of adolescent idiopathic scoliosis (AIS). Traditionally, treatment options included observation, exercise, and bracing. Although, the primary goal of conservative management of AIS is prevention of curvature progression, effectiveness of such treatments, especially in correcting curves, remains controversial. The purpose of this case report was to investigate the efficacy of combining manual therapy, myofascial release and spinal stabilization exercises in the early management of adolescent idiopathic scoliosis. Case Description - A healthy 14 year-old male high school student with intermittent low back pain was referred to physical therapy. Pain was restricting participation on the school tennis team. The prior year he had been diagnosed with adolescent idiopathic scoliosis. He had been under observation by his orthopedic physician with curvature progress monitored every three months. The curve had progressively increased to 16 degrees. Bracing was planned if the curve reached 20 degrees. Intervention - The subject was treated twice each week for three months in the clinic and was assigned a daily home exercise program. Treatments consisted of myofascial release of the erector spinae, latissimus dorsi, and quadratus lumborum on the concave side; stretching of the iliopsoas, rectus abdominis and the abdominal obliques; intervertebral manipulation of the hypomobile lumbar and thoracic levels using a progressive stretch oscillation technique, along with strengthening of musculature of the lumbar concave side with progressive spinal stabilization exercises. Outcomes - Three months after the initial physical therapy evaluation, he had achieved his goal of returning to his prior recreational activity including playing competitive tennis on the high school tennis team, without low back pain. Radiographic imaging showed an improvement of 11 degrees in his lumbar curvature. Discussion - This case report demonstrated the possible efficacy of manual therapy and spinal stabilization exercises as means of conservative approach to the treatment of mild AIS.