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To serve as an advocate and resource for the practice of Orthopaedic Physical Therapy by fostering quality patient/client care and promoting professional growth.

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The Value of Physical Therapy

VALUE: An amount, as of goods, services, or money, considered to be a fair and suitable equivalent for something else; a fair price or return.

Value is a popular term today. With the rising price of gas, lowering of market values in real estate, and investment shortfalls one can easily see how ever changing environments can influence value. Along the same lines, physical therapy as a profession or a service is also not immune to changes in value.

Value in Physical Therapy has many facets and means different things to different cohorts. As PTs we are fully aware that insurance companies perceive value as a cost estimate. However there are other parties involved.

As education costs continue to spiral out of proportion with other costs, a potential PT student has to think twice about the extended time it will take to get out of debt after completing 6 to 7 years to achieve a DPT degree. If you are student reading this, CAN YOU STILL SEE THE VALUE?

There is another perspective. How about the value working physical therapists place on their efforts in relation to heightened standards of performance? Has this value changed as one needs to see more patients per hour in order to keep ahead of dwindling reimbursement and higher employment pressures? In addition, does the PT employer still see value in running an independent practice when faced with economic challenges, a demanding public, and an ever changing playing field of infringement and political wrangling? Whether an employee or an employer, CAN YOU STILL SEE THE VALUE?

Last but not least, what current value does physical therapy hold for the patient who is forced to comply with mandatory co-pays, a time strapped schedule, and the commitment needed to comply with a home exercise program? Or what about the feeling that accompanies paying out of pocket for medical interventions such as orthotics, home traction unit, etc.? Is it worth it? Do we still elicit a high level of patient satisfaction which has been tied to value?[1] Beattie and Nelson recently cited that the one factor that determines value of therapy for patients continues to be the quality of interaction between patient and therapist.[1] In addition, recent evidence suggests that patients who receive physical therapy for musculoskeletal disorders, including back and neck pain, report good outcomes at a lower cost than using drugs or surgery.[2] If you were or have ever been a patient CAN YOU STILL SEE THE VALUE?

Despite outside force, it is important to realize that we still have full control over our value. This is because the majority of our value is directly related to our effort, our knowledge, and our training. The ball is in our court. We have a major impact on patients by the way we present ourselves, the way we treat, and the techniques we use to facilitate the healing process.

Patients often view therapy as a chance to finally take care of themselves without the stresses and distractions of hectic schedules, outside biases, and competing stimuli. One patient recently told me that coming to physical therapy was the favorite part of his day! I am sure you have had similar experiences. Patients sometimes value our services more than we do!

One can certainly argue that patients come to therapy to meet all sorts of needs…. not just for rehabilitation. However, as therapists we recognize that if we do not create value in our service no one gets better. If we cannot get a patient in the door, then no one gets the benefit we bring to the table.

In the end our perceived value by the public is earned by each and every one of us day in and day out. Our collective efforts and the attempted consistencies we offer though application of a high standard of care will be directly related to the value patients place on our services. Ultimately, we live and die together in the eyes of the public.

With this said how can our value sustain extremes in variability in patient care when a patient goes to one clinic and receives subpar care and then goes to or happens to 'finds" another clinic that is dedicated to providing or even exceeding what we consider standard of care? If we continue to demonstrate extreme variances in quality and standard of care we send a very strong signal to the public that says…… Physical Therapy is dependent on the physical therapist and not the profession.

This type of professional variability is the future curse of the profession. It will erode the efforts of the DPT credential, stain the very foundation on which we try to build, and ultimately cause us to be viewed by the public as valuable only if you get the "right" therapist. We need not look too far to see what an impact this variability has on other professions (ie, hiring a contractor, car dealer, etc). The public becomes leery due to the number of bad apples in the bunch versus their ability to hire a good apple.

Our professionalism and value will be determined by our lowest common denominator, not the highest. Public trust and ultimately value is highest in professions which demonstrate the greatest professional rigor and consistency. Let us all do our best to raise the bar not lower it! CAN YOU NOW SEE THE VALUE?

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president's corner

James Irrgang, PT, PhD, ATC
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The future of orthopaedic physical therapist practice is evidence-based practice, which requires application of the best available evidence related to diagnosis, prognosis, and treatment of patients with musculoskeletal conditions. For the orthopaedic physical therapists, the best available evidence is research involving patients with orthopaedic conditions that makes use of the most appropriate research design to answer the research question. To advance practice, the Orthopaedic Section is committed to supporting high-quality research related to orthopaedic physical therapy. To this end, in 2007 the Orthopaedic Section has made several major commitments to support future research.

The Orthopaedic Section has been a long time supporter of the Foundation for Physical Therapy. In 2006, the Section fulfilled its commitment of $350,000 to support the Physical Therapy Clinical Research Network at the University of Southern California. A major focus of the PTClinResNet at USC was to generate evidence to evaluate the effectiveness of resistance-based physical therapist interventions. One of the four projects conducted by the PTClinResNet was entitled "Muscle-Specific Strengthening Effectiveness Post Lumbar Microdiscectomy (MUSSEL)," which investigated the ability of muscle specific strengthening to result in immediate and long-term improvement in function, quality of life, pain, and disability and immediate improvement in muscle performance. A summary of the project can be found at: http://pt.usc.edu/clinresnet/news.html—click on "MUSSEL Presentation Slides." In addition to the evidence provided by this research project, the PTClinResNet developed an infrastructure to support future multicenter clinical research and has provided numerous education and training opportunities for physical therapist clinician-researchers.

Given the success of the Foundation for Physical Therapy in supporting clinically relevant research, the Orthopaedic Section made a major commitment to support the development of an Orthopaedic Endowment Fund by making a pledge of $500,000 over the next 7 years. This gift included a donation of $150,000 in 2007 and a pledge to donate $50,000 per year for the next 7 years through 2014. The dividends from the Orthopaedic Endowment Fund will be used to support high-impact research to improve orthopaedic physical therapy practice. By making the lead donation to establish the Orthopaedic Endowment Fund, the Section provided the Foundation with the ability to leverage additional gifts from other individuals and organizations to further increase the principal of the Endowment.

The Orthopaedic Section kicks off its Research Endowment Fund with the Foundation for Physical Therapy.

An example of how the Orthopaedic Section's gift can leverage further funding for the Foundation was the announcement at the Combined Sections Meeting in Nashville, TN. Stanley Paris, PT, PhD, FAPTA, founding President of the Orthopaedic Section, will attempt to enter the Guinness Book of World Records as the oldest person to swim across the English Channel in July 2008. In doing so, Dr. Paris has offered his record breaking attempt to raise funds for the Foundation for Physical Therapy, half of which will be earmarked for the Orthopaedic Endowment Fund. I encourage you to support Stanley's effort to swim the channel for physical therapy research by making a pledge or donation today. You will be able to follow Stanley's training and mental preparation on his blog, which will be coming soon to the Foundation web site, where you can also make your online donation and pledge.

The American Physical Therapy Association has initiated a process to replace the Clinical Research Agenda, which was published in 2000 with an updated Research Agenda. This new Research Agenda will be expanded to include basic, clinical, clinical practice and health services, health policy, and educational research. The Orthopaedic Section will be intimately involved in the process to develop research questions related to orthopaedic physical therapy. The Section will begin the process this summer by surveying the Section membership to identify research priorities. Prior to the 2009 Combined Sections Meeting, the Section

will convene a workshop to review and order the research priorities. This workshop will include representation from the Special Interest Groups as well as Section members representing clinical practice, academics, and research. Finally, a public forum will be held during CSM 2009 to present the Orthopaedic Research Agenda and to solicit feedback from the membership. Please be sure to participate in this process by completing the survey when you receive it this summer.

The Orthopaedic Section has a long history of funding research through a small grants program. In the past, this program provided up to $10,000 in funding for 3 projects per year. This past summer, a Task Force convened to make recommendations regarding the Section's role in supporting research and suggested increasing funding for the small grants program. As a result of this recommendation, the Section increased support for the small grants program to $75,000 to provide up to $25,000 per grant. As a result of this increase, the Section received an increased number of high caliber applications. The Orthopaedic Section is pleased to announce that the following members received grants:

Principal Investigator:	Susan Saliba, PhD, PT, ATC
Co-Investigators:	Christopher Ingersoll, Joseph Hart, D. Casey Kerrigan, Brian Pietrosimone
Title:	The Effects of Transcutaneous Electrical Nerve Stimulation as a Disinhibitory Modality in Patients with Tibiotemoral Osteoarthritis
Principal Investigator	Todd Davenport, DPT, OCS
Co-Investigators:	Kornelia Kulig, Beth Fisher
Title:	Ankle Manual Therapy for Individuals with Post-Acute Ankle Sprains: A Randomized, Placebo-Controlled Trial
Principal Investigator:	Scott Biely, PT, DPT, OCS, MTC
Co-Investigators:	Sheri Silfies, Susan Smith
Title:	Validation of Clinical Observation of Aberrant Movement Patterns in Patients with Mechanical Low Back Pain

To ensure the ability of the Orthopaedic Section to continue to support research, the Section established its own research endowment, which in 2007 exceeded $1 million. The dividends from this endowment will be used to provide renewable support for research. Over time, the Section expects that this research endowment will continue to grow, allowing the Section to provide even greater financial support for research. As you can see, the Section is dedicated to supporting research that will provide the foundation for the future of orthopaedic physical therapist practice.

Side-to-Side Differences in the Transverse Abdominus Muscle Measured by Real Time Ultrasound in Persons with and without Chronic Low Back Pain

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ABSTRACT

Study Design: Case-control study. **Objectives:** To compare the differences in thickness of the transverse abdominus muscle (TrA) in persons without chronic low back pain (NLBP) and those with chronic low back pain (CLBP) using real-time ultrasound (RTUS) technology. **Background:** Differences have been found in the size of the multifidi muscles side-to-side in persons with CLBP, but no similar comparisons have been made for the TrA. **Methods and Measures:** 53 persons were recruited, 35 without low back pain and 18 with chronic low back pain greater than 6 months. RTUS images of the TrA at rest and contracted were taken on each side twice. TrA thicknesses for each side (both at rest and contracted) was taken as the average of the values obtained in the two trials. The percentage of change for each side at rest and with contraction were calculated and average values were compared between those with NLBP and those with CLBP using independent t-tests. **Results:** There were 18 males and 35 females. The mean age for those with NLBP and CLBP was 38.7 and 49.0 years, respectively. Percent differences between those with NLBP and CLBP ranged from -3.27% (right resting) to -9.58% (right contracted). T-tests comparing mean values between groups were not significant, with p-values ranging from 0.127 (right contracted) to 0.679 (right resting). **Conclusions:** No differences were found between the resting or contracted measurements of TrA thickness in persons with and without CLBP. Differences in relevant baseline characteristics along with procedural limitations may have contributed to the nonsignificant findings.

Key Words: lumbar stabilization, imaging, core stabilization, sonography

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INTRODUCTION

The incidence of chronic low back pain (CLBP) is high, as are the costs associated with its treatment. It is estimated that 5% to 10% of persons with CLPB are disabled, and that their treatment accounts for 75% to 90% of medical costs in this population.[1] In addition to the financial costs, the associated loss of function and increased pain result in a diminished quality of life for those with CLBP.

Stabilization exercises for the trunk have been shown to be effective in rehabilitating persons with CLBP.[2-6] Two muscles involved in stabilization exercises include the multifidi muscles and the transverse abdominal muscle (TrA). Research has clearly demonstrated that, when comparing persons with and without CLBP, the multifidi muscles in persons with CLBP are more likely to have unequal side-to-side cross-sectional areas (CSA), compared to those without CLBP.[7,8] The results of one study suggested that the multifidi CSA in persons with one-sided acute LBP is also unequal, with the painful side demonstrating the smaller CSA.[9] There has also been research evaluating the role of the TrA in the stabilization process. The sequence of the contraction of the TrA with various arm and leg movements in persons with and without CLBP has been evaluated, and the contraction of the TrA was found to be delayed in those with CLBP compared to normals.[10-12] Thickness measurements of the TrA, similar to those used to measure the CSA multifidi muscle, have been compared in persons with and without CLBP. The thickness of the TrA, measured with real-time ultrasound (RTUS), has been found to be different in those with and without CLBP.[13,14] Using RTUS, Critchley and Coutts found that the TrA was significantly thinner ($p < 0.001$) in persons with CLBP compared to a control group (0.94 mm vs. 2.59 mm).[13] Ferreira et al also compared thickness of the TrA in persons with and without low back pain (LBP) using RTUS and found that, in those with LBP, the TrA muscle was thinner than in a comparison group without LBP.[14] Given the side-to-side differences reported with the multifidi muscle in persons with both bilateral and unilateral CLBP, it is hypothesized that a difference in the side-to-side TrA thickness measurements will also be present in those with either bilateral or unilateral CLBP. However, the studies cited above evaluated the thickness of the TrA only on one side of the body. No studies have compared the thickness of the TrA side-to-side in persons with and without CLBP.

The primary purpose of this study was to compare the side-to-side difference in TrA thickness at rest and while contracted in persons with and without CLBP. We hypothesize that, for those with either unilateral or bilateral CLBP, there will be larger differences at rest and while contracted than there will be in persons with NLBP.

METHODS

Subjects

A total of 53 participants were recruited for the study. A convenience sample of 35

persons with NLBP was recruited from co-workers, students, and acquaintances of the researchers. A convenience sample of 18 participants was recruited from among persons referred for physical therapy at a Harris County Hospital District Outpatient Physical Therapy Clinic at Quentin Mease Hospital with the diagnosis of CLBP. Excluded from both groups were those with contraindications for the use of RTUS such as previous malignancy, symptoms of current malignancy, or current infection.[15] Subjects in the NLBP group were also excluded if they had a history of low back pain lasting over 3 days in the past 6 months, if they had a past history of low back surgery, or if they might currently be pregnant. Those in the CLBP group were included if they reported either unilateral or bilateral low back pain of greater than 6 months in duration. They were excluded if they reported having had low back surgery, were unable to lie on their back with knees bent, or were potentially pregnant. Participants in both study groups received a full explanation of the study and were provided institutionally-approved written informed consent forms to sign.

Instrumentation

RTUS units are portable units with a main console and a hand-held receiver. The units used in musculoskeletal studies are similar to those used for fetal imaging. The particular unit used in the current study was the General Electric (GE) LOGIQ Book CFM/ Doppler Real-Time ultrasound unit (Waukesha, Wis). The hand-held receiver is a 4-11 MHz broad spectrum linear transducer with a 39 mm aperture. Images were collected and stored temporarily on the system's 10 GB hard drive, then transferred to the researcher's computer. During data collection, images were viewed by the researchers on the LCD screen that is part of the LOGIQ Book unit.

Although research has evaluated the psychometric qualities of the RTUS in a clinical setting with experienced ultrasonographers, it has been suggested that there is a substantial learning curve associated with obtaining and reading RTUS images.[16] With appropriate experience, reliability of the images obtained can be excellent. One study estimated the interrater reliability of measurements of various joint tendons using the RTUS to be 0.96.[17] Similar values have been found in measuring the thickness of the TrA. Critchley and Coutts calculated intraclass correlation coefficient (ICC) values for the TrA in 10 participants and obtained a test-retest reliability for the thickness of the TrA of 0.94.[13] Teyhen et al found a similar reliability estimates in RTUS-based measurement of the TrA in persons with CLBP (ICC value > 0.93).[18] A recent pilot study by the current authors found similar reliability values in measuring the thickness of the TrA in persons without CLBP. In the pilot study, test-retest ICC reliability values for 35 participants differed only slightly side-to-side, with values on the right ranging from 0.87 (right relaxed) to 0.83 (right contracted) and 0.90 (left relaxed) to 0.91 (left contracted).

Procedures

For the RTUS measurements, participants were asked to lie on their back on a treatment table with knees bent. After the lower abdominal region was exposed by lowering the waistband of the pants or skirt, the researcher placed a small amount of water-soluble gel on the hand-held transducer head of the RTUS. The transducer was placed on the right side of the participant's abdomen approximately midway between the iliac crest and the ribs, approximately 2.5 cm from the side of the body.[13] The technique used to refine the positioning of the transducer was similar to that used by Teyhen et al.[18] The transducer was positioned so that the image displayed on the computer screen displayed the hyperechoic interface between the TrA and thoracolumbar fascia on the right edge of the computer screen. The transducer position was then adjusted slightly to maximize the visual image of the TrA. While maintaining the transducer in the same location, the participant was instructed to relax and breathe normally, and an image of the right TrA at rest was taken at the end of the participant's exhalation. Participants were then asked to contract their TrA in isolation by performing a pelvic floor contraction or abdominal hollowing-in maneuver, with the researcher using phrases such as "draw in with your stomach muscles" or "lift your pelvic muscles." Use of the first cue, "draw in with your stomach muscles" was used initially, and if the participate demonstrated difficulty with contracting the correct muscle, as visualized on the LCD screen, the second cue, "lift your pelvic muscles" was verbalized. If there was no difficulty in obtaining a contraction of the TrA with the first cue, the second cue was not used. Participants were instructed to complete each contraction during the exhalation phase of breathing. Three practice trials were conducted during which the researcher provided feedback to the participant regarding the correct muscle contraction and appropriate timing of the contraction during exhalation. During earlier pilot work, it was found that many subjects initially had difficulty contracting their TrA during exhalation, but were able to do so after 2 to 3 repetitions. In the current study, 3 practice trials were completed before the image of the right TrA was taken. The same process was repeated on the left side. This completed trial 1. The researchers then obtained second images of right and left TrA at rest and during contraction to complete trial 2.

Data Analysis

Thickness measurements of the TrA were calculated and recorded on the GE LOGIQ Book computer using the software provided. The values were collected for both the right and left side in both trials 1 and 2. The thickness measure of the TrA used in each calculation was the average of values collected during those two trials. Percentage difference in the average thickness values between those with NLBP and CLBP was calculated by dividing the value for the NLBP group into the value for the CLBP, multiplying by 100, and subtracting from 100. A negative percentage denotes the group with CLBP has an average value *less than* that of the group with NLBP. A positive percentage denotes the group with CLBP has an average value *greater than* that of the NLBP group. Using SPSS, version 11.5 (Chicago, Ill), 4 one-way independent t-tests were calculated to compare the right and left TrA average values at rest and while contracted across groups. An alpha level of 0.05 was used for each comparison.

RESULTS

Thirty-five participants with NLBP and 18 with CLBP completed the study. There were 18 males and 35 females. The mean age and standard deviation was 38.7 ± 13.3 years (range 20-65) for those with NLBP and 44.2 ± 7.1 years (range 36-62) for those with CLBP. There were 5 males (28%) and 13 females (72%) in the CLBP group, and 13 males (37%) and 22 females (63%) in the NLBP group (Table 1).

The average right *resting* TrA thickness was 0.39 and 0.40 for those with CLBP and NLBP, respectively. The average right *contracted* TrA thickness was 0.59 and 0.66 for those with CLBP and NLBP, respectively. For the left side, the average left *resting* TrA thickness was 0.41 and 0.40 and the average left *contracted* TrA thickness was 0.64 and 0.70 for those with CLBP and NLBP, respectively. Four separate t-tests compared

Table 1. Participant Demographics for the Chronic Low Back Pain Group (CLBP) and those with No Low Back Pain (NLBP)

	CLBP	NLBP
Sample Size	18	35
Age	49.0 (45.5-52.5)	38.7 (34.2-43.3)
Gender	5 males (28%) 13 females (72%)	13 males ((37%) 22 females (63%)
Mean (95% confidence interval of the mean)		

the average values on the right and left both in the contracted and rest phase across groups (CLBP and NLBP). There were no significant differences found in any of the comparisons with p-values ranging from 0.13 to 0.68 (Table 2).

DISCUSSION

We did not find the average TrA thickness values (either at rest or contracted) in persons with a 6 month or more history of CLBP to be significantly different from those of the NLBP group. Other studies have found a difference in the thickness and cross-sectional area of the multifidi muscle in persons with CLBP compared to those with NLBP,[7,8] but the current study did not support their findings with regards to TrA thickness. There are several possible explanations for the difference in findings between the current study and past publications. These explanations relate to demographic differences across groups, difference in sample sizes, and lack of counterbalancing the measurement order during testing.

The data collected for the current study were obtained by convenience sampling, therefore, potentially relevant demographic variables were not equal across groups. The group with CLBP were an average of 10 years older (49.0 years vs. 38.7 years) than the group with NLBP, and the distribution of males and females was unequal (28% male in the CLBP group and 37% in the NLBP group). Self-reported height and weight was used to obtain an estimate of the Body Mass Index (BMI), and that too was different across groups, with the group with CLBP reporting an average BMI of 32.4, as compared to 25.4 for the group with NLBP. Lastly, the sample size of each group was different, with 18 in the group with CLBP and 35 in the NLBP group. All of these differences may have contributed to the nonsignificant findings. Future studies would benefit from age, gender, and BMI-matched controls.

In all participants, the right TrA was evaluated first, then the left. Though we would not expect there to be an order effect, a better design would have been to counterbalance the order in which each side was assessed. To address this limitation, future studies could randomly select the first side to be measured.

No information was obtained in the CLBP group with regard to whether the pain was bilateral or unilateral, and, if unilateral, which side was the site of the dysfunction. Hand dominance information was also not obtained. Two previous studies that examined size of the multifidi muscles in persons with CLBP also failed to analyze results with respect to symptom location (right, left, or bilateral).[7,8] In each of these studies, asymmetries were detected. Future studies should evaluate the impact of site of dysfunction.

Based on pilot work, Teyhen et al suggested a two-fold increase in the calculated ratio of TrA thickness (contracted value/resting value).[19] The calculated ratios in the current study *for either group* were not this high, with average values ranging from 1.58 (right, group with CLBP) to 1.80 (left, group with NLBP). Again, the participants recruited for the current study were obtained through convenience sampling, however, and may not be representative of the overall populations of persons with NLBP and CLBP.

Noted anecdotally was the increased difficulty persons with CLBP had in locating and contracting their TrA during testing. This raises the question of whether the timing of the TrA firing is more clinically relevant than gross thickness changes in the muscle while transitioning from a relaxed to contracted state. Not evaluated were the participants' abilities to hold the TrA for longer periods of time or to contract the TrA in a more functional and upright position. Studies conducted under these conditions, may find greater differences in the characteristics of the TrAs of those with and without CLBP.

Table 2. Transverse Abdominal (TrA) muscle thickness averages, percentage difference, and t-test comparisons for the right and left side at rest and while contracted in persons with chronic low back pain (CLBP) and those with no low back pain (NLBP)

	Right	Left
Rest		
CLBP	.39 (.34-.44)	.41 (.33-.49)
NLBP	.40 (.36-.44)	.40 (.36-.43)
% Difference	-3.27%	+4.09%
t-test comparison	p=0.68	p=0.64
Contracted		
CLBP	.59 (.53-.66)	.64 (.55-.73)
NLBP	.66 (.61-.71)	.70 (.64-.76)
% Difference	-9.58%	-8.77%
t-test comparison	p=0.13	p=0.24
Mean (95% confidence interval of the mean)		

CONCLUSION

No statistically significant differences were found between the resting or contracted measurements of TrA thickness in persons with and without CLBP. Differences in relevant baseline characteristics along procedural limitations may have contributed to the nonsignificant findings. Alternative methods should be explored for evaluating the clinically relevant function of the TrA, including comparisons of the timing and endurance of the muscle and evaluations of the muscle in upright and functional positions.

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Orthopaedic Management of Degenerative Joint Disease in a Patient with Arthrogryposis Multiplex Congenita: A Case Report

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ABSTRACT

Background and Purpose: Arthrogryposis multiplex congenita (AMC) is a relatively rare condition that involves significant soft tissue, joint and skeletal deformity. Physical therapy and surgical intervention is indicated for patients with AMC to address musculoskeletal impairments and functional limitations due to severe joint contracture. Much of the current literature involves etiology, diagnosis, classification, genetics, and intervention of pediatric patients with AMC, but little information is available on rehabilitation of adult patients with AMC. This case study discusses the etiology, diagnosis, and classification of AMC with specific attention to interventions related to the surgical and nonsurgical treatment and management of degenerative joint disease (DJD) in an adult patient with AMC. **Case Description:** A 31-year-old male with AMC was treated with a multidisciplinary approach for ankle and knee DJD. The patient experienced multiple knee and ankle impairments and functional limitations, resulting in 6 episodes of care for left knee DJD and 2 episodes of care for right ankle DJD over a 6-year period. **Outcome:** Physical therapy outcomes were measured using a Numerical Pain Rating Scale (NPRS) and the Lower Extremity Functional Scale (LEFS). The patient demonstrated improved functional status as indicated by decreased values on the NPRS and improved scores on the LEFS. **Discussion:** This case report details a successful rehabilitation effort in the management of DJD in an adult patient with AMC. Physical therapy management included therapeutic modalities, manual therapy, therapeutic exercise, custom bracing, and foot orthoses.

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Key Words: arthrogryposis, amyoplasia, degenerative joint disease, osteoarthritis, physical therapy, therapeutic exercise, knee bracing, custom orthoses

INTRODUCTION

Arthrogryposis is a descriptive, not diagnostic, term that refers to a group of disorders that involve multiple congenital joint contractures in children. The basic distinction is the presence of two or more joint contractures in multiple body regions.[1] The term arthrogryposis multiplex congenita was first proposed by Stern in 1923.[2] Sheldon in 1932 also described patients with arthrogryposis, but he is credited with first using the term amyoplasia, related to the clinically manifested lack of functional muscle.[3] In 1983, Hall further promoted the term amyoplasia, specifically characterizing the condition by decreased muscle mass in limbs, replacement of muscles by fibrous bands and fat, and typical positioning of the limbs, particularly in the newborn period.[4]

CLASSIFICATION AND TERMINOLOGY

Many classification systems and terms have been used to describe the arthrogrypotic syndromes. Bamshad,[5] Hall,[6,14] Goldberg,[7] and Beals[8] all have presented classifications of disorders with arthrogrypotic features. Hall[6] has developed 3 subgroups of patients with arthrogryposis to provide a functional classification scheme to assist in creating a differential diagnosis. The groups include (1) disorders with mainly limb involvement, (2) disorders with limb involvement and involvement of other body areas, and (3) disorders with limb involvement and central nervous system dysfunction.[6,14] Hall has also used the term distal arthrogryposis, referring to patients with primary involvement in the hands, feet, or both.[9]

EPIDEMIOLOGY AND ETIOLOGY

The incidence of mild joint contracture, particularly of hips and knees, is relatively common in newborn infants.[11] However, pathological, multiple joint contractures such as arthrogryposis occur in 1 of every 3,000 births[6] to 1 of every 5,100 births.[12] The common causative factor associated with the development of arthrogryposis is lack of fetal joint movement (fetal akinesia), leading to muscle fibrosis and joint capsule thickening secondary to significant collagen proliferation.[13] The development of fetal akinesia, however, can result from multiple genetic and environmental factors.

Hall has suggested many teratogens such as neurological, muscular, and connective tissue structure and function abnormalities; maternal diseases; uterine space limitation; and, impaired intrauterine or fetal vascularity. Genetic factors include single gene defects, chromosomal disorders, and mitochondrial defects.[6] Current literature remains mixed on a genetic component to the development of arthrogryposis. Bevan and Hall et al suggest a distinct genetic cause to arthrogryposis,[1] but the International Federation of Societies of Surgery of the Hand (IFSSH) Committee disagrees and supports no genetic link to classic arthrogryposis and amyoplasia.[24] Distal arthrogryposis, however, is widely accepted as an autosomally dominant inherited disorder.[5,8]

CLINICAL PRESENTATION

With 150[10] to 300[1] entities within the diagnostic category of arthrogryposis, amyoplasia is the term most commonly associated with classic arthrogryposis.[1,10,15] Patients with amyoplasia often have all four limbs involved (84%), but primary involvement of just upper (5%) or lower limbs (11%) can occur.[15]

Typical clinical presentation of the upper extremities include bilateral shoulder adduction and internal rotation with weak deltoid muscles; elbow flexion contractures with weak biceps brachii and brachialis muscles; wrist flexion, ulnar deviation, and pronation deformities; and, flexed fingers and adducted thumbs, with inability to in-

dividually flex each finger. Lower extremity manifestation involves hip flexion, abduction and external rotation contractures, and unilateral/bilateral hip dislocation; knee flexion contractures more common than extension contractures; and talipes equinovarus (clubfoot) deformity with cavus forefoot and flexed toes positioning at the foot and ankle.[10,16,17] Scoliosis is present in approximately 30% of patients.[10] Tables 1 and 2 list common characteristics and clinical features of AMC.

Functional ambulation and independent living are concerns for patients with arthrogryposis and amyoplasia. Results are difficult to quantify secondary to varying classifications and clinical manifestations of the arthrogrypotic syndromes. However, with surgical intervention, physical and occupational therapy, family support, and education, functional independence can be achieved in many cases.[18-20] For example, Carlson[18] performed a review of 34 patients with an average age of 27.3 years and determined that patients with arthrogryposis can function well in adult life, but many patients remained partially or completely dependent upon others. However, the authors deemed the dependency to be more related to patient personality, education, and overall coping skills versus the amount of physical deformity or disability.

CLINICAL MANAGEMENT

The clinical management of patients with arthrogryposis involves a multidisciplinary approach, including, but not limited to, geneticist, physical and occupational therapist, orthopaedic surgeon, neurologist, development specialist, and psychiatrist.[10] Immediate management of the multiple joint contractures at birth requires passive range of motion (PROM), passive stretching, joint mobilization/manipulation, joint splinting and/or serial casting, parental education, and active range of motion (AROM) facilitation.[1,10,16,21-23]

The upper extremity management in patients with arthrogryposis requires attention to the entire limb as well as a comprehensive understanding of self-care and mobility requirements from the shoulder, elbow, wrist, hand, and fingers. Initially, intensive physical and occupational therapy, primarily at home, and serial casting are vital approaches to maximize potential for improved upper extremity alignment. The IFSSH committee report suggests corrective surgery be performed within 3 to 12 months of birth, adding "fine tuning" procedures as growth and functional limitation dictate.[24]

The goal of treatments aimed at knee flexion/extension contractures is to change the relative arc of motion, not increase it. The optimum functional knee range of motion is less than 20° of flexion contracture and greater than 60° of passive knee flexion.[1] However, flexion contractures are more significant compared to extension contractures relative to amount of function and disability.[25] Surgical intervention should be based upon careful assessment of ambulation potential.[1]

Rigid talipes equinovarus or clubfoot is the common foot deformity associated with arthrogryposis and amyoplasia. Casting is usually recommended to provide some correction of the rigid foot, but because of the high rate of recurrence, surgery is often required. The ultimate goal is a functional, plantigrade foot.[26-28]

Table 1. Clinical Features of Arthrogryposis

Clinical Features of Arthrogryposis (Adapted from IFSSH, 2005)[24]
1. Upper and lower extremity joints are stiff in varying degrees
2. Skin is smooth over joints and normal skins folds are reduced or absent
3. Skin dimples are seen at the large joints
4. Muscles are firmer than normal due to reduced mass and increased fibrous tissue
5. In the upper extremity, shoulders are adducted, elbows extended, wrists flexed, thumbs adducted, and fingers flexed
6. The lower extremity is also affected, most notably hip subluxation or dislocation, knee hyperextension, and feet positioned in talipes equinovarus (clubfeet)
7. The spinal muscles are involved in the most severe type, making sitting or standing upright difficult
8. Similar facial appearance is noticeable
9. Intellectual development is normal and often above normal

Table 2. Common Characteristics of Arthrogryposis

Common Characteristics of Arthrogryposis (Adapted from IFSSH, 2005)[24]
1. Syndrome features are typical
2. Congenital
3. Symmetrical involvement of multiple joints and muscles
4. No systemic involvement
5. Normal intellect
6. Not genetically inherited
7. Not due to embryological malformation
8. Neuropathic
9. Muscles are smaller and fewer, and often replaced by fibrofatty tissue
10. Normal sensation
11. No progression of condition after birth
12. Joint deformities are secondary changes due to lack of joint movement
13. Children are typically very adaptive in overcoming loss of normal function

CASE DESCRIPTION

The patient is a 31-year-old male with a history of AMC. The patient initiated physical therapy services with author as a 25-year-old, 3½ months following left knee arthroscopic partial medial meniscectomy, patella chondroplasty, and anterior synovectomy. For approximately 11 years prior to arthroscopic surgery, the patient described a history of left knee pain, impairment, and functional limitation related to a skateboarding injury. Many orthopaedic consults suggested knee meniscus injury, but physical exam findings did not always correlate with diagnostic imaging. Postoperative physical therapy was continued for 98 days (18 visits) until the patient achieved maximum physical therapy treatment benefit. The patient underwent a second arthroscopic surgery to debride loose bodies and excise intra-articular cysts, and was discharged after an additional 63 days (11 visits) of physical therapy. The patient returned for physical therapy for 4 additional episodes of care secondary to left knee instability episodes and falls. The episodes averaged 97 days, ranging from 40 to 148 days, and visits averaged 22, ranging from 10 to

41 visits. Specific procedural interventions included pain, swelling, and inflammation control modalities; soft tissue mobilization; therapeutic exercise; and custom bracing. The patient was discharged from physical therapy for the left knee approximately one year prior to the writing of this case and has not been treated for left knee pain, impairment, or limitation since that time.

Pertinent medical history involving the patient's right ankle began with an orthopaedic evaluation and subsequent diagnostic imaging, including plain radiographs and magnetic resonance imaging (MRI). The patient initially received an injection of Kenalog and Marcaine, followed 6 months later by injection of Cortisone, both having no effect on symptoms. The patient agreed to right ankle arthroscopic surgery, performing bilateral lower extremity (LE) strength and endurance training prior to surgery. Postoperatively, the patient participated in physical therapy for 128 days (26 visits). The patient attained the goals of physical therapy and intervention has not been sought by the patient since discharge.

Pertinent surgical history includes bilateral Achilles tendon tenotomy and right talocalcaneal arthrodesis at approximate age 9 months; left elbow flexorplasty at age 12; and right patella open-reduction, internal fixation (ORIF), patella tendon repair, and medial tibial plateau percutaneous screw fixation at age 17. The patient's recreational history includes horseback riding, soccer, skateboarding, and snowboarding. At initial physical therapy evaluation, the patient was employed full-time, living alone in a 2-story apartment, and ambulating and driving independently, without assistive devices.

At time of discharge from physical therapy services, the patient maintained independence driving and ambulating all levels and distances without assistive devices. The patient continued to live alone, but in a single-story apartment, while employed in the same job. The patient also resumed prior level of physical activity, including fitness and weight-training exercise.

TESTS AND MEASURES

Pain measurements using the NPRS were taken at multiple intervals throughout the patient's left knee and right ankle physical therapy regime. Functional measurements were also made retrospectively using the LEFS[29] (Appendix 1-2). Based upon a maximum score of 80, the LEFS is designed to define the amount of disability and handicap, based upon the World Health Organization's model of disability,[30] in patients with a "wide variety of lower extremity orthopaedic conditions, including patients with a range of disability levels, conditions, diseases, treatments, and ages."[29] The LEFS scores were determined for the timeframe during each pain scale measurement.

The degree of joint degeneration and deformity was also determined via diagnostic imaging, specifically plain radiographs of the left knee and plain radiographs and MRI of the right ankle.

DIAGNOSIS AND PROGNOSIS

According to the *Guide to Physical Therapist Practice*,[31] the patient matched the Musculoskeletal Preferred Practice Patterns of 4D, impaired joint mobility, motor function, muscle performance and range of motion associated with connective tissue dysfunction; 4H, impaired joint mobility, motor function, muscle performance and range of motion associated with joint arthroplasty; and, 4I, impaired joint mobility, motor function, muscle performance and range of motion associated with bony or soft tissue surgery.

The patient's prognosis was determined to be fair for each episode of care based upon the presence and nature of the joint contracture, degeneration, and deformity in the left knee and right ankle. The goal of physical therapy during each episode of care was to maximize functional capacity and to minimize pain for the left knee and right ankle. The frequency and duration was generally 2 times weekly, ranging from 6 to 20 weeks. Due to the nature of the patient's condition, left knee ROM and isolated right ankle strength were not addressed as suggested by the preferred practice patterns as put forth by the American Physical Therapy Association (APTA).[31]

INTERVENTION

Based upon the findings of the initial physical examination, a plan of care was initiated to address left knee pain and joint effusion; quadriceps strength and balance, and gait impairments; and functional limitations (Table 3). The short-term goals were to decrease left knee pain and swelling. The long-term goals were to increase left quadriceps muscle strength and endurance, improve balance, and resume prior level of activity. The patient was advised to attend physical therapy twice weekly and maintained compliance with attendance and exercises until discharge after completing 18 sessions.

Procedural interventions included modalities, such as ice, pulsed ultrasound and gentle effleurage massage for soft tissue inflammation and joint swelling management, and therapeutic exercise, such as straight-leg raising (SLR), short- and long-arc knee extension, leg press, step-ups, walking/kicking with resisted tubing and stairmaster. The patient demonstrated gains in quadriceps strength, balance and gait, despite persistent knee pain and mechanical symptoms. The patient was referred back to the orthopaedic surgeon and second arthroscopic debridement was performed.

The patient resumed physical therapy 9 days after arthroscopy reporting significant improvement in mechanical symptoms. The operative report suggested significant degenerative joint disease (DJD) in the medial compartment of the left knee joint. The patient was provided with a custom Townsend (Bakersfield, Calif) medial unloader brace, in an effort to prevent bone-on-bone contact on the medial compartment. Options for further surgical intervention were also discussed, including total knee replacement or tibiofemoral joint arthrodesis. A similar plan of care to the initial physical therapy intervention after first arthroscopy was initiated, with the addition of electrical stimulation to assist in pain and effusion control and progression of LE therapeutic exercise to include supported, body-weight squatting. The short-term goals were to decrease left knee pain and swelling, and the long-term goals were to increase left quadriceps muscle strength and endurance, improve balance, and resume prior level of activity. The patient maintained program compliance until discharge from physical therapy with goals attained. He was instructed in home exercise program designed to maintain quadriceps strength and knee stability, and was advised to increase compliance wearing the custom Townsend unloading brace.

The patient returned to physical therapy several times after discharge secondary to exacerbation of mechanical symptoms in the left knee due to knee instability and "giving way." The patient frequently reported poor compliance with the unloader brace secondary to difficulty with donning/doffing. Treatment intervention frequently included pain and inflammation control modalities of ultrasound, massage, ice, and electrical stimulation, followed by therapeutic exercise including a combination of open- and closed-chain strength, endurance, and balance training performed within available

Table 3. Left Knee Episodes of Care, Interventions, and Outcomes

DATE	INTERVENTION	PHYSICAL THERAPY DAYS/VISITS	OUTCOME	
			LEFS	NPRS
0 months	• Arthroscopic meniscectomy • Chondroplasty		23/80	9/10
4 to 7 months	• Physical therapy evaluation • Modalities • Therapeutic exercise	98 days/18 visits		
8 months	• Arthroscopic debridement			
8-10 months	• Physical therapy evaluation • Modalities • Therapeutic exercise • Townsend medial unloader custom knee brace	63 days/11 visits		
13 to 14 months	• Physical therapy 2° knee buckling episode • Modalities • Therapeutic exercise	40 days/10 visits	18/80	8/10
20 to 22 months	• Physical therapy 2° knee buckling episode • Modalities • Therapeutic exercise	70 days/18 visits	30/80	7/10
27 to 31 months	• Physical therapy 2° knee buckling episode • Modalities • Therapeutic exercise • Occupational Therapy/Hand Therapy consultation	131 days/17 visits	43/80	4/10
52 to 57 months	• Physical therapy 2° posterolateral knee pain • Modalities • Therapeutic exercise	148 days/41 visits	46/80	5/10
73 months	• Physical therapy re-evaluation		60/80	0/10

knee ROM. At the conclusion of each episode of care, the patient was discharged with significant improvement in left knee pain and swelling, quadriceps strength, knee stability, and overall LE function. A comprehensive home exercise program was reviewed and emphasis placed upon improved knee unloader brace compliance.

After several episodes of knee instability and physical therapy, the patient's utilization of the Townsend knee brace was addressed. The patient reported continued poor compliance secondary to his inability to properly align and stabilize the brace on his left knee due to poor hand and finger dexterity and strength. The patient was referred to a certified hand therapist to discuss interventions to enable improved donning and doffing of the knee brace. After discussions between the author, the patient, and the hand therapist, several hooks, latches, and straps were fabricated and attached to the knee brace. The patient continued with the physical therapy program wearing the knee brace to ensure compliance and to address any donning/doffing issues.

The patient's final episode of care for the left knee occurred 21 months from the previous date of discharge from physical therapy. The patient reported left knee pain, but also a significant reduction in left knee instability due to improved compliance with his brace. At this point, the patient also was experiencing significantly limiting right ankle pain and felt increased weightbearing load on left knee from inability to properly bear weight on right ankle. The familiar plan of care was initiated for the left knee, as well as intervention for the right ankle for the first time. The patient was able to complete a physical therapy program with a higher volume and intensity of LE therapeutic exercise secondary to decreased left knee pain, improved knee stability, and increased quadriceps strength and endurance. The patient completed a comprehensive LE strength and endurance training program for bilateral lower extremities, with volume and intensity modification for the right ankle therapeutic exercise.

Ten weeks after discharge from care for the left knee, the patient consulted with an orthopaedic surgeon on the right ankle. Four treatment options were discussed with the patient: (1) observation and physical therapy, (2) steroid injection, (3) ankle arthroscopy, or (4) tibiotalar arthrodesis. The patient opted to undergo the steroid injection and 7 cubic centimeters of 0.25% Marcaine and 40 mg/cc of Kenalog were introduced under fluoroscopy into the tibiotalar joint. After receiving a second unsuccessful steroid injection to the right ankle, the patient was referred to a foot and ankle specialist and scheduled a right ankle arthroscopy.

Right ankle arthroscopy with debridement was performed for an operative diagnosis of moderately severe right ankle global grade III and IV chondromalacia and degenerative joint disease. The patient was released to home on bilateral straight crutches, nonweightbearing right lower extremity. Home physical therapy was performed for 2 weeks prior to initiating outpatient physical therapy with the author, approximately 4 weeks after ankle arthroscopy.

Physical therapy procedural interventions for right ankle postoperative rehabilitation consisted of modalities, manual therapy, custom-molded foot orthoses, and therapeutic exercise (Table 4). Initial intervention included gentle massage, low-level laser therapy (LLLT) (Vectra Genisys, Chattanooga, TN), ice, and electrical stimula-

Table 4. Right Ankle Episodes of Care, Interventions, and Outcomes

DATE	INTERVENTION	PHYSICAL THERAPY DAYS/VISITS	OUTCOME	
			LEFS	NPRS
0 months	• Orthopaedic evaluation, 6/10/04		20/80	10/10
2 months	• Marcaine/Kenalog injection under fluoroscopy			
8 months	• Cortisone injection			
24 to 26 months	• Physical therapy evaluation • Modalities • Therapeutic exercise	63 days/16 visits	15/80	10/10
26 months	• Arthroscopic surgery • Ankle debridement			
27 to 31 months	• Physical therapy evaluation • Modalities • Joint/soft tissue mobilization • Therapeutic exercise • Custom-molded foot orthoses	128 days/26 visits	17/80	10/10
31 months	• Discharge from physical therapy		56/80	1/10
38 months	• Physical therapy re-evaluation		60/80	0/10

tion for soft tissue pain, swelling, and inflammation control. Grade III and IV joint mobilizations to the talocrural joint were performed. Therapeutic exercise included gentle right ankle AROM/AAROM and light balance and strength training within the patient's pain tolerance. Exercise volume and intensity was gradually progressed to include open- and closed-chain LE strength, endurance, and balance training and modalities were discontinued as indicated.

Approximately 3 weeks after initiating physical therapy, the patient was ambulating without an assistive device. Right ankle and foot swelling had diminished significantly and the clinical decision was made to fit the patient for custom-molded foot orthoses. Using a digital scanning device from Foot Management, Inc. (Pittsville, Md), the patient's feet were scanned in close to subtalar neutral as determined by the author. The patient's leg lengths were measured from each ASIS to medial malleolus, indicating a 2.5 cm structural leg length discrepancy, right leg shorter than left leg. Rearfoot and forefoot measurements were made with the patient positioned prone and the author aligning each ankle in as close to subtalar neutral as possible. Based upon the results of the digital scan, leg length discrepancy and foot/ankle alignment, the author determined a full-length, corrective custom orthosis in a UCB cut and with a right heel lift would be appropriate for the patient. After some minor adjustments, the patient began wearing the custom orthoses full-time in all footwear. By approximately 10 weeks post-operation, the patient resumed ambulating community distances and stairs and driving without right ankle pain.

The patient continued to progress exercise and daily activity volume and intensity consistently without bilateral knee and right ankle pain. However, the patient experienced an abrupt and severe exacerbation of right ankle pain, swelling, and limitation approximately 13 weeks after surgery. After an infection of the ankle joint was ruled out at a local emergency department, the patient managed the ankle pain exacerbation acutely with ice, partial weightbearing on crutches, and refrained from formal therapy for 4 weeks. Upon return to physical therapy, the patient continued the exercise progression without ankle pain, impairment or limitation until discharge from physical therapy.

A comprehensive LE strength, endurance, and balance program was reviewed with the patient. The patient was advised to continue with a quadriceps muscle strength and endurance training program, specifically, weighted SLR, lateral step-ups, resisted tubing hip strengthening and balance training, and leg press and knee extension machines (if available at a gym). The patient reported discontinuing the Townsend knee unloading brace since initiating the use of the custom molded orthoses. At time of discharge, the patient no longer experienced left knee pain or instability and right knee and ankle pain. The patient also expressed a sincere interest to hike a popular, local mountain trail with a family member. Approximately 8 months after discharge from physical therapy, the patient completed the hike, ascending and descending a total of 12 miles of trail and approximately 4500' of elevation. The terrain was steep, rocky, and tree-lined. The patient reported no subjective complaints of left knee instability or pain and right ankle pain or swelling at 48 hours and at 2 weeks following the hike.

OUTCOMES

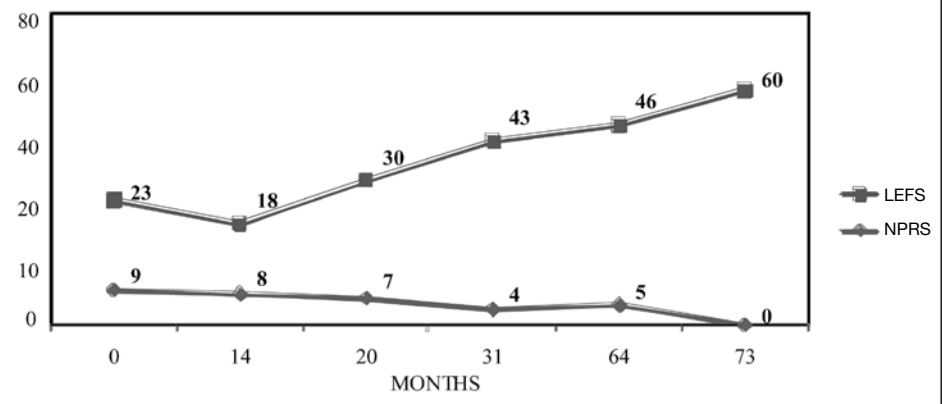
Left knee pain scale measurements ranged decreased 9/10 to 0/10 across the 73-month timeframe (Figure 1). Right ankle pain scale measurements decreased from 10/10 to 0/10 across the 38-month timeframe (Figure 2).

The original left knee LEFS score was 23/80 and improved to 60/80 at the patient's most recent physical therapy re-evaluation (Figure 1). The initial right ankle LEFS score was 20/80, and had improved to 60/80 upon re-evaluation (Figure 2).

The results of the plain radiographs of the left knee clearly demonstrate degenerative changes which are considered "classic" in patients with arthrogryposis and amyoplasia (Figures 3 and 4).[32] The plain radiographs and MRI for the right ankle also definitively suggest the presence of joint degeneration and deformity, which ultimately necessitated surgical intervention (Figures 5, 6, 7, and 8).

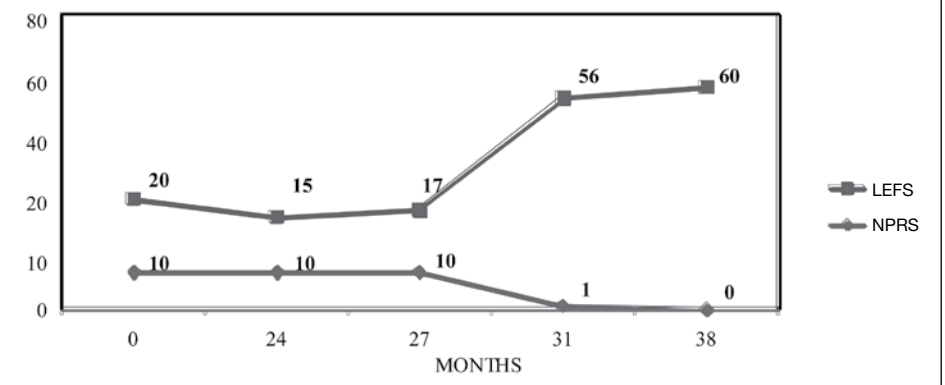
DISCUSSION

Much of the current literature involves etiology, diagnosis, classification, genetics, and intervention of pediatric patients with AMC, but little information is available on



Timeline:
0 MONTHS → Prior to left knee arthroscopy, 7/18/01
14 MONTHS → Discharge from physical therapy, s/p left knee arthroscopy X 2, 7/18/01 and 3/20/02
20 MONTHS → Physical therapy evaluation for left knee pain 2° knee buckling/fall episode
31 MONTHS → Discharge from physical therapy
64 MONTHS → Return to physical therapy for left knee pain
73 MONTHS → Follow-up physical therapy evaluation

Figure 1. Left knee Numerical Pain Rating Scale (NPRS) and Lower Extremity Functional Scale (LEFS).



Timeline:
0 MONTHS → Initial Orthopaedic evaluation for right ankle pain
24 MONTHS → Initiated physical therapy for right ankle pain
27 MONTHS → Initial physical therapy evaluation s/p right ankle arthroscopic debridement, 8/30/06
31 MONTHS → Discharge from physical therapy
38 MONTHS → Follow-up evaluation by physical therapist

Figure 2. Right ankle Numerical Pain Rating Scale (NPRS) and Lower Extremity Functional Scale (LEFS).

rehabilitation of adult patients with AMC. The procedural and therapeutic interventions used for this adult patient with AMC were determined based upon evidence related to management of DJD and specifically applied to DJD of the ankle and knee. Radiographic and arthroscopic findings confirmed the presence of significant DJD in the patient's left knee and right ankle. The goals of physical therapy management were to diminish the patient's pain level in the left knee and right ankle as much as possible, while attempting to improve the patient's LE strength, endurance, and balance and enhance the patient's overall functional status.

Physical therapy management of osteoarthritis is well documented in the literature. Nonpharmacologic and nonsurgical interventions include, but are not limited to, therapeutic exercise, modalities, manual therapy, and bracing/orthoses. The patient in this case was managed by a team of orthopaedic surgeons and physical and occupational therapists, and each entity played an important role in the overall improvement of the patient's functional status.

The patient participated in 6 episodes of care for left knee DJD and 2 episodes of care for right ankle DJD. The modalities utilized during each episode of care were used to decrease knee and ankle pain, inflammation, and swelling while attempting to promote an environment of joint healing, or at least a reduction in the progression of the joint destruction. Modalities such as therapeutic ultrasound and LLLT and their effects on osteoarthritis have been researched by many.[33-36] Therapeutic ultrasound has been used to decrease soft tissue inflammation and swelling, increase soft tissue extensibility and healing, enhance scar tissue remodeling, and decrease pain.[33,34] The therapeutic benefits of LLLT remain conflicting. Clinically relevant short-term pain relief in osteoarthritis has been documented,[36] while other research suggests limited or no clinically relevant change when using LLLT in patient with osteoarthritis.[35]

Therapeutic exercise appears widely accepted as an appropriate intervention for patients with DJD.[37-43] The patient continually experienced episodes of left knee pain and, more importantly, mechanical symptoms of knee instability, buckling, and giving way. A quadriceps strength impairment has been recognized as a risk factor for the incidence of knee osteoarthritis.[41] The immediate, acute management of each of the patient's episodes of care necessitated modalities to control pain, inflammation, and swelling. Once the acute symptoms were managed effectively, quadriceps muscle strength training was initiated and progressed in volume and intensity. Several studies have shown positive effects of LE, particularly quadriceps muscle, strength, and endurance training.[37-43] The patient in this case study was able to generate significant quadriceps muscle force as evidenced by weight training progressions, despite significant knee ROM impairment due to AMC.

The other major contributing factor related to the management of the patient's knee and ankle DJD is the bracing and orthosis intervention. The most significant changes in the status of the patient's left knee and right ankle occurred at or near the introduction of the Townsend knee unloading brace and the custom-molded orthoses. Several sources suggest successful utilization of custom orthoses and deloading braces for patients with DJD.[44-47] Individually, the Townsend knee brace appeared to provide appropriate stability for the patient's left knee function, but collectively, the custom orthoses appeared to provide significant improvements in bilateral knee and right ankle pain, impairments, and functional limita-

1. Flattened, hypoplastic femoral condyles, lateral > medial
2. Increased posterior tibial slope
3. Irregular, abnormal bony architecture of tibial plateau
4. Patella alta

Figure 3. Left knee lateral—31 yo.

1. Wide, oblique walls of intercondylar notch
2. Flattened femoral condyles with loss of rounded shape edges
3. Rounded, "domed" tibial plateau
4. Patella alta
5. Well preserved joint space

Figure 4. Left knee AP—31 yo.

tions. Many instances in the literature suggest that valgus bracing of the osteoarthritic knee can be beneficial in reducing medial compartment loads and pain while improving knee function.[46,47] In this patient's case, not only did the knee brace assist in providing relief of knee pain, but also provided significant stability of the knee joint. Custom foot orthoses have also shown to positively affect joint pain and alignment in patients with DJD by providing proper or improved LE load distribution and controlling foot and ankle motion.[44,45] Due to the nature of the patient's AMC and subsequent ankle and knee DJD, providing sufficient support and control with the modified UCB custom orthoses appeared to have played a major impact in the reduction of bilateral LE symptoms.

CONCLUSION

Physical therapists possess a multitude of treatment options and patient management capabilities. This case report details a successful rehabilitation course in the management of DJD in an adult patient with AMC. The patient's course of rehabilitation is defined by an improved functional status as indicated by decreased values on the NPRS and increased scores on the LEFS. A multidisciplinary approach was used to provide an optimal outcome for the patient. Orthopaedic management included diagnostic imaging, pharmacologic management, and surgical intervention. Physical therapy management included therapeutic modalities, manual therapy, therapeutic exercise, and custom bracing and orthotics. Further research is necessary to fully examine the effectiveness of orthopedic and physical therapy interventions in the management of DJD in adults with AMC.

ACKNOWLEDGEMENT

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1. Equinus forefoot deformity
2. Tibial and talar osteophytes
3. Flat, irregular talus
4. Loss of joint space at posterior > anterior talocrural joint

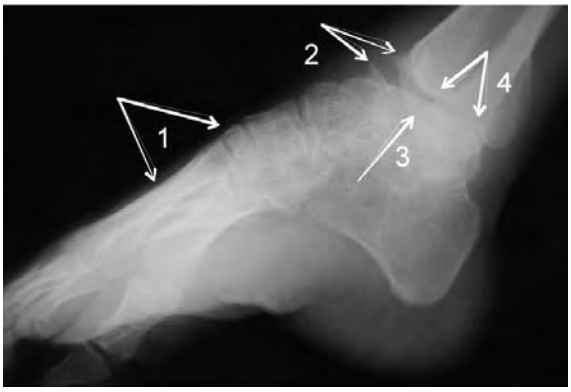

Figure 5. Right ankle lateral (NWB)—28 yo.

1. Irregular talus
2. Absent tibial/talar osteophytes
3. Tibial cyst present
4. Posterior > anterior talocrural joint DJD
5. Equinus forefoot deformity

Figure 6. Right ankle lateral (NWB)—31 yo.

1. Flat, irregular talus
2. Subchondral tibial cyst
3. Osteophyte on talus
4. Talocalcaneal fusion

Figure 7. Right ankle sagittal TI—28 yo.

1. Inflammatory synovial response at anterior talocrural joint
2. Talocalcaneal fusion
3. Subchondral tibial cyst

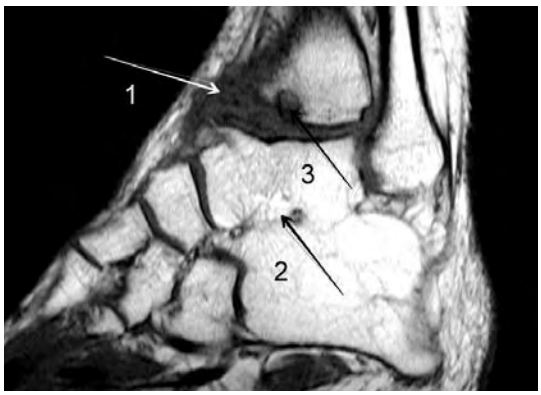

Figure 8. Right ankle sagittal T2—28 yo.

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Appendix 1. Lower Extremity Functional Scale

	We are interested in knowing whether you are having any difficulty at all with the activities listed below because of your lower limb problem for which you are currently seeking attention. Please provide an answer for each activity.					
	Today, do you or would you have any difficulty at all with:					
	Activities	**Extreme Difficulty or Unable to Perform Activity**	**Quite a Bit of Difficulty**	**Moderate Difficulty**	**A little bit of Difficulty**	**No Difficulty**
1	Any of your usual work, housework, or school activities.	0	1	2	3	4
2	Your usual hobbies, recreational, or sporting activities.	0	1	2	3	4
3	Getting into or out of the bath.	0	1	2	3	4
4	Walking between rooms.	0	1	2	3	4
5	Putting on your shoes or socks.	0	1	2	3	4
6	Squatting.	0	1	2	3	4
7	Lifting an object, like a bag of groceries from the floor.	0	1	2	3	4
8	Performing light activities around your home.	0	1	2	3	4
9	Performing heavy activities around your home.	0	1	2	3	4
10	Getting into or out of a car.	0	1	2	3	4
11	Walking 2 blocks.	0	1	2	3	4
12	Walking a mile.	0	1	2	3	4
13	Going up or down 10 stairs (about 1 flight of stairs).	0	1	2	3	4
14	Standing for 1 hour.	0	1	2	3	4
15	Sitting for 1 hour.	0	1	2	3	4

Appendix 1. Continued.

16	Running on even ground.	0	1	2	3	4
17	Running on uneven ground.	0	1	2	3	4
18	Making sharp turns while running fast.	0	1	2	3	4
19	Hopping.	0	1	2	3	4
20	Rolling over in bed.	0	1	2	3	4
	Column Totals:					
	SCORE: _____ / 80					

Appendix 1. Lower Extremity Functional Scale Measurement Properties.

LOWER EXTREMITY FUNCTIONAL SCALE MEASUREMENT PROPERTIES[29]
LEFS is scored via summation of all responses (one answer per section) and compared to a total possible score of 80.
Error +/- 5 points; an observed score is within 5 points of patients "true" score.
Minimum detectable change (MDC): 9 points; change of more than 9 points on the LEFS represents a true change.
Minimum clinically important difference (MCID): 9 points; "Clinicians can be reasonably confident that a change of greater than 9 points is… a clinically meaningful functional change."

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Paris Award Acceptance Speech
Physical Therapist Advocacy is Our Principal Course of Action; It Is Not a Spectator Sport!

Stephen McDavitt, PT, DPT, MS, FAAOMPT

This speech was given at the recent 2008 Combined Sections Meeting in Nashville, TN.

What can I say? What words could possibly define or illustrate the powerful impact receiving this award has had on me? The best I can say is that I am tremendously honored and humbled to stand before the colleagues I so admire, deeply respect, and appreciate, to receive this award of acknowledgement for contributions I have made to the Orthopaedic Section and its 16,500 members. My sincerest gratitude goes to the Orthopaedic Section Executive Committee, Awards Committee, and those of you who surrendered your time and effort to distinguish me in this regard.

Throughout my career I have had the privilege of collaborating and mentoring with many of the previous Paris awardees including Lola Rosenbaum, Bill Boissonnault, Carol Jo Tichenor, Nancy White, Dorothy Santi, Rick Ritter, Joe Farrell, and especially Stanley Paris. Recognizing this gives me even deeper pride in receiving this award.

What is genuinely meaningful to me is being able to publicly acknowledge amongst the kin of my colleagues my deep admiration and love for my wife of 31 years, Martha and our 18-year-old twin daughters, Anna and Kathy who through these many years of my service have accepted and supported my boundless passion and sacrifice for my practice and profession and who have likely forfeited even more themselves. They have been the pulse of meaningful reality that has kept me on track through the storms of professional service that as many of you who have served know, can easily sway one from the real important elements of life. My daughters could not be here tonight but my wife Martha is here and in gratitude I would like her to stand and be recognized.

What about my affiliation with Dr. Stanley Paris, the Section's first President in 1974, after whom this award is named? I first met Dr. Stanley Paris and his faculty in 1982 and even though I have had many mentors since then, Dr. Paris especially has continued to provide me with guiding influence to this day. I have always viewed Stanley as a practitioner, teacher, and leader ahead of his time who not only raised the bar on practice standards and professionalism but more importantly has been one of *the* leaders in taking the responsibility of promoting the need for advocacy in physical therapist practice.

In his teachings, Stanley has always discussed the meaningful collaborative and interdependent role of the Physician and Physical Therapist and directed us to precisely advocate our autonomous identity.

Dr. Paris's curriculum has always promoted clinical principles of examination, evaluation, diagnosis of dysfunction, reasoning for choosing interventions, defining a prognosis, and developing treatment plans from the clinical assessment. In his course notes on *The Foundation of Clinical Orthopaedics* in the late 80s, Stanley emphasized a chapter describing managing patient care with "*Clinical Studies that Influence Clinical Decision Making in PT*." Other topics across his manual therapy courses included concepts in business management of a PT clinic, addressing the patient needs, how to be professional and futuristic controversial discussions on the future of PT including the Doctoring profession, Chiropractic infringement, and POPTS (or, referral for profit). This practice framework and information was in Dr. Paris's educational format and objectives well before the public presentation of *The Guide to Physical Therapist Practice*, Sackett's presentation of evidence-based practice, and Vision 2020.

Stanley's vision and actions toward our autonomy (what he referred to earlier as "professionalism and private practice"), by professing and demonstrating our need to advocate for our rights to practice PT at an autonomous level early on, is what impressed upon me the value and need for professional advocacy. I believe *that* appreciation combined with my relevant personal challenges experienced in the frontlines of private practice in the 80s and 90s, and through contentious legislative regulatory debates that I will bring up later, facilitated me to become deeply engaged in the advocacy/leadership process. I became infected with the tenacious desire to remove unnecessary conventional clinical barriers and abate pointless PT practice prohibitions. I found through that realization that *physical therapist advocacy is our principal course of action; it is not a spectator sport!* Recognizing this historical mentoring impact adds further significance to me in receiving this award named in Dr. Paris's legacy of praiseworthy leadership.

In consideration of all this recognition and decoration however, I remain feeling somewhat so undeserving of this award because it is all of you--my wife and children, the members of the Section (including previous Paris awardees), the AAOMPT and the APTA--that have provided me the opportunities to serve, guided me and have over many years, already supported my advocacy leadership contributions to our profession at a capacity I believe that has given me so much more in return.

Since advocacy of our practice has been my platform, defining our ongoing need for active individual and group advocacy in PT practice is what I will address tonight.

So how did I get here, what have I done, what are my acknowledgements, and what do I have to share? That is what I am supposed to address. Let me just say this at the get go here that it is not in my nature to sing my own praises about what I am being recognized for. I am a mission man of focus, first on a strategy and then on achieving the desired outcome. I see myself as pulling the oars like everyone else. Besides, there are too many colleagues that shared in my work and enabled me to have a role in facilitating the outcomes of advocacy I helped orchestrate and deploy over the past 19 or so years. I will therefore share my experience in my personal practice development parallel with the evolution of PT practice that I

believe led me where I am with involvement in leading multiple PT advocacy initiatives and outcomes. From this personal viewpoint I hope this will enable *you all* to respect and appreciate why *we all* must take ownership in actions of practice advocacy for the quality and survival of our practice of physical therapy as individuals, as specialists and as an association.

So again, how did I get here?

Reading from my faculty recommendations 32 years ago when I graduated from PT school in 1976, I was rated as "*An average student that works hard*." Of course I worked hard, I was average. PT school was no cakewalk. I did not see myself as a leader in the profession, nor did anyone else; I think.

My mind set after the load of PT school was; I'm done! I was never; "going back to school, teach, or own and operate my own practice." I certainly had no vision of being involved in advocacy for the profession. Who me? Not my job! I "gotta" get a job and practice.

Sounds a bit selfish and apathetic for a "professional," don't you think? Compared to the current postprofessional development directives, DPT curriculum, and clinical graduate today in their quest for Vision 2020, I do not feel I was "a true professional" when I graduated. It took quite some time to be professionally mentored and cultivated.

Frankly, when considering the comparative lack of depth in PT practice competencies and professionalism of that time it is quite understandable. After all, my teachers and their teachers had come from a practice environment of the 60s that was very different from today. The PT culture of the times from 1950s through the early 70s viewed private practice as controversial. "*PTs are a service group dedicated to medicine as opposed to making a profit."* The PTs in the late 60s and early 70s practiced based on the 1960 HOD resolution to establish the baccalaureate degree as the minimal standard for the PT. It was not until 1973 that the APTA Code of Ethics and Guide to Professional Conduct supported practice by referral as opposed to prescription.

Therefore the practice settings, mind set, and parameters of the time for me were as follows:

- Treatment by prescription was greater than by referral where the Physician was directive.
- Relatively minimal Direct Access.
- Masters level of education was a mere blip on the radar screen.
- Minimum private practice, since PTs were mostly employed. PTs viewed themselves as attaining a "job" not "developing a practice."
- Salaries? My salary @ $10,000.00
- Mobilization/manipulation, something later near and dear to me was at that time considered Chiropractic and pseudoscience! Even though PTs at that time practiced and appreciated the values and outcomes of mobilization/manipulation, with their close ties to medicine, PTs of that time who practiced it, kept it "in the closet."

What followed soon after I graduated and started practicing however included the following circumstances that began to reshape my and our practice:

1. The public benefits of practice without referral and the need to define and manage advanced educational competency were emphasized by PTs through the mid to late 1970s.
2. In 1979, the APTA House of Delegates recognized the knowledge-accumulation and expertise of PTs by prescribing postbaccalaureate education for all entry-level PT education programs. MPT.

In 1979-1980, after 3 to 4 years of hospital based inpatient and outpatient practice, and upon appreciating the dynamic evolution within PT practice of that time, my professional values and vision changed. I wanted to be proactively, clinically prepared and professionally competitive. In 1980, I returned to graduate school and received an Advance Masters in PT.

In the years 1980-1981 while I was finishing Graduate School and began teaching, the APTA House of Delegates sanctioned practice without referral as ethical where legal. Following that time and during the following decade (1981-1991) while I was teaching and developing and expanding my solo practice, initiatives for practice without referral in PT practice accelerated and thus began the relatively exponential legislative initiatives and challenges for direct access. Medicine was concerned about the act of PTs claiming to make a medical diagnosis and chiropractic about a formal sanctioning of PTs manipulating.

Over those postgraduate and practice development years, through my culmination of professional growth, I developed a deeper appreciation and passion for the *independent* practice of PT in clinical orthopaedics and especially manual therapy and its outcomes. With that experience and in identification with those practice privileges and outcomes, I developed a strong desire to abate any unnecessary regulatory limitations on the independent level of physical therapist practice.

In appreciation of this movement toward independent patient management through practice without referral, in 1989 I proposed to the Maine Chapter that passing legislation to allow Direct Access was in our best interest and the timing was as good as it would ever be. I was assigned the Direct Access Committee and later with my Co-Chair David White, PT we prepared our rural state for what we thought would mainly be the challenges from the medical society. Where we were challenged the greatest however was from the Chiropractors.

Discussing the details of those invalid and contentious debates are beyond our time limit here. In summary, absent of formal descriptions of practice and armed only with limited manual therapy literature and grass roots efforts, we succeeded in defeating the Chiropractic resistance against spinal manipulation and became the 25th state to achieve PT direct access in 1991.

I was sold on local advocacy early on, but that contentious, insulting, and demeaning Maine legislative challenge is what I believe to be the catalyst to my passion and drive for working at a *national* level for practice protection and advocacy. That experience fueled an internal tenacity for PT practice protection I never knew I had. I realized then that *all* of PT practice required ongoing monitoring for protection and advocacy, and we needed to stop reinventing the wheel.

Along those lines, in expectation of similar challenges nation wide and so as to not have others reinvent the wheel, I produced our 400 page manual of strategic information and provided it to all APTA Components at the following Government Affairs Forum to compliment the "Direct Access Packet."

The late 80s and 90s brought further change and demands for PT advocacy. Practice without referral as ethical where legal and direct access initiatives became catalysts for development of the competency based consensus documents *The Guide to Physical Therapist Practice* and *A Normative Model of Physical Therapist Education*. Continuous advancement of clinical practice competency during the 1990s through education,

specialization, residencies, and fellowships warranted mapping out in greater detail the current and future practice of physical therapy.

Accordingly, in 2000 the APTA House of Delegates further expanded and defined its future view of the profession's advanced clinical practice by adopting the APTA Vision Statement for Physical Therapy 2020. Those practice changes driven by the membership in the decade 1994-2004 placed significant demands on practice initiatives from the APTA, the Orthopaedic Section, and the AAOMPT.

During the span of those years I was privileged to be recruited to 3 formal professional assignments that truly propelled my career toward higher levels in PT advocacy through national leadership.

1. In 1993 Joe Farrell as President of the AAOMPT realized the immediate need to protect our manual therapy practice rights and to promote best practice and education policies. In 1994 at the AAOMPT annual conference he approached me based on my Maine experience with defending the practice of spinal manipulation and upon nomination I was appointed as the AAOMPT Practice Affairs Chair which is a position I developed and held from 1994-2003.
2. Similar needs were appreciated by Bill Boissonnault as President of the Orthopaedic Section and I was asked and accepted to Co-Chair the Orthopaedic Section Practice Committee with Helene Fearon in late 1996. I later took over as Chair and I held this appointment in tandem with that of AAOMPT from 1998-2004. I further served as the Orthopaedic Section Delegate from 2001-2004.
3. In 1998 with the appreciation of the surging challenges on achieving direct access and the related confrontations on maintaining the practice scope of mobilization/manipulation, the AAOMPT, the Orthopaedic Section, and the APTA BoD realized a need of a Manipulation Task Force. With my experience and ties to the relevant on-going initiatives of the AAOMPT and the Orthopaedic Section, I was appointed the Task Force Co-Chair in 1999 and remained its Chair 2000-2004.

In the years 1994-2004, with the collaborative guidance and support of Bill Boissonnault and Mike Cibulka; Presidents of the Orthopaedic Section, Joe Farrell, Mike Rogers and Ken Olson; Presidents of AAOMPT and various APTA BoD Liaisons and Staff Directors at APTA, we facilitated, framed, and maintained a "Tri-alliance" or "Synergy" collaboration (AAOMPT-APTA-Orthopaedic Section) as it pertained to practice protection and advocacy. The purpose was to begin not only an advocacy action plan of initiatives for orthopaedics, manual therapy, and direct access but to also begin an exemplary template to be used anywhere in PT practice to enhance advocacy through collaboration in communication, networking, access, and monitoring.

I will sequentially mention a few of those outcomes that promoted and engaged in successful collaborative advocacy and how these seeded other advocacy initiatives elsewhere.

- In 1995 we developed the "Manipulation Forum" whose purpose was to create a face to face networking opportunity for PTs to nationally collaborate, share, empathize and communicate on their experiences and action plans as it pertains to manual therapy and direct access.
- In 1997, with an increased awareness of states trading mobilization/manipulation for direct access, new materials were created for the APTA Direct Access Packets to abate this.
- In 1998 with an awareness of PTA's and ATC's being inappropriately provided psychomotor education on mobilization/manipulation and other interventions, the AAOMPT Practice Affairs Committee produced a position statement on inappropriate teaching and practicing of such interventions which was later with editorials co-sponsored by the Orthopaedic Section, the APTA BoD and 17 Sections passing in the APTA HoD as the *Position on Interventions Exclusively Performed by Physical Therapists.*
- We also lobbied and achieved passing in the APTA HoD the *Position on Continuing Education for Physical therapist Assistants and Other Supportive Personnel.* This helps continuing education instructors objectively validate student competency with inclusive and exclusive criteria while preventing discrimination and enhancing patient safety.
- In the years 1998-1999 with consensus across AAOMPT, the Orthopaedic Section and APTA, the definition for Mobilization/Manipulation was revised for the 1999 *Guide* revision. This operational definition by way of its practice description parameters as opposed to the ambiguity of tissue barriers provides protection of practice across the variety of state regulation requirements.
- Between the end of 1998 through June of 1999, 18 states experienced 22 pieces of legislation put forth by Chiropractors to prohibit PTs from spinal manipulation. The APTA, the AAOMPT and the Orthopaedic Section compiled materials and provided guidance to all of those states who then successfully defeated those threats. A sample of those materials includes the *Manipulation Take Action Packet* and the *Compendium on Manual Manipulative Therapy.*

In appreciation from that experience the tri-alliance agreed at the 1999 manipulation forum that a consolidation of resources and proactive nation wide strategies were warranted. A consideration of a manipulation task force was proposed by Bill Boissonnault and me. After consulting with APTA, and completing a national component survey, it was determined that a national scope of the manipulation threat issues was significant.

In September 1999 the APTA BoD sanctioned a Manipulation Task Force with me as the Orthopaedic Section/AAOMPT contact and Jerry Conley as the APTA staff contact appointed Co-chairs. The group formulated a strategic plan and initiatives directed at proactive and reactive strategies for legislation, regulation, practice, and education. This Task Force yielded outcomes including but not limited to:

- Open forums, debates, panel discussions, and programming at CSM, APTA Annual Conferences, and AAOMPT conferences.
- Immediate response documents to abate last minute legislative challenges (*McDavitt/Rogers Road Show Doc*).
- Collaboration with the Education Section and others to produce educational experiences of greater depth at entry level professional curriculum (*Manipulation Educational manual*).
- Enhanced evidence through research for CAPTE to sanction a revision for mobilization/manipulation, to include thrust and nonthrust techniques in the 2004 Physical Therapist Evaluative Criteria.

The list goes on with too much to discuss any further in this arena. What I would like to point out however is that many other APTA initiatives beyond the APTA Manipulation Task Force have followed suit by

using our "tri-alliance" template such as the referral for profit task force and others to enhance national and global networking, collaboration, and produce materials to enhance PT advocacy that includes *defending or promoting any element of physical therapist practice in any state or jurisdiction.*

For approximately 19 years then I have personally engaged and committed my passionate energy in PT practice affairs advocacy that has included holding multiple state and national APTA and AAOMPT positions. The greatest honor and privilege in the domain of advocacy has been to be elected for a second term to serve over 70K APTA members on the 15 member APTA Board of Directors. The past 2 Presidents and 4 APTA Boards have been wonderful mentors and colleagues to learn, deliberate, and collaborate with. Over this time therefore I have further realized a love, passion, and tenacity for developing and protecting a profession I can not even begin to explain. Hardly the mind set I had in 1976! I have also appreciated two other more important concepts not apparent to me in 1976 that I believe are extremely important today:

1. Professional advocacy is not a spectator sport and there is no better ACTIVE advocate for your practice and profession than you!
2. If you don't take care of yourself, you have no quality of life. If you don't take care of your profession or professional organization you have no quality of your profession or your practice.

Just ask the Chiropractic Profession and its 8 organizations that compete and lack consensus with each other.

Advocacy or, support, encouragement, backing, sponsorship, and promotion of our profession, is every individual PT's responsibility to be complimented by the networking and reinforcement tools available from their Chapter, Section, Specialty, and Association. My colleague, John Wallace appropriately professes "*our patient is our practice and our practice is our business.*" I also believe the necessity for all of us engaging in PT advocacy across the spectrum from our one–on–one direct patient practice to education, reimbursement, marketing, legislation, and research to appreciate that *our patient is our practice, our practice is our business, our profession is our responsibility, and our association is our insurance*. I repeat; *our patient is our practice, our practice is our business, our profession is our responsibility, and our association is our insurance*. Autonomous advocacy has a price in personal and financial commitment whose outcomes are priceless.

Advocacy is an act that can be enacted by anyone. Average or not--in PT practice advocacy, there is room for everyone and a reason for everyone to participate. Who is "average" today may be a leader tomorrow!

Abraham Lincoln was quoted as stating "*Those who chose not to participate in democracy are doomed by those who do.*" The same could be said about advocacy.

So now it's your turn to start.

When one mentions creating and taking opportunities for advocacy, many pessimists view difficulty. Winston Churchill has been quoted as acknowledging that "*a pessimist sees difficulty in every opportunity, and an optimist sees opportunity in every difficulty.*"

What is advocacy to you? Is it an act in pessimism or optimism? What is your mind set, practice set and where is your level of interest and passion for the challenge to take the advocacy baton in the movement for our professions practice vision, growth, and opportunity? What will you do to be known as the practitioner of choice?

In closing, I would like to read this poem and make a few final comments relevant to the core values of professionalism I feel are relevant to PT advocacy.

The Dash

By Linda Ellis.

(Available at: http://www.lindaslyrics.com/thedashpoem.html. Accessed 2/26/08)

I read of a man who stood to speak
at the funeral of a friend.
He referred to the dates on her tombstone
from the beginning…to the end.

He noted that first came the date of her birth
and spoke of the following dates with tears,
but he said what mattered most of all
was the dash between those years.

For the dash represents all time
that she spent alive on earth…
and now only those who loved her
know what the little line is worth.

For it matters not, how much we own;
The cars….the house…the cash.
What matters most is how we live and love
and how we spend the dash.

So think about this long and hard…
are there things you'd like to change?
For you never know how much time is left.
(You could be at "dash mid-range")

If we could just slow down enough
to consider what's true and real,
and always try to understand the way other people feel.

And be less quick to anger
and show appreciation more
and love the people in our lives
like we've never loved before

If we treat each other with respect,
and more often wear a smile…
remembering this special dash
might only last a little while.
So when your eulogy's being read
with your life's actions to rehash..
would you be proud of the things they say
about how you spent your dash?

Beyond my personal beliefs and goals I know the dash in my professional lifespan will be advocating for what I know is an eclectic profession like no other that can make the difference in bringing the highest quality of life to years and whose practitioners are truly practitioners of choice deserving of all Vision 2020 stands for.

Like the "Life is good" slogan from Bert and John Jacobs; *"Life is good. Do what you like and like what you do"* (www.lifeisgood.com) …..

"PT practice is good. Advocate what you like and like what you advocate".

See you in the front lines, where many hands make light work and where the practice outcomes we desire to attain will be achieved from our active individual and grouped advocacy for our great profession and practice.

Again, I thank you for this wonderfully meaningful recognition and the opportunity to share my thoughts.

Heary RF, Albert TJ. Spinal Deformities: The Essentials. New York, NY: Thieme; 2007, 298 pp., illus.

The editors of this text have brought together the current practice leaders in many facets of spinal deformity care to present an updated perspective on spinal imaging and medical and surgery advances of the treatment of spinal deformities. The increased frequency of identification of spinal deformity over the past two decades and the advances in diagnosis and treatment of these deformities underscores the need for this book. Neurological and orthopedic surgeons are the primary audience for this text, especially residents and fellows. This textbook is divided into two main sections: Principles of Spinal Deformities and Treatment of Spinal Deformities.

Section I covers the principles of diagnosis, natural history, and screening procedures for examination of patients with spinal deformity. Chapter 1 is an overview of spinal deformity including terms and principles, evaluation of the spinal deformity patient, indications and postoperative considerations for adult spinal deformity surgery, and future developments in the treatment of spinal deformities. Chapter 2 is a brief overview of imaging modalities for spinal deformities. The usefulness of plain radiographs is addressed, followed by computed tomography and magnetic resonance imaging. Photographs of each type of imaging technique are included. A brief description of myelography, discography, and fluoroscopy is included in this chapter. Chapter 3 covers anesthesia in spinal deformity surgery. Topics addressed include intubation, intraoperative monitoring, and anesthetic management. Intraoperative neural monitoring during spinal deformity surgery is covered more in-depth in Chapter 4. I found this chapter to be a particularly interesting explanation of the purpose and techniques of intra-operative monitoring, which has largely replaced the Stagnara "wake-up" test during spinal surgery, and is now the standard-of-care in many leading pediatric and adult spine centers. Physical therapists who perform electrophysiological testing will benefit from reading this chapter. Chapter 5 looks at the anatomical variations associated with spinal deformity. Knowledge of these variants is important since most spinal implants are designed for normal anatomy. Scheuermann's disease, spondylolisthesis, scoliosis, and deformities of the ribs, pedicles, spinous processes, facet joints, spinal cord, and vascular structures are included in this chapter. Chapter 6 addresses radiographic measurements of adolescent idiopathic scoliosis (AIS) using the Cobb method. Classification schemes are discussed, including the King system and a new system for the operative treatment of AIS known as the Lenke system. The chapter then covers operative treatment of AIS based on curve types classified by the Lenke system. Many photographs of patients with spinal deformities and radiographs of these deformities are included. Chapter 7 focuses on the principles of sagittal plane spinal deformities, and Chapter 8 focuses on the principles of coronal plane spinal deformities. Both chapters discuss measurement and likely etiologies of these deformities. Chapter 9 discusses the importance of determining whether spinal deformities are flexible or fixed. The determination of whether each sagittal and coronal component of a spinal deformity is fixed or flexible contributes significantly toward the surgical decision-making process. Radiological evaluation techniques for determination of fixed or flexible spinal deformities are included in this chapter. General medical issues that impact on the diagnosis and treatment of spinal deformities are addressed in Chapter 10. Issues included in this chapter are age, obesity, deep venous thrombosis prophylaxis, nutrition, cardiovascular and pulmonary diseases, metabolic bone disorders, and pain management. Chapter 11 is a brief but interesting look at the natural history of spinal deformity. The authors of this chapter consider the prevalence of spinal deformity in the population, and then discuss the natural history of preskeletal maturity spinal deformities and postskeletal maturity spinal deformities and the factors that determine curve progression.

Section II covers specific surgical procedures that may be performed from anterior, posterior, or combined approaches. Chapter 12 focuses on congenital scoliosis. Topics covered include classification and terminology, genetics, patient evaluation, natural history of the problem, nonoperative treatment and surgical treatment. Radiographs of pre- and postoperative patients liberally supplement the chapter. Chapter 13 focuses on infantile scoliosis. This chapter includes the natural history of infantile scoliosis, clinical and radiological evaluation, and nonoperative and surgical treatment. Chapter 14 looks at neuromuscular scoliosis, including classification, nonoperative and surgical treatment. Numerous radiographs of pre- and postoperative patients with neuromuscular scoliosis enhance the information presented in this chapter.

Chapters 15 and 16 address anterior and posterior surgery (respectively) for thoracic scoliosis. Chapter 17 focuses on anterior/posterior surgery of spinal deformity, and Chapter 18 focuses on anterior surgery for adolescent thoracolumbar and lumbar scoliosis. Chapter 19 looks at kyphotic deformities of the spine, including Scheuermann's disease, postural round back, and congenital kyphosis. The extensive discussion of the etiology, pathogenesis, natural history, differential diagnosis and nonoperative treatment and surgery for Scheuermann's kyphosis is particularly relevant to physical therapy practice. Chapter 20 addresses technological advances in spinal deformity surgery. Chapters 21 through 24 focus on surgery for spinal deformities. Physical therapists who see patients who have had spinal surgery for correction of deformities will benefit from reading these chapters. Posttraumatic deformity of the thoracolumbar spine is the topic of Chapter 25. The authors discuss the epidemiology, anatomy, clinical presentation, radiographic evaluation, biomechanics, classification, and causes of post-traumatic deformity. Surgical treatment of the various types of posttraumatic deformities is also covered, with the caveat that surgical management of

these deformities is an arduous undertaking. Chapter 26 addresses nonoperative treatment of spinal deformity. The author primarily focuses on bracing for the treatment of scoliosis and Scheuermann's disease, and observation and physical therapy for isthmic spondylolisthesis. This chapter will be of particular interest to physical therapists that see patients with these spinal deformities.

This textbook is an excellent reference for any health care practitioner who sees patients with spinal deformities, especially postoperative patients. The information presented is state-of-the-art and is supplemented throughout with illustrations, photographs, and diagnostic images. I recommend this text for all physical therapy school libraries and personal libraries of physical therapists that work with patients who have spinal deformity.

Thomas P. Nolan Jr., PT, MS, OCS

webwatch | http://ergo.human.cornell.edu/ CUErgo

Cornell University Ergonomics Web

A university hosted web portal that houses information from research studies and class work by students and faculty in the Cornell Human Factors and Ergonomics Research Group (CHFERG). Major sections on the site include academic course information offered at the university, employment information, and occupational guidelines for various jobs. There is also a varied listing of helpful research tools and forms.

inthespotlight

Phil McClure PT, PhD, Professor, Arcadia University
Coordinated by Christopher Hughes, PT, PhD, OCS

Your research has focused on understanding the biomechanics of shoulder function and how pathology affects movement. How do you see your research findings influencing the evaluation and treatment of shoulder pathology?

I've been fortunate to work with several great people during my career and learned that the best work always happens with effective collaboration. I think we and other groups have raised awareness and understanding of the potential role of the scapula in shoulder dysfunction. In particular, clinicians now appreciate the three-dimensional motion of the scapula and are starting to be able to integrate that knowledge into evaluation and treatment strategies. Though there is increased interest in scapular dysfunction, we are a long way from complete understanding. We still don't really understand if scapular dyskinesis is truly related to the development of symptoms, and if so, how. We also need to determine clinically efficient ways of identifying which patients have a scapula dysfunction driving their symptoms that would respond to treatment.

You serve as editor and reviewer for some notable peer reviewed journals. Any opinions or advice on where research in physical therapy is headed or needs to go?

I can think of two major directions that come to mind immediately. The first is in the area of classification. Many of our treatment decisions are really based on impairments identified during examination rather than primarily on the medical diagnosis. We need to clarify the relevant clusters of these "signs and symptoms," and start to compare treatments using these relevant subgroups of patients. Too often, our treatment studies suffer from a washout effect because the patient sample is too heterogeneous. There has been nice work in this direction on low back pain but I believe rehabilitation of other body regions would benefit from the same approach. A second broad area is determining appropriate "dosage." For example, we know for many orthopaedic conditions that a combination of exercise and manual therapy is effective. Yet we really don't know *how much* of each is necessary and also how many actual visits are required. These are day-to-day decisions that all clinicians face for which there is very little information. The excessive practice variation that currently exists for common conditions has to be reduced.

In your opinion what are some of the strongest traits a clinician should possess in order to be an effective health care provider?

Above all, clinicians must have a genuine concern and compassion for the patients in their care. That being said, the ability to change and adapt practice patterns based on available evidence is critical. While the challenge to stay current is formidable, we must learn to be efficient and use procedures supported with evidence and drop things shown to be ineffective. This often involves fighting against a larger system which requires skills far different than traditional clinical skills.

How does your continued clinical practice influence your research and teaching?

Practice always brings me back to the realities and nuances of day-to-day patient care that are easy to forget, especially in teaching. I think and teach using a broad conceptual approach which often keeps things more simple and manageable. However, my clinical time each week reminds me of the practical decisions and issues that arise with each new patient. These provide examples that often give flesh to a broader concept or principle. Because I've been practicing lately in a pro bono clinic for the uninsured where I may only get to see a patient once or twice, I've been thinking much more about how many visits patients really require for optimal care. In general, I think we often see patients more often than might really be necessary, but this is an area ripe for clinical research.

As a "seasoned" academician what changes or commonalities have you seen in students in terms of their abilities, expectations, and goals throughout the years?

I am always impressed by how consistently bright and academically motivated our students have been. I think there has been a trend toward greater maturity and life experience among students in the last 5 or 10 years. It seems to have become relatively common for incoming students to have had extended experiences in other countries or to have had legitimate career experience in some other field prior to pursuing physical therapy. These life experiences make the classroom experience so much richer for everyone. Students also have increasing sophistication with technology and therefore push me to keep up and use technology in an efficient manner. The other wonderful trend I have seen recently is a resurgence of interest in volunteer experiences, particularly those that are cross cultural or involve serving those with few resources. We have made these sorts of experiences a key feature of our program at Arcadia and students seem to eat them up and consistently go above and beyond expectation, which really impresses me.

Thank you Dr. McClure for taking the time to share your views with *OP* readers.

Outstanding Physical Therapist Assistant Student Award

The purpose of this award is to identify a student physical therapist assistant with exceptional scholastic ability and potential for contribution to orthopaedic physical therapy. The eligible student shall excel in academic performance in both the prerequisite and didactic phases of his or her educational program, and be involved in professional organizations and activities that provide the potential growth and contributions to the profession and orthopaedic physical therapy.

Isaac R. Mills is a second-year student in the Physical Therapist Assistant Program at Somerset Community College in Somerset, Kentucky. Mr. Mills was an exceptional high school athlete graduating with a 4.00 grade point average. A severe knee injury during his senior year in high school prevented him from accepting an athletic scholarship to play football at the University of Cincinnati. Undeterred, Mr. Mills entered the physical therapist assistant program at Somerset Community College. Based on his strong academic record and commitment to community service, Mr. Mills was awarded the prestigious Commonwealth Scholarship to attend Somerset Community College. During his first year in the program, his peers selected him for the James A. Anderson Award for Outstanding First-Year Physical Therapist Assistant Student. The recipient of this award is expected to make a significant contribution to the physical therapy profession throughout his career. Mr. Mills is already making an impact upon the profession and the community by volunteering for the Kentucky Special Olympics and participating in the Geriatric Section's annual educational brochure design competition. One of his student colleagues notes, "Throughout life there are people you meet who leave a lasting impression – Isaac Mills is truly one of those individuals." One of his professor's states that, "Even at such an early stage in his career, Isaac already displays many characteristics of some of the most effective orthopaedic clinicians in the field." It is obvious Isaac R. Mills is truly an outstanding student and a most worthy recipient of the Outstanding Physical Therapist Assistant Student Award who has tremendous potential to contribute to the Orthopaedic Section of the APTA.

James A. Gould Excellence In Teaching Orthopaedic Physical Therapy Award

This award is given to recognize and support excellence in instructing OPT principles and techniques through the acknowledgement of an individual with exemplary teaching skills. The instructor nominated for this award must devote the majority of his/her professional career to student education, serving as a mentor and role model with evidence of strong student rapport. The instructor's techniques must be intellectually challenging and promote necessary knowledge and skills.

Terese L. Chmielewski, PT, PhD is the 2008 recipient of the James A. Gould Excellence in Teaching Orthopaedic Physical Therapy Award. Dr. Chmielewski is an Assistant Professor in the Department of Physical Therapy at the University of Florida. As a faculty member teaching in the entry-level physical therapy program as well as the postgraduate residency programs, Dr. Chmielewski epitomizes the role of teacher, mentor, clinician, and researcher.

Since joining the Physical Therapy Department at the University of Florida in 2002, Dr. Chmielewski has served as the primary instructor and course coordinator for the musculoskeletal rehabilitation course series in the academic program. Her colleagues' note, "That upon arriving at the University of Florida, Terese performed an extensive overhaul of the musculoskeletal rehabilitation courses. Her hard work, dedication, and innovation have resulted in both substantial improvements to the musculoskeletal curricular track as well as better prepared graduates." Dr. Chmielewski integrates established orthopaedic practice, clinical pearls, emerging research, and evidence-based concepts into her didactic coursework using a variety of instructional methodologies. As noted by another of her colleagues, "Her passion for the content that she teaches combined with her personal research agenda provides a sound foundation for the musculoskeletal course series in our curriculum." Still another colleague notes, "Terese does not teach the content – she instructs, motivates, and enables students to acquire and learn the content."

Both current and former students speak highly of Dr. Chmielewski's dedication and knowledge in the area of musculoskeletal physical therapy. One student states, "Her motivation, enthusiasm, and support have helped me develop the skills and intangible qualities needed to be a successful clinician and researcher in the field of physical therapy." Another former student writes, "It is her ability to develop rapport with students and subsequently motivate them to pursue knowledge and think independently that make her a successful educator."

It is obvious that Terese L. Chmielewski is a most worthy recipient of the James A. Gould Excellence in Teaching Orthopaedic Physical Therapy Award. With this award, Terese Chmielewski joins a distinguished group of faculty and clinical mentors in orthopaedic physical therapy.

Rose Excellence in Research Award

The purpose of this award is to recognize and reward a physical therapist who has made a significant contribution to the literature dealing with the science, theory, or practice of orthopaedic physical therapy. The submitted article must be a report of research but may deal with basic science, applied science, or clinical research.

The recipient of the 2007 Rose Excellence in Research Award is ***Bohdanna T. Zazulak, DPT, MS, OCS*** for the manuscript entitled: Deficits in neuromuscular control of the trunk predict knee injury risk: a prospective biomechanical-epidemiologic study. *Am J Sports Med*. 2007 Jul;35(7):1123-1130. The co-authors of this article are Timothy E. Hewett, PhD; N. Peter Reeves, PhD; Barry Goldberg, MD; and Jacek Cholewicki, PhD.

Bohdanna T. Zazulak, DPT, MS, OCS is a Physical Therapist at Yale New Haven Hospital, adjunct professor at Quinnipiac University in the graduate Orthopaedic Physical Therapy Department, and Research Fellow at Yale University School of Medicine, Department of Orthopaedics and Rehabilitation. She is an Orthopaedic Certified Specialist with over 15 years of clinical experience in Sports Medicine Rehabilitation with a special interest in ACL and knee injury prevention and rehabilitation. Billie has presented nationally and internationally on these topics, most recently at AOSSM, AAOS, ORS, APTA, and the 1st World Congress for Sports Injury Prevention in Norway. She has several recent publications in the *American Journal of Sports Medicine*, the *Journal of Orthopaedic and Sports Physical Therapy*, the *British Journal of Sports Medicine, Clinical Orthopaedics and Related Research*, and the journal, *Sports Medicine*. Billie enjoys running, swimming, cycling, and spending time with her husband and 6-month old son at their home on the coast of Connecticut.

Richard W. Bowling—Richard E. Erhard Orthopaedic Clinical Practice Award

This award is given to acknowledge an individual who has made an outstanding and lasting contribution to the clinical practice of orthopaedic physical therapy as exemplified by the professional careers of Richard W. Bowling and Richard E. Erhard. Individuals selected for this award must have been engaged in extensive orthopaedic physical therapy clinical practice for at least 15 years and have positively as well as substantially affected the shape, scope, and quality of orthopaedic physical therapy practice.

The recipient of the 2008 Richard W. Bowling – Richard E. Erhard Orthopaedic Clinical Practice Award is ***Michael T. Cibulka, PT, DPT, MHS, OCS.*** Mike has positively and substantially affected the shape, scope, and quality of orthopaedic physical therapy through his clinical practice, publications, and service to the Orthopaedic Section.

Having started his physical therapy career in 1978, Mike has spent the majority of the past 30 years in clinical practice. Throughout his clinical career Mike has always adhered to the principle of having evidence to support his clinical practice, long before the term 'evidence-based practice' was ever introduced, in order to provide his patients with the highest quality of care possible. Mike's contribution to our profession's scientific clinical literature is quite remarkable. Even though he has only held a full-time academic appointment for the last 2 years, Mike has published over 20 refereed papers in the areas of sacroiliac dysfunction, hip impairments, and low back pain since 1985. Thus, most of these publications were developed while Mike was in private practice. The quality of these publications have been recognized by the profession as evidenced by the fact that he has twice been the recipient of the APTA's Jack Walker Award as well as a co-recipient of the Orthopaedic Section's Rose Award.

Mike's influence on shaping orthopaedic physical therapy is most obvious by his commitment to the profession and to the Section. Mike served as a Board of Director for one term and as President of the Section for 2 terms. Throughout his tenure on the Section's Board of Directors, he has been a staunch supporter of clinical practice and research. Mike was also a member on the initial Committee on Clinical Residency Credentialing and has always been a strong supporter for the development of clinical residency programs in orthopaedics.

In recognition of his consistent and sustained contributions to orthopaedic physical therapy clinical practice over the past 30 years, the Orthopaedic Section recognizes Michael T. Cibulka, PT, DPT, MHS, OCS as the recipient of the 2008 Richard W. Bowling – Richard E. Erhard Orthopaedic Clinical Practice Award.

The Paris Distinguished Service Award

The Paris Distinguished Service Award is the highest honor awarded by the Orthopaedic Section and is given to acknowledge and honor an Orthopaedic Section member whose contributions to the Section are of exceptional and enduring value. The recipient of this award is provided an opportunity to share his or her achievements and ideas with the membership through a lecture presented at an APTA Combined Sections Meeting.

The Orthopaedic Section's Paris Distinguished Service Award for 2008 is being

presented to ***Stephen C.F. McDavitt, PT, DPT, MS, FAAOMPT.*** Steve has been a passionate advocate for orthopaedic physical therapy for over 20 years and is a recognized expert in the legislative and regulatory aspects of physical therapist practice through documentation, research, and testimony. By his actions on behalf of the Section, Steve has had a significant impact on Section members' rights to practice orthopaedic physical therapy.

Steve began serving the Orthopaedic Section in various capacities in 1996. From 1996 to 2004, he chaired the Section's Practice Committee and provided the necessary leadership and mentoring to literally hundreds of physical therapists in need of concise legal, regulatory, and legislative advice. Under his leadership, Steve and a colleague not only developed the necessary literature to justify the right of physical therapists to perform manipulation but also collaborated with over 20 states to help them in their legislative battles. The APTA Board of Directors recognized the effectiveness of this effort when they created the APTA Manipulation Task Force and named Steve the Task Force's first chair. Steve was also a major contributor to the Section's Compendium on Manual Therapy and Manipulation, which later was used to develop consensus on the definition of mobilization and manipulation. From 2001 to 2004, Steve served as the Section's Delegate to the APTA House of Delegates. During his term as Delegate, Steve helped redefine the role and function of not only the Orthopaedic Section, but also all Sections, within the House of Delegates. Steve has continued to serve the physical therapy profession by just being re-elected to serve a second term on the APTA Board of Directors. He continues to work with the Section by serving as the APTA Board Liaison to the Orthopaedic Section.

As one of his nominators noted, "The best attribute that Steve exemplifies is his dedication to promote professionalism and excellence in service, while encouraging others to participate." Another nominator noted, "His contributions are legendary and enduring – without a doubt he is an outstanding representative of the physical therapy profession and the Orthopaedic Section." As his nominator so appropriately stated, "I have met few people in my life that are more passionate than Steve is about orthopaedic physical therapy. Unlike most, he knows how to harness that passion and make it the motivation for productive outcomes."

In recognition of Steve's long history of outstanding service and exceptional contributions to not only the Orthopaedic Section but the entire profession of Physical Therapy, it is most fitting that Steve McDavitt receives this prestigious Section Award.

Journal of Orthopaedic & Sports Physical Therapy Awards

The following annual awards, presented for 4 years by the *Journal of Orthopaedic & Sports Physical Therapy (JOSPT)*, recognize the most outstanding research manuscript and clinical practice paper published in the *JOSPT* within the last calendar year. The *JOSPT* Excellence in Research Award is given to the best article published within the category of research reports. The George J. Davies—James A. Gould Excellence in Clinical Inquiry Award is presented to the best article among the categories of case reports, resident's case problems, clinical commentaries, and literature reviews. An award committee consisting of the *JOSPT* editor-in-chief, 2 *JOSPT* associate editors, and the research chairs of the Orthopaedic and Sports Physical Therapy Sections selected the following recipients.

The Journal of Orthopaedic & Sports Physical Therapy's 2007 JOSPT Excellence in Research Award

AWARDED TO

Andrea J. Johnson, DPTSc; Joseph J. Godges, DPT; Grenith J. Zimmerman, PhD
Leroy L. Ounanian, MD

FOR

Johnson AJ, Godges JJ, Zimmerman GJ, Ounanian LL. The effect of anterior versus posterior glide joint mobilization on external rotation range of motion in patients with shoulder adhesive capsulitis. *Journal of Orthopaedic & Sports Physical Therapy.* Volume 37, Number 3, Pages 88-99. March 2007.

Criteria for *JOSPT* Excellence in Research Award:

1. The importance of the contribution of the manuscript to the clinical or basic science related to orthopaedic or sports physical therapy.
2. The relevance of the manuscript to clinical practice.
3. The quality of the research question, methodology, and interpretation/synthesis of the findings with the existing literature.
4. The quality of the writing.

The Journal of Orthopaedic & Sports Physical Therapy's 2007 George J. Davies—James A. Gould Excellence in Clinical Inquiry Award

AWARDED TO

Owen Legaspi, DPT; Susan L. Edmond, PT, DSc, OCS

FOR

Legaspi O, Edmond SL. Does the evidence support the existence of lumbar spine coupled motion? A critical review of the literature. *Journal of Orthopaedic & Sports Physical Therapy*. Volume 37, Number 4, Pages 169-178. April 2007.

Criteria for selection of the George J. Davies—James A. Gould Excellence in Clinical Inquiry Award:

1. The importance of the contribution of the manuscript to the clinical practice of orthopaedic or sports physical therapy.
2. The importance of the clinical topic addressed in the manuscript.
3. The clinical practice implications derived or suggested from the manuscript.
4. The quality of the writing.
5. The clarity of the clinical information/data presented.

meetingminutes

Orthopaedic Section, APTA, Inc.
CSM 2008 Annual Membership Meeting Minutes

NASHVILLE, TENNESSEE
FEBRUARY 8, 2008

I. CALL TO ORDER AND WELCOME

A. James Irrgang, PT, PhD, OCS , President, called the meeting to order at 6:30 PM.

B. The agenda was approved as printed.

C. The Annual Membership Meeting minutes from CSM in Boston, Massachusetts on February 17, 2007 were approved as printed in Volume 19:1:07 issue of *Orthopaedic Physical Therapy Practice*.

D. Orthopaedic Section Election Results – Nominating Committee Chair, Kyndy Boyle, PT, MS, OCS, for the Fall 2007 election there were 1,194 ballots cast. The number of valid ballots was 1,181 and the number of invalid ballots was 13. The total number of ballots sent was 13,389. The return rate was 6.7%. The following positions were elected: Director, William O'Grady; Treasurer, Steven R. Clark; Nominating Committee Member, Jennifer Gamboa.

The deadline for accepting nominations for the Fall 2008 election is September 1, 2008.

II. INVITED GUESTS

A. Scott Ward, APTA President, updated the membership on the recent lawsuit NATA vs APTA and the Orthopaedic Section.

B. Tim Schall, PT-PAC Chairman, gave an update on the PT-PAC fund raising efforts.

C. Rick Shields, PT, MS, OCS, President of the Foundation for Physical Therapy, was presented with a check in the amount of $500,000 for the Orthopaedic Research Endowment Fund. Stanley Paris, PT, PhD, FAPTA announced that he will attempt to enter the Guinness Book of World Records as the oldest person to swim across the English Channel in July 2008. He has offered his record breaking attempt to raise funds for the Foundation for Physical Therapy. Stanley has previously succeeded in swimming the English Channel twice: one swim was officially recognized and the other was not due to a technicality.

D. Guy Simoneau, *JOSPT* Editor-in-Chief, PT, PhD, ATC presented a summary of the *JOSPT* including the number of submissions and papers accepted for publication.

III. FINANCE REPORT

A brief synopsis of the "State of the Section's Finances" can be found on the Orthopaedic Section Web site at orthopt.org.

IV. SECTION INITIATIVES

A. James Irrgang, President

In October 2007 the Section sent out its first Osteo-BLAST to its members via e-mail. The Osteo-BLASTS are scheduled to be sent around the middle of each month. The Board of Directors thought this would be a good way to regularly communicate with members and keep them abreast of what is happening.

Three proposed bylaw amendments were presented. Two pertain to staggering the terms for President and Vice President and the third to replace all references to Secretary with Vice President. These proposed amendments will be on the election ballot this fall for members to vote on.

The Section is in the process of preparing a survey to glean vital information from the membership on publications, education, residency and fellowships, advocacy, and leadership issues. Watch for an announcement in an upcoming Osteo-BLAST for further details.

The Board of Directors approved implementing a Chapter Liaison Program with each state Chapter to improve communication among practitioners in the area of orthopaedic physical therapy. All Chapters have been contacted and asked to submit the name of an interested Section member to be their liaison.

B. Tom McPoil, Vice President

At the 2006 Fall Board of Directors meeting, representatives of the Board met with representatives of each Special Interest Group (SIG) to discuss a possible restructuring that would more closely resemble how the SIGs were operating. This was a very productive meeting which resulted in new documents being drafted outlining the roles and responsibilities of both SIGs and Educational Interest Groups (EIG).

C. Joe Godges, ICF Coordinator

To date the ICF workgroups have completed guidelines for heel pain – plantar fasciitis, which will be published in an upcoming issue of *JOSPT* and are in the process of finalizing guidelines for the following areas: shoulder, low back pain, hip fractures, hip osteoarthritis, and neck pain. All guidelines, including a project summary, are posted on the Orthopaedic Section web site. As new guidelines are developed they will be added to the list.

D. Tara Jo Manal, Residency and Fellowship Education Coordinator

The newly approved Residency and Fellowship Committee structure was presented. It will consist of 3 subcommittees each of which will report to the Residency Oversight Committee. The subcommittees are Didactic Training, Residency and Fellowship Programming, and Residency and Fellowship Growth and Marketing. Each subcommittee will have a member responsible for needs assessment and communication with stakeholders. The goal of the subcommittees will be to identify available and needed resources to support programs with didactic resources, develop Residency and Fellowship programming, and to develop a plan to effectively grow and market programs.

V. RECOGNITION OF OUTGOING BOARD OF DIRECTOR AND COMMITTEE CHAIR

The following Board members were recognized for their service to the Section as their terms end at the close of the 2008 CSM Membership Meeting –

- Joe Godges, PT, DPT, MA, OCS - Treasurer
- Kyndy Boyle, PT, MS, OCS – Nominating Committee Chair

Board of Director, Committee Chair, and SIG reports are located on the Orthopaedic Section web site (www.orthopt.org).

ADJOURNMENT 7:00 PM

Proposed Bylaw Amendments

The Orthopaedic Section Board of Directors approves the following bylaw amendments to stagger the President and Vice President terms by one year –

Section Amendment

#1 MOVE TO AMEND ARTICLE XI. ELECTIONS, SECTION 2: ELECTION CYCLE, A. as follows, "The President and Vice-President shall be elected on a staggered basis with the Vice-President being elected the year following the election of the President. The respective elections shall take place every three years."

Section Amendment

#2 MOVE TO AMEND ARTICLE XI. ELECTIONS, SECTION 2: ELECTION CYCLE, C. by adding the following proviso, "At the conclusion of the current Presidential election cycle following the adoption of the staggered terms amendment (above), the Vice-President's term will be extended for an additional one year term. At the conclusion of this additional one year term, a Vice-President will be elected for a three year term as above. Any term limitations will not apply to the extended additional one year term of the Vice-President in establishing the staggered election cycle."

Section Amendment

#3 MOVE TO AMEND ARTICLE XV. AMENDMENTS, SECTION 1: MAIL BALLOT AMENDMENTS, SECOND PARAGRAPH by striking out all references to Secretary and replacing with Vice President.

electionresults

Nominating Committee Announces Election Results

Committee members Kyndy Boyle (Chair), Paul Howard, and G. Kelley Fitzgerald met by conference call during summer 2007 to determine slate of candidates for elections to the offices of Treasurer, Director, and Nominating Committee Member.

- Number of Ballots Cast: 1194
- Number of Valid Ballots: 1181
- Number of Invalid Ballots: 13

The slate of candidates was:
Treasurer: Steven Clark and Tara Jo Manal
Director: William O'Grady (incumbent)
Nominating Committee: Jennifer Gamboa and Scott Adam Smith

The elections were conducted online and mail ballot upon request and coordinated by the Section office.

The results of the election are:

- **Treasurer**
  Steven Clark: Elected
- **Director**
  William O'Grady: Elected
- **Nominating Committee Member**
  Jennifer Gamboa: Elected

The committee thanks all Section members who consented to serve in elected office. The entire Section appreciates their continued generosity of time and talents and their commitment to the Section.

Call for Candidates

Dear Orthopaedic Section Members:

- The Orthopaedic Section wants you to know of the several options available for service within the Section opening up in February, 2009. If you wish to nominate yourself or someone else, please contact the Nominating Committee Chair, Paul Howard, at paul.howard@jefferson.edu. Deadline for nominations: September 1, 2008. Elections will be conducted during the month of November.

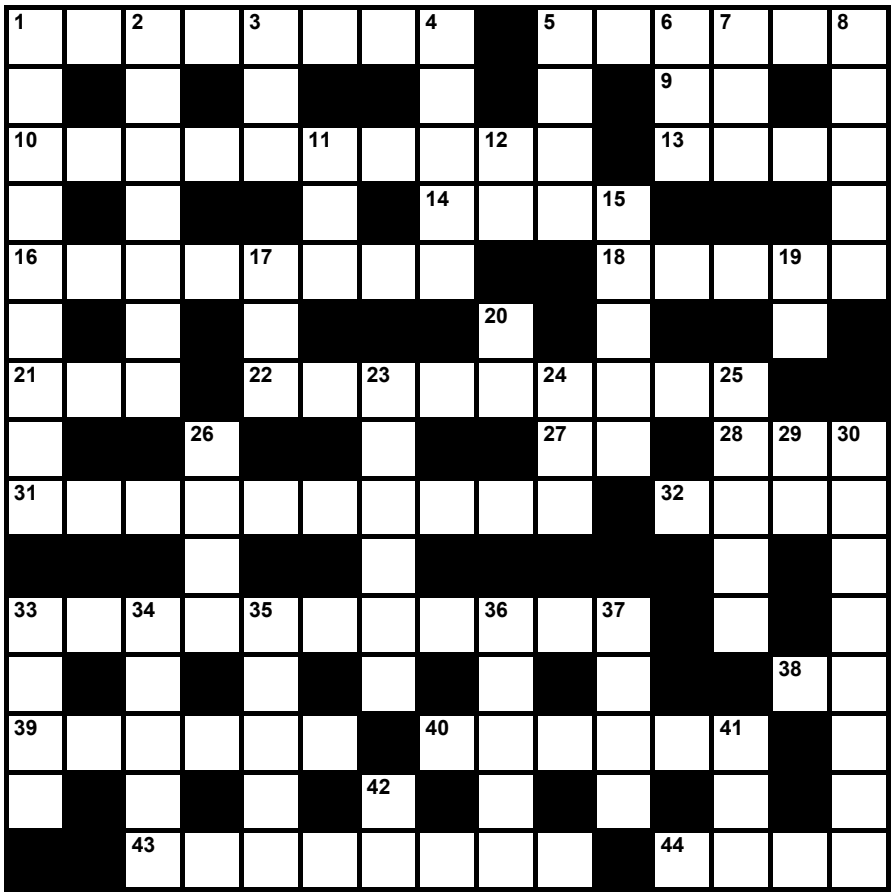
Open Section Offices:

- **Director:** Nominations are now being accepted for election to a three (3) year term beginning at the close of the Orthopaedic Section Business Meeting at CSM 2009.

- **Nominating Committee Member:** Nominations are now being accepted for election to a three (3) year term beginning at the close of the Orthopaedic Section Business Meeting at CSM 2009.

shoulderbits&pieces

Crossword by Myles Mellor
Go to orthopt.org for answers



Across

1. Highest point of the shoulder
5. SLAP tear
9. Acromioclavicular
10. Inflammation of a tendon
13. Delamination
14. Comfort
16. A shoulder girdle muscle
18. RX measurement
21. Maximum pain scale rating
22. Treatment for a dislocated shoulder
27. Placed above
28. Trouble alert
31. A blow to the shoulder can cause this problem
32. Redness
33. Group of muscles that stabilize and move the shoulder

Down

1. Cartilage loss leads to this
2. Exhausted
3. Diagnostic tool for shoulder problems
4. Jotted down
5. Motion value from adhesive capsulitis
6. Rested, in a way
7. One element of PRICE
8. Message system of the body
11. New
12. Previous home to JOSPT
15. Dye used to stain muscle fibers
17. Used for wand exercises for the shoulder
19. Type of scan
20. Electronic documentation
23. Arrests

Greetings OHSIG Members:

Combined Sections Meeting February 6-9 in Nashville was energizing and full of networking and educational opportunities! OHSIG educational programming took place, the OHSIG Board of Directors met, and OHSIG general business meeting was held. A few updates for you.

Introducing New Officers

Steve Allison - Vice President
Kathy Rockefeller - Research Committee Chair
John Lowe - Nominating Committee Member
Rick Wickstrom - Membership Committee Chair

The OHSIG BOD would like to thank Kathy Rockefeller for serving as Vice President, and for agreeing to become the next Research Chair. We thank David Miller for his past service as Research Chair. He plans to continue serving as a member of the Research Committee.

Congratulations to Steve, John, Kathy, and Rick. Welcome to the OHSIG BOD.

Update re: Guideline Revisions

A working group from the FCE Guideline Task Force met at CSM. The working group included: Glenda Key, Drew Bossen, Gwen Simmons, Larry Feeler, Rick Wickstrom, Kevin Basile, and Margot Miller. The working group made good progress. The group will finalize the first draft and submit to the full Task Force. The full Task Force includes the working group, plus Susan Isernhagen, Nicole Matoushek, Jill Galper, and Deborah Lechner.

We are also in process of revising Work Conditioning and Work Hardening Guideline and Role of the PT in Occupational Health.

Update re: Executive Summary of the Practice Analysis

David Miller and Kathy Rockefeller worked on the Executive Summary of the Practice Analysis during the FCE Task Force Meeting. Dee, Margot, Kathy, David, and Jen Pollak completed work previously on both the petition for OH specialization and executive summary of the Practice Analysis. We are close to completion. Stay tuned!

CSM Programming: Manual Therapy for the Upper Extremity "itis"

Thank you to Dee Daley, Education Chair for the programming that took place at CSM. It was a packed room to hear David A. McCune PT, MPhty St, OCS, ATC, FAAOMPT.

Recognition

The OHSIG recognizes Kathy Rockefeller and Ken Harwood for articles in the January issue of *Rehabilitation Nursing*. Kathy's article is on patient safe handling. Ken's article is on myths associated with patient handling equipment.

Need Authors

If you are interested in submitting an article for *OPTP*, please let Joe Kleinkort, OHSIG secretary know. Joe can be reached at: indusrehab@aol.com.

Sincerely,
Margot Miller PT
OHSIG President

PROGRESSIVE ACCOMMODATION RESCUES MECHANIC

When traditional physical therapy and work conditioning failed to make any real difference for a vehicle maintenance worker, vocational case manager, John Dumas turned to Work-Ability Network. Transitional work-site therapy, with an emphasis on job modification, resulted in safe return to productive duty.

Case Background

In September of 2000, Joe L. injured his neck when tossing a log onto his shoulder. When he failed to get relief from medications prescribed by his family doctor, he was referred to a pain management specialist for a series of epidural injections that provided no benefit. Shortly thereafter, he underwent neck surgery for a diskectomy and fusion of C4-C5, followed by physical therapy, and eventually released to return to full duty.

Joe's right arm and neck symptoms worsened after pulling the starter cord for a weed eater in June 2005. As a result, he was taken off work and treated conservatively until an MRI revealed pressure on his spinal cord. Neck surgery was recommended; however, this was delayed after he suffered a heart attack in August of 2005.

The Challenge

Following his second surgery for a fusion of C5-6 and C6-7 in January 2006, Joe noticed a reduction in symptoms and loss of some neck range of motion. After completing postoperative physical therapy, he was referred for vocational rehab services, including 4 weeks of work conditioning services. He was discharged after 4 weeks of prescribed work hardening with only mild improvements in functional tolerances and mobility to proceed with a modified transitional work program. Recommended work restrictions by the supervising therapist at the work hardening facility were:

- NO squatting.
- OCCASIONAL stooping/overhead reach/stair climbing/lifting up to 50# from floor to waist/lifting up to 25 lbs from shoulder to overhead/push 92 lbs/pull 89 lbs/carry 45 lbs.
- FREQUENT kneeling/standing/sitting/walking/forward reaching/upper extremity dexterity/lifting up to 25 lbs from floor to waist; lifting up to 13 lbs for shoulder to overhead/carry up to 23 lbs/push 46 lbs/pull 46 lbs/carry 23 lbs.
- CONSTANT lifting up to 10 lbs from floor to waist only/push up to 18 lbs/pull up to 18 lbs/carry up to 9 lbs.

Joe's attending physician stipulated return to work with very conservative restrictions of:

- No overhead lifting.
- No lifting more than 10 lbs.
- No sitting or standing more than 30 minutes without a break.

The Solution

In May 2006, Joe's vocational field case manager, John Dumas III, RN, CCM, contacted WorkAbility Network to request a Functional Job Analysis of Joe's job as a lead mechanic. The job analysis was performed by Mr. Wickstrom, who opined that the worker was capable of returning to most of his previous duties that he was performing prior to going out on disability leave.

The initial transitional work therapy evaluation by Mr. Wickstrom found:

"There is not indication from review of physical therapy records that subject has made any substantial functional progress in response to 4 weeks of work conditioning. He is morbidly obese and continues to be very deconditioned. Discharge functional capacity recommendations from *****. Therapy on 5/16/06 are inconsistent and substantially higher for lifting (50#) than work restrictions specified on his release to return to work by Dr. **** (10#). Dr. ****. restrictions were integrated with physical exam and agility findings to come up with the initial RTW workability restrictions as specified Worker Safe Load column on this statement. Transitional work therapy is appropriate as prescribed and authorized to facilitate progression of Joe to safe and productive duties - by objective assessment Joe's safe workabilities, job modification and coaching in pacing and safe work methods."

Joe was evaluated with respect to his safe workabilities by Mr. Wickstrom and returned to work on May 22, 2006. He was initially assigned to mostly SEDENTARY tasks that included handling documentation/inventory control, garage call reception support, and pick-up of minor supplies. Mr. Wickstrom's recommended workabilities as specified on the Workability Progress Update were noted to be substantially less than work restrictions recommended in the discharge summary from Joe's recent work conditioning program; however, Mr. Wickstrom felt that his recommended restrictions (below) were quite reasonable based on Joe's complicating morbid obesity and cardiac history:

- OCCASIONAL stand/walk/reaching overhead/bending/climbing steps/lifting up to 20 lbs at pallet level; lifting up to 30 lbs at knee level; lifting up to 40 lbs at waist level; lifting up to 30 lbs at chest level; lifting up to 20 lbs at shoulder level; and lifting up to 10 lbs overhead.
- FREQUENT twist/turn head.
- CONSTANT sitting.

Mr. Wickstrom also recommended that a battery-powered adjustable cart (to support the weight of tires and other items that exceed recommended restrictions) and sit-stand stool (to increase tolerance for bench repairs) be procured. This equipment allowed Joe to be safely transitioned back to routine vehicle maintenance and small motor repair tasks. Because Joe had not yet taken any initiative to resume his fitness program at the health club, Mr. Wickstrom opined that it was likely that his current recommended workabilities may not appreciably change and job modification would be the primary strategy to safely increase his productivity.

Joe's physician agreed with these recommendations and the vocational rehab plan was amended by case manager, John Dumas to facilitate procurement of this equipment. His employer was pleased to discover that the entire cost of equipment would be funded by the BWC Surpus fund and not charged to their BWC Claims experience.

By mounting a set of forks fabricated from angle iron to the battery-powered, height-adjustable cart (Bishamon Mobilift Model BX-50B), Joe was safely transitioned to routine vehicle maintenance, assisting other mechanics with tasks such as tire rotation, without having to lift the entire weight of the tire or exceed his recommended work restrictions.

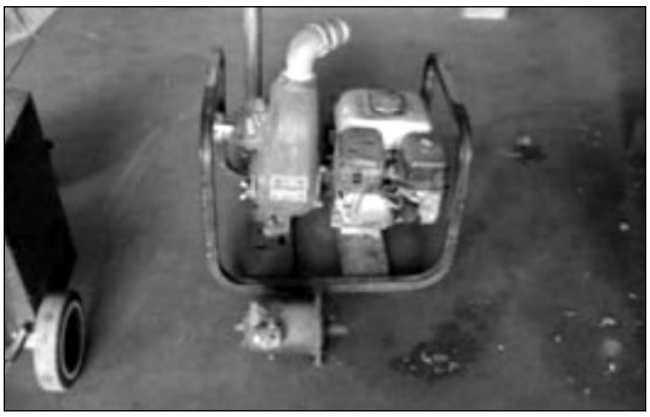
Step 1. Operate small impact wrench to loosen and remove lug nuts.

Step 2. Operate battery-powered lift cart to remove tire from car.

Step 3. Manipulate tire in mid-range to horizontal position on back of cart.

Step 4. Remove tire to be rotated to open hub position.

In July 2006, Mr. Wickstrom met with Joe and the Superintendent of Public Works. It was decided that Joe required a materials handling device to reduce lifting and carrying demands associated with stocking and retrieving parts inventory in the storage facility; lifting items such as heavy pumps to bench level to minimize bending for repairs; and handling tires located on the bottom 2 storage racks. The adjustable cart that was successfully adapted for vehicle maintenance functions was too large to fit into the small storeroom and lacked sufficient vertical range to lift items located below 17 inches or above 39 inches. Pictures of the work bench and a small pump that needs to be manually lifted are shown below.



It was proposed that a Genie Load Lifter Hand Truck (shown below) be procured to allow heavier materials to be manipulated and positioned on shelves and racks with narrow isles within Joe's lifting restrictions. This would enable the injured worker to handle heavy parts such as batteries (up to 45 lbs) and tires (up to 70 lbs) stored on shelves and racks with varying vertical heights.

Genie Load Lifter Hand Truck

- Slides heavy item such as brake rotor rather than lifting.
- Crank adjustment enables raising or lowering to any of the 3 lower shelves in storage.

Lessons Learned

Physical therapy and work hardening failed to make any real difference in Joe's physical abilities. It was transitional worksite therapy with an emphasis on job modification that resulted in Joe's safe return to more productive duty. Had this progressive accommodation approach been done earlier in the claims management process, it may have been possible to substantially reduce incurred indemnity and medical costs.

foot&ankle

SPECIAL INTEREST GROUP

PRESIDENTS REPORT

Stephen G Paulseth, PT, DPT, SCS, ATC

The 2008 CSM in Nashville was another success for the FASIG educational programming. A sellout crowd attended an excellent preconference course by Tom McPoil and Mark Cornwall entitled "Using Prefabricated Foot Orthoses in Clinical Practice: Current Evidence and Fabrication Principles." A large audience also enjoyed a state-of-the-art program entitled "Foot and Ankle Tendinopathies: From Mechanisms to Interventions" by an excellent collaborative faculty from the University of Southern California (Fight on Trojans!), Ithaca College, and University of Rochester.

During the CSM, the Orthopaedic Section asked our SIG if we should restructure as an Education Interest Group (EIG) with a single individual responsible for the education programming at CSM, such as the Manual Therapy group. As a SIG, there are 2-3 individuals on the executive board that function the same as an EIG and also provide materials to this publication, can actuate a practice analysis/DSP, and use this information to identify our body of knowledge as foot and ankle specialists. In other words, in accordance with the Strategic plan for the Orthopaedic Section, we are moving towards establishing a fellowship for the foot and ankle through completion of a Description of Specialty Practice (DSP). It further helps to protect our practice area by identifying a specific body of knowledge from those who wish to limit what we can do. For example, in the past the Prosthetists and Orthotists have attempted to limit our ability to make foot orthoses for our patients. The Foot and Ankle SIG also should be a resource and a means of communication for those with a special interest in treating this region of the body. Undoubtedly, most PTs treat the foot indirectly even though they are treating other diagnoses, types, and ages of patients in their practice. Our SIG members typically carry a certain patient load that includes specific foot and ankle problems or postoperative care. Remember our mission and vision for the FASIG:

Mission: FASIG serves as a resource to practitioners and academics for foot and ankle practice.

Vision: We will support and provide professional development for PTs who treat the foot and ankle.

There were not any elections at CSM for our SIG this year. I will remain as President for 2 more years and Rob Martin will remain Vice President for at least one more year. The position of Secretary/Treasurer will be eliminated. Susan Appling will chair the Nominating Committee. Also discussed at the CSM Business Meeting is that the FASIG wishes to foster foot and ankle research scholarships (Student or Clinician) in accordance with the Orthopaedic Section research grants. More news on that will follow and we hope to be sending out blast emails later this year. The bulletin board posting at OrthoPT.org is available to our members to discuss any of the above and/or other topics of interest.

I hope that each of you with an interest in the foot and ankle will support our SIG and we always appreciate your input concerning our purpose, our programs, and our objectives.

FOOT & ANKLE SPECIAL INTEREST GROUP
Business Meeting
APTA Combined Sections Meeting
Nashville, TN
February 9, 2008

Stephen Paulseth, President, called the Foot & Ankle Special Interest Group (FASIG) Business Meeting to order at 7:00am on February 9, 2008. The meeting was held at the Opryland Convention Center, Nashville, TN.

Motion: It was moved by Steve Paulseth to adopt the minutes from the February 2007 meeting of the FASIG Business Meeting. Mark Cornwall seconded the motion. The minutes were approved unanimously.

Reports:

Chair. Steve Paulseth indicated that the Foot & Ankle Special Interest Group (FASIG) was unable to conduct elections last year and as such, he and Mark Cornwall have been serving in their respective positions on a temporary basis since then.

In accordance with the Strategic plan for the Orthopaedic Section, we are moving towards establishing a fellowship for the foot and ankle. Through the efforts of Clarke Brown and Rob Martin, we have distributed and published a survey in *OP* to identify the content of foot and ankle in the curriculum of entry-level PT programs. Thus far we have very few responses and will consider sending the survey to a faculty member of each PT program this year. The FASIG will continue our practice analysis and DSP.

Mission: FASIG serves as a resource to practitioners and academics for foot and ankle practice.

Vision: We will support and provide professional development for PTs who treat foot and ankle through:

1. Perform a practice analysis
2. Establish a foot and ankle fellowship

Membership Services: The FASIG and Orthopaedic Section are developing a brochure that will serve to promote and advertise our SIG to APTA members. Our mission and vision will be shared. We encourage each new member to complete the practice survey that was established by S Reischl and others when they join. Hence, adding their demographics to the "Find a Foot and Ankle PT" listing which comprises our SIG membership. The use of a blast email was discussed for future use in this area.

New member resources need to be formed with an information packet.

Bulletin board for foot news and views, clinical pearls, discuss recent articles, debate treatment regimen….

Vice-Chair. Rob Martin presented the programming for this year's CSM and asked for suggestions from the members regarding future program topics. Ideas were then solicited from those present and included:

- Manipulation of the Foot & Ankle (possibly preconference course)
- Radiology and Diagnostic Imaging of the Foot & Ankle
- Case Reports and Panel Discussion by Experts on the Cases
- Major Trauma to the Foot
- Diabetic or Rheumatoid Foot
- Mid-Tarsal Joint

A preconference course is being considered which would be a lab based manual therapy and taping course for selected foot problems.

Secretary/Treasurer. Mark Cornwall reported that the budget from the Orthopaedic Section continues to be adequate to meet the SIG's basic operating needs. In addition, we have a reserve fund that allows us to be creative and not worry too much about making a profit.

Research Committee. Deborah Nawoczenski
Did not have details, but indicated that the Research Committee has talked about hosting a third research retreat that would be a follow-up to the previous one on foot models.

Old Business: No discussion.

Steve Paulseth asked for members to submit "*Clinical Pearls*" for submission to *Orthopaedic Physical Therapy Practice*. Rob Roy Martin agreed that he would submit a summary of the SIG's programming from today's conference.

New Business:
It was suggested that FASIG consider offering small research grants of approximately $2000-$5000. Recipients would be expected to present their results at a CSM. Mark Cornwall suggested that the SIG make a donation to the Orthopaedic Section Research fund so that their procedures could be used without duplicating work.

The Orthopaedic Section has proposed a change in the structure of all SIGs within the Section. If FASIG elects to remain a SIG rather than an Educational Interest Group (EIG), the position of Secretary/Treasurer would be eliminated. Funding for the SIG, however, would not decrease and would actually provide additional funds to support the President and Vice President in attending CSM and conducting the operations of the SIG. It was decided that the membership wished to remain a SIG and not an EIG.

There was discussion about the survey that was published in *OP* concerning the knowledge base for foot and ankle being taught in PT programs and for clinicians in PT. A committee was established that will analyze the data which include Rob Martin, Irene Davis, and Stephanie Albie. A practice analysis/DSP would be completed thereafter in an attempt to identify our area of practice and to establish a future fellowship in foot and ankle PT.

Steve Paulseth was going to investigate a collaborative link with the American Podiatric Association to share clinical and research information in this area of specialty

Motion: It was moved by Rob Roy to adjourn the meeting until February 2009 in Las Vegas, NV. The motion was seconded and approved. The meeting was adjourned at 7:45am.

Respectfully Submitted by,
Mark W. Cornwall, PT, PhD, CPed
Acting FASIG Secretary/Treasurer

CLINICAL PEARLS AND PERILS
The *Other* Longitudinal Arch of the Foot

The **lateral** longitudinal arch of the foot is rarely discussed either clinically or in the literature. While the medial longitudinal arch is more commonly implicated in foot and ankle pathology the importance of the lateral arch in the dynamic function of the foot should not be overlooked. Those who treat feet have usually incorporated some type of control with "arch supports" or orthoses for the medial arch while ignoring its lateral counterpart. Often controlling the lateral longitudinal arch position may be necessary to effectively manage several different foot and lower extremity pathologies.

Anatomically the lateral longitudinal arch of the foot is comprised of the calcaneus, cuboid, and 4/5th metatarsals/rays. The cuboid is the keystone of the lateral arch being supported by the plantar and transverse ligaments (ie, plantar calcaneocuboid ligament). The lateral longitudinal arch is also supported by the plantar aponeurosis via the windlass mechanism. The dynamic musculotendinous units, that are intrinsic and extrinsic to the foot, further aid in stability, energy storage, and dissipation of forces. The Tibialis Posterior and Fibularis Longus form a midfoot sling that controls motion in this region and ultimately the entire lower extremity. The osseus configuration of the calcaneocuboid joint permits adduction, inversion, and some plantar flexion of the cuboid during supination of the foot. The medial arch will rise while the lateral arch lowers. The tarsometatarsal or forefoot mechanism is nonconstrained and can move in all 3 planes. For example tarsometatarsal supination with metatarsal plantar flexion, adduction and inversion occurs to compensate for the hindfoot supination.[1] Also, the foot must be able to adapt to ground reaction forces during functional movements that may simultaneously involve heel rising, pivoting, or lateral movement. The lateral and medial arches typically move in opposite directions to permit pronation or supination of the foot. The lateral arch must flatten during foot supination and rises with pronation.[2]

Foot imbalance and dysfunction, resulting from things such as postural adaptations, trauma, and surgery can affect the entire lower extremity.[3] These dysfunctions can include peroneal/fibularis tendinopathy, cuboid syndrome, lateral ankle instability, cavovarus deformity, lateral bunion deformity, 5th metatarsal stress fracture/reaction, to name a few.[4] We wish to share a few clinical suggestions which may be used with your foot patients for cuboid and peroneal dysfunctions.

PERONEAL/FIBULARIS DYSFUNCTION

Foot imbalance and dysfunction can lead to degenerative changes of the peroneal tendons. Tears of the fibularis longus typically occur at the cuboid notch and lateral calcaneal pro-

cess when hindfoot varus is observed.[4] When the cuboid is displaced in the plantar direction, as seen in a cuboid syndrome, this prolonged malpositioning may over time lead to degenerative tendon pathology. A detailed discussion of the etiology and pathological sequelae are beyond the intent of this article and more comprehensive reviews are available.[1] We have found taping techniques to be effective in stabilizing the position and motion of the cuboid. Taping can be especially helpful when combined with manual therapy. There are a number of treatments that can be used but their effectiveness may depend on the specific disorder present. Further, if taping is found to produce a positive effect a long term foot orthosis that contours the lateral arch should be considered.

Intervention

TAPING: Place the patient in a supine position with the foot at the end of the treatment table. Using the tape of personal preference, begin on the medial calcaneus and angle the tape and pull under the calcaneus in an anterolateral direction such that the tape goes through the cuboid notch (Figure 1A). Elevate the cuboid dorsally and wind the tape medially up across the anterior ankle. Be careful not to crimp the tape under the foot. As the tape is applied an emphasis is placed on everting the calcaneus and lifting the cuboid (Figure 1B). A single strip of 1-1/2" Leukotape with the proper anchoring is very effective and can be worn for a specific activity and duration.

MANUAL THERAPY: The cuboid whip is documented for treatment of cuboid syndrome. This technique can be done in with the patient prone (Figure 2A) or in standing (Figure 2B). Establishing either plantar or dorsal mobility of the cuboid that is necessary for movement of the lateral arch can be accomplished by gliding the cuboid in a plantar medial or dorsal lateral direction while fixating the calcaneus. To increase lateral arch height, glide the cuboid in a dorsal and lateral direction while the calcaneus is fixated (Figure 3A). Reverse the process for supinating the foot with a plantar and medial glide to the cuboid (Figure 3B). The clinician can also perform 4/5th Metatarsal plantar/dorsal glides with the cuboid fixated (Figure 4).

FUNCTIONAL EXERCISES: The action of the many different intrinsic and extrinsic muscles that cross the mid foot, ankle, and forefoot which affect not only the position, movement, and stability of the foot but the entire lower extremity. Also when the foot adapts to the ground the position of proximal joints will be effected. In the case of cuboid/peroneal dysfunction, establishing proper fibularis longus activity may help to elevate the cuboid and plantar flex the first ray. We have found an exercise to activate the peroneal longus in conjunction flexor hallicus longus activity with lower extremity external rotation to be effective. This exercise is done in double or single leg stance. The patient plantar flexes their first ray while everting and elevating the lateral arch (Figure 5). This exercise can be incorporated to not only standing but to other functional exercises such as walking or lunging. Resistance can be added with hand weights or other counter forces superior to the involved extremity.

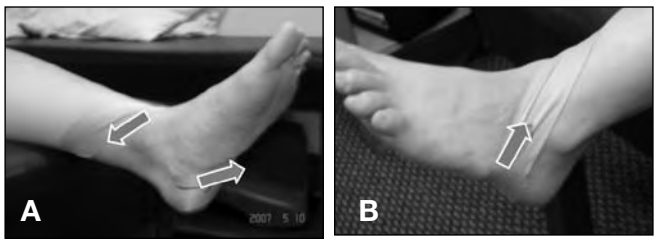


Figure 1A. Taping for Peroneal/Fibularis Dysfunction. Pull heel laterally (evert) under foot to cuboid notch. **Figure 1B. Taping for Peroneal/Fibularis Dysfunction.** Emphasis is placed on everting the calcaneus and lifting the cuboid.

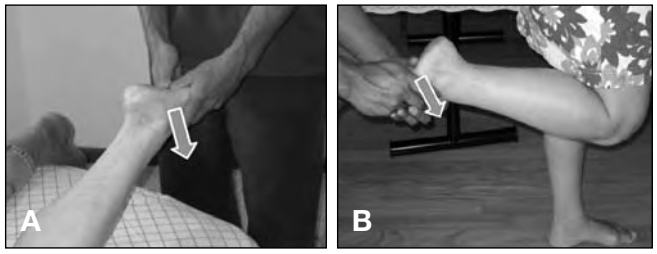


Figure 2A. Cuboid whip with subject prone**. Figure 2B.** Cuboid whip with subject standing.

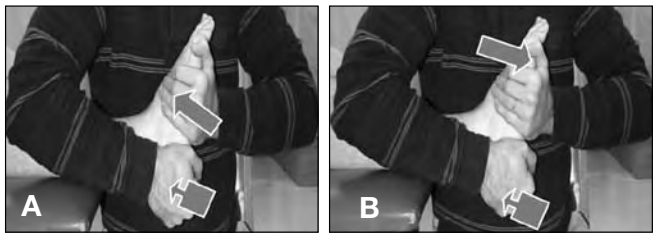


Figure 3A. Cuboid Dorsolateral. Increase forefoot abduction and plantarflexion/increase lateral arch height. **Figure 3B. Cuboid Plantarmedial Glide.** Increase forefoot adduction and dorsiflexion/reduce lateral arch.

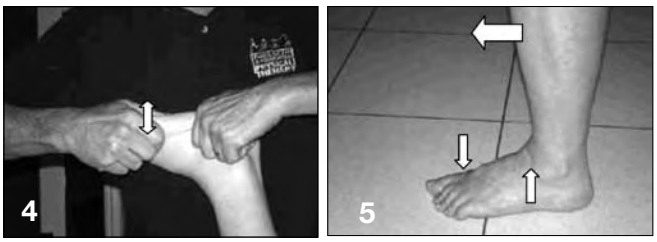


Figure 4. 4/5th metatarsal plantar/dorsal glides–cuboid fixated. **Figure 5.** Exercise to activate peroneal longus and flexor hallicus longus activity with accompanied lower extremity external rotation. Patient plantarflexes her first ray while everting and elevating the lateral arch.

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PRESIDENT'S MESSAGE

John E. Garzione, PT, DPT, DAAPM

CSM 2008 is now behind us with many memories of great programming, meetings, and not so fond memories of tornadoes that ripped through downtown Nashville and the south killing 50 people. Fortunately, the CSM meeting and participants were unscathed, but there were some tense moments.

The program entitled "Physiology and Current Medical and Rehabilitative Management of Complex Regional Pain Syndrome" was well attended and well received by the attendees. The speakers—Greg Dedrick, Esteban Azevedo, and Cate Brummett—did a first class presentation and I hope that we will get a chance to have them back as speakers soon. We owe a huge thank you to Marie Hoeger-Bement for coordinating the program.

I would also like to inform our members of how the Pain SIG officers spent much of their time during CSM. We attended meetings about possibly reorganizing SIGs to Educational Interest Groups, residency/fellowship training in pain management, educational programming for next CSM, Orthopaedic Section Business Meeting, Board of Directors Meeting with SIG Presidents, and our own Business Meeting at 7:00AM Saturday morning. Marie and Laura also did some very fine poster presentations on their latest research.

The officers have decided to keep the Pain Management Group as a Special Interest Group, instead of an Educational Interest Group, as we continue to gain momentum with more member involvement. We are also looking into fellowship/residency training for those who are interested in a specialty of Pain Management Physical Therapy. A practice analysis must be formulated before any concrete decisions can be made. If anyone is interested in working on a committee to analyze the practice of pain management physical therapy, please let me know at johngarzione@frontiernet.net.

The officers of the PMSIG are:
John Garzione, President (johngarzione@frontiernet.net)
Marie Hoeger–Bement, Vice President
(bement@marquette.edu)
Anne Ingard, Secretary (PTmum76@aol.com)
Laura Frey–Law, Treasurer (laura-freylaw@uiowa.edu)

Have a great summer,
John

NATUROPATHIC MEDICINE, AN OPTION FOR PAIN PATIENTS

Anne Ingard, PT

All of us treating chronic pain patients understand the frustration that patients and physicians experience trying to manage pain in a humane way that allows patients to have some quality of life. A trade off exists between pain control and unwanted side effects such as altered mental status, fatigue, addiction, gastrointestinal irritation, and liver or kidney toxicity. Primary care physicians are caught in a miserable catch 22 when it comes to pain management. For patients with severe chronic pain, NSAIDS and acetaminophen medications are useless. Narcotics may be the only medication that affords some quality of life. Narcotic prescriptions are carefully monitored not only by the local medical system that the physician works in but also by the State and Federal Drug Enforcement Agencies. Physicians do not want to get on the radar screen of these agencies, nor do they have the time to carefully monitor patients who are given narcotics for pain management. Primary care physicians are overwhelmed with the management of life threatening conditions such as cancer, heart disease, and diabetes which are present in epidemic proportions in our society. Physicians are often named in litigation if one of their patients on narcotics causes injury or death to another or to themselves. Chronic pain patients need extra time, attention, and careful monitoring on narcotics. Given the time constraints, concerns about addiction, professional, and legal pressures that primary care physicians face, chronic pain patients needs don't seem to be well met unless they are adept at advocating for themselves to find practitioners who specialize in pain management. These kinds of physicians have been hard to find in our health care system. In current journals read by primary care physicians, there are many articles about how pain patients have been poorly served and suffer needlessly. This is attributed to physician's unwillingness to give adequate medication or ignorance on the part of the primary care physician in the use of pain relieving drugs.[1,2]

Those of us who treat pain patients watch in frustration as they are shuffled through the health care system to neurologists, rheumatologists, orthopedists, psychiatrists, psychopharmacologists, each doctor trying to help with what they are trained to do, give drugs, which often seem to make our patients sicker and sicker. Conventional physicians are trained in medical schools that are heavily funded by the pharmaceutical industry, so is it not surprising that is what medical students learn is to treat with drugs.[3-5] Our medical system here in the U.S. has strengths. It excels in diagnostic technology, surgery, trauma management, and acute infections. Our chronic pain patient's needs though, are not well met in this system. My patients frequently ask, "What else is out there to help me?"

Full disclosure of my background, I hope, will clarify my opinions stated here. I have 32 years of experience as a PT, 23 years as an owner of a private practice. My prospective of the medical system is unique in that I have been married to the chief of medicine of a large multispecialty medical and surgical group for 29 years. I keep current in mainstream medicine by reading his journals. I have much respect for my husband's work and my family has used the medical system many times, which serves

us well. However, my "professional" heart and soul belongs to Naturopathic Medicine.

I was raised by parents who embraced naturopathic medical principles in the 1950s and learned the basics from my upbringing. Physical therapists who deliver quality care to patients do some symptomatic and palliative treatment of painful areas. More importantly though, those practitioners who practice with high standards, try to get to the root of the problem after a standard evaluation is done. Sometimes this takes tedious detective work on the part of the PT and is brilliantly detailed by Dr's Travel and Simons in their classic book, *Myofascial Pain and Dysfunction*, which explains causes and perpetuating factors for pain in every muscle group of the body.[6] With complex pain patients, most PTs know that it is necessary to treat the whole body not just where patients complains of pain. Naturopaths share the same philosophy. They approach the body as a whole entity; address the relatedness of all the organs to muscle function.

After graduation from a 4-year college, naturopaths are trained in 4-year medical colleges much in the same way as conventional physicians are with basic science courses in anatomy, physiology, biochemistry, pathology, microbiology, pharmacology, immunology, histology, genetics, neurosciences, etc.[7] The BIG difference in education is that in the naturopathic curriculum clinical nutrition, the biochemistry of foods, vitamins, minerals, and botanical medicine are studied in great depth which has not been a part of conventional medical schools' curriculum. Naturopaths believe that nature has provided us with what we need to heal if we give the body what it needs, the basics of which includes proper nutrition.[8] Conventional physicians, unless they pursued independent study, get no training in clinical nutrition but obviously there is great emphasis in pharmacology. Consumers can purchase supplements in retail stores and on the internet but have no way of knowing if in fact they are getting the ingredients listed on the label, or the quality of the ingredients. They may not understand potentially harmful interactions between supplements and the drugs they are already taking. Natural plant based supplements, especially improper doses of supplements can cause unwanted side effects. Naturopaths have this knowledge; however, most physicians unless they are holistically trained, do not. Naturopaths know how to work with conventional medicine to combine drugs and supplements properly. Naturopaths receive training in acupuncture and herbal medicine, homeopathy, and environmental medicine (toxicity issues).[9] Chronic pain patients often have complex multilayered issues, toxicity, adrenal burnout, abnormal digestive functions, vitamin and mineral deficiencies, yeast overgrowth, hormonal and neurotransmitter imbalances, mitochondrial energy production abnormalities being a few. Naturopaths and physicians with biochemical and nutritional expertise use lab tests, which can pick up these abnormalities.

Conventional physicians do not use these tests. Naturopaths take courses in manual medicine as part of their curriculum and learn many of the same kinds of skills we do in school. They can relate to and respect what we do. I have developed friendships and professional relationships with naturopaths who frequently refer patients to my practice and have found these patients to be rewarding to treat. They tend to be highly engaged in their care, compliant, and receptive of advice that gives them responsibility in their own healing. The advice about nutrition and wellness in general that these patients receive from their naturopath, simplifies my job.

All health practitioners should follow the principles of naturopathic medicine.

Principle 1: Remember the Healing Power of Nature. The body has considerable power to heal itself. It is the role of the physician or healer to facilitate and enhance this process, preferably with the aid of natural nontoxic therapies, above all do no harm.

Principle 2: View the Whole Person. An individual must be viewed as a whole comprised of a complex interaction of mind, body, and spirit.

Principle 3: Identify and Treat the Cause. It is important to seek the underlying cause of a disease and not just suppress symptoms. Symptoms are expressions of the body's attempt to heal but causes can spring from physical, mental, or emotional and spiritual levels.

Principle 4: The Physician is a Teacher. A physician should be foremost a teacher, educating, empowering, and motivating the patient to assume more personal responsibility for their health by adopting healthy attitudes, lifestyle, and diet.

Principle 5: Prevention is the Best Cure. Prevention of disease is best accomplished through dietary and life habits that support health and prevent disease.[7]

What appeals most to me about this profession and is sadly lacking in conventional medical education is nutritional knowledge, using foods for healing. Naturopaths have extensive training in the biochemistry of food and metabolism. In medical school, MDs learn this info but it is quickly forgotten because they don't use it on a day-to-day basis as Naturopaths do. We now know from research in the field of nutrigenomics that you can "turn off" many bad genes and "turn on" desirable genes with foods, supplements, and lifestyle changes like exercise and stress reduction.[10] Naturopaths have been teaching this for decades. Case in point: This article appeared in the Boston Globe, Jan 11, 2008 "Boston moves towards trans fats ban." Naturopaths have warned of the dangers of trans fats ever since the food industry began altering oils molecular structure through the hydrogenation process to give products increased shelf life.[11] Now in the 21st century it is slowly becoming accepted by MDs that trans fats are inflammatory in the body and inflammation is believed to be the cause and mediator of many of the chronic diseases including cancer that plague our society.[12,13] Naturopaths have always used what nature provides food/plant based medicine and supplements to down regulate inflammation along with attention to stress reduction and exercise.

If patients are not able to work directly with a Naturopath, we can spend a little time teaching patients some of the basics. Encouraging patients to clean up their diet; add anti-inflammatory foods (Whole Foods); eliminate inflammatory foods like sugar, excessive protein, transfats;[8] change some destructive lifestyle practices; and learn skilled relaxation[4] will enhance what we already do for our pain patients. Obviously we can't take much time out of our PT treatments to teach patients all this, but if we educate ourselves we can "plant a few seeds" and lead patients to quality research and practitioners, if patients are willing and able to go beyond the conventional medical system.

Many patients ask me what else can I do to help myself, but few of my patients are able or willing to pay out of pocket for Naturopathic Medicine. Aside from the financial commitment, I think that much of the resistance to pay for this kind of care comes out of the lack of knowledge about what this profession has to offer. With a little extra expense, effort, and time, I introduce interested patients to quality resources to educate them. I encourage them to work with a naturopath or a physician trained holistically but most complex pain patients are overwhelmed at the prospect of adding another doctor to the mix or simply do not have the money to pay out of pocket.

Patients do not know where to begin or what to read. The Internet is full of junk along with reliable information and many do not have the ability to sort this out. A comprehensive reference manual for you and your patients is *The Encyclopedia of Natural Medicine*[14] written by Murray and Pizzorno, professors at Bastyr University, which is considered to be one of the top naturopathic medical schools in this country (www.bastyr.edu). I keep this valuable reference in the office. I encourage them to sit in the waiting room and browse. Patients who are floundering in the conventional medical system will be extremely grateful to know that there are other ways to approach their problems.

For those patients and practitioners who prefer to learn these approaches from physicians I highly recommend, *Ultra Prevention* by Dr's Mark Liponis and Mark Heyman.[12] Both authors are conventionally trained board certified physicians from top-notch U.S. medical schools. One of the authors and the other author's wife developed serious chronic debilitating conditions for which conventional medicine offered no help and in fact made them sicker. Liponis and Heyman eventually regain their health after studying with nutritionists, naturopaths, biochemists, and other alternative practitioners who helped them get to the root causes of their illnesses. This required diagnostic tests and treatment unknown to conventional physicians that they had to pay out of pocket for and get outside the conventional system. This book will give you a good overview of where conventional medicine shines and where it fails. One must be somewhat financially well off to follow all the recommendations in this book, but even a few basic changes can jumpstart the healing process. Another book that is simpler for patients to read and follow with less costly advice is *Recapture Your Health*[15] by Walt Stoll, MD and Jan DeCourtney, MT. This book is about how to eat correctly to heal the body (Whole Foods), promotes skilled relaxation and the right exercise, which is the basis for healing chronic conditions. Dr Stoll's first book, *Saving Yourself from the Disease Care Crisis*[16] is another referenced quick read which explains how our health care system evolved and why it cannot meet everyone's needs. Stoll provides lists of reliable resources to find health practitioners. I subscribe to newsletters written by Dr. Julian Whittaker[4] and Dr. Stephen Sinatra[3] both are board certified cardiologists who are trained in nutrition-based medicine. Sinatra and Whittaker read many peer- reviewed scientific journals and summarize in their newsletters, which are evidence based and balanced. The reader is advised about blending conventional with natural approaches to healing. Dr. Marcus Laux, a naturopath, also writes an evidence-based newsletter[14] that I find invaluable. These newsletters are appropriate for a nonmedical reader and are perfect length for "waiting room education" material. According to Naturopaths I have spoken with, the best research journals in natural medicine include, *The Townsend Letter for Physicians* and the *American Journal of Clinical Nutrition*. The National Center for Complementary and Alternative Medicine (www.nccam.nih.gov) conducts and supports basic and applied research, training, and disseminates info to the public.

It is my hope that in the future mainstream physicians will work together with naturopaths in the same offices, sharing information and offering different options for patients with chronic diseases and pain. I believe that if this kind of medicine is accepted and practiced in our current health care system, health care costs will decline dramatically due to the reduction in the use of expensive pharmaceuticals. I encourage you to develop a professional relationship with a naturopath. This profession aligns so well with ours.

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performingarts

SPECIAL INTEREST GROUP

PAST PRESIDENT'S MESSAGE 2008

Hello Everyone!

I am stepping down as President and handing the job over to Leigh Roberts whom has served the PASIG as Treasurer over the last 3 years. The Orthopaedic Section continues to offer unwavering support, and the SIGs and Educational Groups are all undergoing some much needed reorganization. More information on this topic and updating the PASIG action plan will all be forthcoming in future Research Citation Blasts and posted on the website. All of the PASIG business is your business as well. Get involved, stay involved, and together this organization will grow to even greater heights to meet the health care needs of the performing artist.

My final act as President is to acknowledge the many individuals that made my challenging term less stressful. As many of you know, I began my term in the months preceding hurricane Katrina. I found myself displaced and working in a different city living with friends. Time and reality dictated a move to the Pittsburgh area where I am continuing to make my new home. During this time, the Executive Board all came forward and extended all of their duties to alleviate my load when my world was upside down. I thank all of the executive board and all of my committee chairs for all of their efforts and for allowing me to slide back into my duties as time allowed. I also thank all of the membership for their kind words, emails, and prayers. This is truly a very caring and passionate organization. Most of all, thank you for this opportunity to serve this organization in this capacity and please join me in welcoming the new faces to the board and the committees.

Caring for the arts brings out the best in all of us!

Sincerely,
Susan C. Clinton PT, MHS, OCS
Immediate Past President, PASIG

SPRING GREETINGS

I hope that everyone has come through the winter season and is ready to SPRING into action! Winter was busy for the PASIG, planning and attending CSM 2008 in Nashville, TN. If you were in Nashville, we are so glad that you could join us, and I hope that you enjoyed yourself and learned something new. We look forward to hearing from you during the year and we are already planning for CSM 2009 in Las Vegas.

Thank you to Susan Clinton for her many years on the PASIG board, she served 3 years each as Secretary and then President. As she moves onto duties with the Section on Women's Health, she will continue to be an advisor to the PASIG. Her experience and assistance are greatly appreciated.

Thanks also to others for their commitment to the PASIG. Stephania Bell just completed her third year on the Nominating Committee, serving the last year as Chair of the committee. Erica Coffey has been Chair of the Practice Committee for 2 years; she is taking time now to care for her newborn twin boys. New people have stepped up to fill these roles; the new committee chairs are listed at the end of this newsletter. I would like to congratulate our newest board members, Amy Humphrey as Treasurer, Sheyi Ojofeitimi as Nominating Committee Chair, and Jason Grandeo as Nominating Committee member. The PASIG board is filled with many strong people, and I look forward to working with each of you.

As I take on a new role as President of the PASIG, I am excited about future potential and direction. I see the PASIG as serving 2 roles: first, to serve our membership and second, to serve the broader PT population with our expertise in PA medicine.

As members of the PASIG, we each have a responsibility and vested interest in educating people who treat performing artists. This includes educating others that the PASIG exists, contributing to the PASIG by serving on the board or on a committee, publishing/presenting performing arts related research, or helping a colleague with less experience in treating a performing artist.

Have you recently visited the PASIG website? You can find a wealth of information there. We would like to get feedback from you, the members, so please do not hesitate to contact anyone on the board with your questions, ideas, and comments--contact information can be found on the last page of this report. *Caring for the Arts brings out the best in all of us!*

Best regards,
Leigh A. Roberts, PT, DPT, OCS

HIGHLIGHTS FROM CSM 2008

The Combined Sections Meeting (CSM) was held in Nashville "Music City" this year. As a special interest group (SIG) of the Orthopaedic Section, CSM is the primary place for the PASIG activity. Each year the PASIG holds a Business Meeting and presents 3 to 4 hours of programming for continuing education.

The PASIG Business Meeting and breakfast started off early on Friday morning at 7am. Considering the early hour, we were thrilled that 36 people attended the meeting! We even had some west-coasters, including our Secretary, Karen Hamill, for whom the time was 5 am PST; they are a dedicated bunch! For detailed information, you can read the minutes from the meeting on our website www.orthopt.org.

The programming this year was again wonderfully crafted by Tara Jo Manal, the PASIG Vice President and Education Committee Chair. The topic of this year's programming was "Evaluation and Treatment of Cervicothoracic Pain and Dysfunction: Freeing the Performing Artist to Reach New Heights." The presentations were kicked off by Joshua Cleland, PT, DPT, PhD who gave us a great deal of evidence for evaluation and

treatment of this region. Sara Piva, PT, PhD got the audience involved with differential diagnosis of cervical radiculopathy. Susan Stralka, PT, MS presented on Complex Regional Pain Syndrome (CPRS) and T3/T4 Syndrome. We had a musician case study presented by Marty Fontenot, PT, DPT and a dancer case study presented by Kendra Hollman Gage, PT, DPT. Baskar Mukherji, MD, a physician from Nashville, TN, presented the medical interventions for the cervicothoracic region. The session was concluded with a panel discussion and questions for the presenters. Handouts from the session are available on the Orthopaedic Section website, www.orthopt.org, and audio of the session is available at www.apta.org.

This was the third year that the PASIG has awarded a Student Research Scholarship. Kendra Hollman, PT, DPT and Danelle Dickson, PT, DPT shared the $400 award, which is used to help defray the cost of presenting their study at CSM. They jointly worked on research entitled "Reliability and Validity of Functional Ankle Range of Motion Measurements in Dancers."

There was an increased number of performing arts (PA) presentations overall. Besides the PASIG programming, there were 2 PA platform presentations and 3 PA posters. Attending CSM is a great way to attend many presentations to further your PA practice.

The PASIG was very happy to see so much interest in the performing arts this year! Remember, that you can find more information about the PASIG on our website: http://www.orthopt.org/sig_pa.php.

Student Scholarship Awardees—Danelle Dickson and Kendra Hollman.

Susan Clinton and Leigh Roberts—outgoing officers.

CSM SURVEY RESULTS

Thanks to all of those who completed the survey for our programming at CSM in Nashville. After compiling our survey results we are pleased to report that we had 124 surveys returned! This is a significant improvement in our return rate, as it appears that at least half the audience returned the surveys. Our audience input is required to know what we need to keep or change.

AUDIENCE DEMOGRAPHICS: Sixty five percent of the audience was made up of PTs followed by students at 33%. It was great to have so many the students turn out for programming. Thirty seven percent of the audience had Bachelors degrees followed by 32% of the audience having their doctorate. Forty eight percent of respondents had less than 2 years of experience, 21% reported 3 to 10 years experience and with the 14% being therapists with 11 to 15 years of experience.

ATTENDEE SATISFACTION: Seventy percent of the respondents either agreed or strongly agreed that the content had value to their practice/employment setting. Eighty three percent agreed or strongly agreed that the content matched the written description. Ninety nine percent believe that current evidence was cited. There were 2 comments that there was too much data or statistics, and some attendees would have liked to have heard more treatment options. We will consider this feedback in planning next years' programming. Ninety one percent felt that the course level was appropriate. Eighty six percent felt the session was valuable.

SPEAKER SATISFACTION: The speakers were considered to be knowledgeable and effective with their delivery. Ninety nine percent agreed or strongly agreed that the speakers were knowledgeable. Ninety percent felt the speakers were effective in their delivery.

PRACTICE COMMITTEE UPDATE

Physical therapists who are treating MUSICIANS AND GYMNASTS – we want you to join the Practice Committee! The PASIG would like to increase our member representation and resources for these topic areas. Please contact Karen Hamill, dancingkaren@hotmail.com.

This year we were able to include musician treatment in our programming as musicians tend to sustain upper quarter injuries. We would like to continue to represent this subset of performing artists, so please contact us if you specialize in treating musicians.

We have also had an increase in members interested in the field of gymnastics. With the Summer Olympics this year, we may all see more gymnasts in our clinics. It would be nice to have resources for treating this patient population. Join the Practice Committee and help your colleagues!

The PASIG has many members who are a part of the Dance USA Task Force for Dancer Health. Their primary goal is to create a universal screening tool. Currently, 4 dance companies have participated in these screens, and this year more dance companies will be participating. Therapists who are willing to volunteer their time are needed to help with screenings. Assistance would be greatly appreciated. If you are interested or know of a therapist who would be willing to assist in the screening of dancers, please do not hesitate to contact Heather Southwick at hlsouthwick@comcast.net.

MONTHLY RESEARCH BLAST EMAIL

Shaw Bronner, the Research Chair, coordinates a monthly literature review of performing arts. Sometimes it is a general bibliography; recently it has taken on the format of an annotated bibliography for a specific topic. Every member of the PASIG should be receiving this information by way of a monthly blast email. **If you are a PASIG member and are not receiving the blast email, please contact Julie O'Connell, the Membership Chair, and she will have you added to the list.**

CALL FOR ACTION

The Nominating Committee will be electing a new member this year. Please contact Sheyi Ojofeitimi at sheyi.ojofeitimi@liu.edu if you are interested. The term is for 3 years with the final year serving as chair of the committee.

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PRACTICE COMMITTEE CHAIR
Karen Hamill, PT, DPT
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NEWS FROM NASHVILLE, TN - CSM 2008

We had another successful series of meetings and interesting programming at CSM. The SIG offered our first joint-sponsored education session by teaming with the Aquatics Section. "Doing the Dog Paddle" compared the science of aquatics applied to humans, dogs, and horses. Beth McMahon, PT, MPT presented her human evidence-based perspective. Based on her years of experience at VCA Alameda East, Denver CO, Carrie Adrian, MS, PT shared her clinical use of underwater treadmills, lap pool, and larger swimming pool for canine rehabilitation. A practical approach to incorporating hydrotherapy techniques into equine rehabilitation was presented by Steve Adair, MS, DVM, DACVS from the University of Tennessee.

Our 7 AM SIG Business Meeting was well attended by 22 members and students willing to contribute their ideas (see Business Meeting minutes for details). The SIG officers met with Orthopaedic Section representatives to discuss Residency Programs, restructuring the SIGs and EIGs (Educational Interest Groups), the potential for a Masters in Animal Rehabilitation Degree program at Western University, and future educational planning. We also took advantage of our time together to discuss SIG goals, strategies, and projects for the future.

This was our TENTH ANNIVERSARY as a SIG! We have been successful through the efforts of a wonderful TEAM of physical therapists, support staff, and consultants who have encouraged, advised, and guided us over the years. We especially appreciate the input of Jan Richardson, Bill Boissonault, Marilyn Moffat, Lola Rosenbaum, Tara Fredrickson, Terri DeFlorian, Joe Godges, Steve McDavitt, Jody Gandy, Edson Donato, the APTA and Orthopaedic Section Board of Directors, Justin Elliot, our past officers, our State Liaison Network, and our dedicated membership. The ARSIG has grown from a handful of enthusiastic therapists to 640 members with a wide range of interests, educational needs, and practice concerns. We look forward to the future and the opportunity to promote our profession in a unique way.

The speakers from our CSM joint program with the Aquatic Section include from left to right: Carrie Adrian, PT; Steve Adair, DVM and Beth McMahon, PT.

Dates to remember. . .

- March 15: Practice Analysis Survey – deadline will likely be extended
- April 1: deadline for educational program submissions
- May 30: next deadline for contributions to newsletter
- August 13-16: International PT/DVM meeting at University of Minnesota
- August 30: nominations for SIG President and Secretary/Treasurer
- February 2009: CSM in Las Vegas, NV

As always, please feel free to contact one of the officers with any input or suggestions you may have.

Lin McGonagle, MSPT, LVT
Secretary/Treasurer

ANIMAL REHABILITATION SPECIAL INTEREST GROUP (AR-SIG) BUSINESS MEETING
APTA CSM 2008 Nashville, Tennessee
Friday February 8, 2008

I. Call to Order at 7:09 AM. Carrie Adrian presided over meeting.
II. Welcome and Thank you to FERNO for sponsoring the SIG programming and providing breakfast.
III. Roll Call and Introduction of 2007 Officers and Committee Chairs.
  A. Amie Lamoreaux Hesbach – President
  B. Carrie Adamson Adrian – Vice President
  C. Linda McGonagle – Secretary/Treasurer
  D. Donna Redman-Bentley – Research Committee Chairperson
  E. Charles Evans – Practice Committee Chairperson/State Liaison Coordinator
  F. Cheryl Riegger-Krugh – Nominating Committee Chairperson
  G. Amy Kramer – Nominating Committee Member
  G. Joe Godges – Orthopaedic Section (OS) Liaison/AR-SIG Advisor
IV. Thank you to Susan Giegold, our outgoing Secretary, and Katie Bruesewitz, our outgoing Nominating Committee Chairperson.
V. Old business.
  A. Approval CSM 2007 APT-SIG Business Meeting Minutes.
    1. MOTION - passed
  B. President's Report
    1. Strategic Plan 2006-2009
      a. Practice Analysis
        1. Survey- proposed completion by March 15th
        2. Analyze Data
        3. Publish/Present Results- possibly present preliminary data by August 2008 at International

DVM/PT meeting
   b. Plan for Strategic Plan Review
      1. Suggestions for Date/Location- none were brought forward
2. Name Change
3. HPSO/CNA Professional Liability Insurance Coverage
   a. Michael Loughran: Michael_Loughran@asg.aon.com. Through HPSO
4. State Government Affairs Forum 2007
   a. Volunteer for 2008 – Lisa Bedenbaugh: Caring Canine in Stone Mountain, GA volunteered
      1. The meeting will most likely occur in a location on the east coast. We would like to send a state liaison each year to represent the SIG. Please let Amie know if you are interested in attending.
5. Communication/Public Relations
   a. Blast Emails
   b. Newsletter in *OPTP*
   c. Potential International Newsletter (Laurie Edge-Hughes, PT from Canada and Steve Strunk, PT – past SIG VP)
   d. VetPT 2008 (August 13-16, 2008, Minneapolis, Minnesota)
      1. SIG Booth
         a. We need volunteers to "man" the booth during exhibit hall hours. (Jennifer Brooks volunteered)
      2. SIG Business Meeting
      3. International Association of Veterinary Rehabilitation and Physical Therapy: www.iavrpt.org, www.cvm.umn.edu/outreach/events/rehab/home.html
   e. AR-SIG website: www.orthopt.org/sig_apt.php
      1. Membership Certificate- membership certificates have to come through the Orthopaedic Section office to verify current status of membership.
      2. Animal Rehabilitation Facility Directory
      3. Resources (Charlie Evans)
         a. State Practice Act Summary- on website
         b. State Liaison Listing
      4. Bulletin Board
   f. APTA Website: www.apta.org
      1. Find a PT- hoping to add Animal Rehabilitation as special designation
   g. Other ideas: FAQ for liaisons, legislators, DVMs. Information for PT students to learn about us, where to go to get started, educational opportunities (value and merit behind each). Investigate how we distribute this information to all PT schools.
   h. YahooGroup Listserves
      1. VetPT
      2. CaninePT
      3. ARSIG
      4. Please let us know if you would like to be invited to join any or all of these listserves.
      6. WCPT (Steve Strunk)- communication between countries that have recognized Animal PT groups within their parent PT organizations is occurring. There is recent discussion of creating a newsletter to share information and research.
      7. Proposed Orthopaedic Section Meeting- this idea is being explored and a survey is available through Orthopaedic Section Website for input into whether an additional meeting is of interest to members.
      8. Proposed OS Bylaw Changes- Lin reviewed restructuring of SIGs and EIG (Educational Interest Groups) within the Orthopaedic Section. We are already meeting all requirements to function at SIG level.

C. Vice-President/Education Committee Report
   1. Independent Study Courses (Cheryl Riegger-Krugh)
      a. Thank you, Cheryl for donating your funds to the SIG!
   2. CSM 2009 Programming – "The Divine Equine" – Narelle Stubbs/Hillary Clayton. Other topics of interest from the audience: Sports Medicine, common pathologies/injuries, neurologic rehabilitation; Jan Van Dyke, DVM(CRI) said they would be interested in sponsoring programming. State Liaison Forum/Roundtable. Animal Rehabilitation Case Review.
   3. Clipboards- as fundraiser—getting some graphic updates, then will be ready for distribution.

D. Treasurer/Secretary Report—ideas to increase student involvement in SIG: offer a student scholarship; fund someone to attend student conclave/student liaison; send letter to PT schools

TREASURER'S REPORT CSM 2008

Total expenses for the 2007 budget year were $ 5253.21 and were distributed as follows:

Stationery and supplies	$ 0.00
Telephone	$ 0.67
Postage	$ 7.78
Printing	$ 0.00
Awards	$ 45.51
Travel CSM	$2151.94
CSM Honorarium	$3047.31
Total expenses:	$5253.21

Our annual budget from the Orthopaedic Section is $5000.00. Encumbered funds ($253.21) were accessed to cover the additional expenses incurred by CSM Programming.

The balance of encumbered funds is $26,021. These funds increased in comparison to 2006 due to a generous donation from Cheryl Riegger-Krugh.

Goals for the upcoming budget are to support the implementation of our Strategic Plan, in particular the SIG Practice Analysis; to provide programming at CSM; and to encourage

the full participation of SIG officers and chairpersons by expanding the funding for travel to meetings when possible.

Respectfully submitted,
Lin McGonagle, MSPT, LVT
Treasurer

E. Practice/State Liaison Committee Report
F. Research Committee Report-Western University is proposing a Master's degree program with 2 tracks for PTs and DVMs, common core courses. Primarily online coursework. More details will be distributed as plans progress.
G. Nominating Committee Report-positions of President and Secretary/Treasurer will be open. Will publish responsibilities in newsletter for member review.
H. Orthopaedic Section Liaison Report (none forwarded)

VI. New Business.
A. APTA Residency/Fellowship Credentialing Committee
B. Call for Nominations.
1. President- none forwarded
2. Treasurer/Secretary- none forwarded
C. State Liaison Resource: Animal Rehabilitation: Definition and Scope of Practice
1. MOTION - passed
D. Call for Committee Members and State Liaison volunteers.
E. Veterinary Insurance Reimbursement Issues
1. Patti Triola and VPI
2. Task Force
F. Other New Business.

VII. Open Forum- no concerns were brought forward for discussion.

VIII. Adjournment at 7:55 PM. 21 attendees present for meeting.

PRACTICE ANALYSIS SURVEY

We are very excited to present Practice Analysis Survey. This survey arises from the Strategic Plan developed by the (then) Animal Physical Therapy Special Interest Group in the fall of 2005. We have been busy with the formulation of this survey since November 2006. We anticipate that the responses from this survey may affect the practice of animal rehabilitation by physical therapy professionals by influencing education, legislation, and practice. Through responses to this survey, we will be able to form a reference document which will guide our Special Interest Group in establishing competencies for physical therapy professionals in animal rehabilitation, influencing educational programs, and investigating the potential for the future certification of physical therapy specialists in animal rehabilitation.

The following link will direct you to our online Practice Analysis survey. We are very grateful to the APTA and Orthopaedic Section for their assistance in this project as well as the 7 members of our National Advisory Board and 30 members of our Expert Professional Panel who have assisted us in this project. The survey should take you approximately 30 to 45 minutes to complete.

http://www.orthopt.org/sig_apt_survey.php

We anticipate presenting our findings at the Fifth International Symposium on Veterinary Rehabilitation and Physical Therapy in August 2008 and Combined Sections Meeting in February 2009. As well, our goal is to publish our findings in a peer-reviewed journal in 2009.

Thank you so very much for your assistance in this project.

THE NOMINATING COMMITTEE REQUESTS YOUR ATTENTION

We know you are interested in the SIG, and we believe you want the SIG to succeed in every way. We also believe that no one wants to commit to responsibilities without knowing what they are. Therefore, we are publishing the responsibilities of all the officers. The SIG will need to elect a President and Secretary/Treasurer next year. In 2010, the Vice President's position will be open. As an officer, you will find assistance for knowledge and skills, orientation, encouragement, and great camaraderie. Please review these officer responsibilities and consider whether you would like to serve the SIG in this way. You may contact one of the officers or the Nominating committee if you are interested or have questions. Thank you.

Cheryl Riegger-Krugh, PT
Nominating Committee

ANIMAL REHABILITATION SPECIAL INTEREST GROUP DUTIES AND RESPONSIBILITIES OF ELECTED OFFICERS

President:

Duties per Bylaws:

- serves as the official head of and public spokes person for the Special Interest Group (SIG)
- presides over all meetings of the SIG and the Executive Board
- is an ex-officio member of all committees except the Nominating Committee
- acts as a neutral member of the SIG in voting matters
- exercises the right to vote to resolve a tie vote
- is liaison to the Section
- responsible for writing and distributing a summary report to Section BOD outlining how the SIG has met the six purposes identified by the Section

Additional Responsibilities:

- appoints chairs and members of standing committees and, as necessary, appoints special committees
- directs SIG-related correspondence to appropriate individuals within the SIG
- sends copies of appropriate SIG-related correspondence to the Section office
- compiles the agendas for all meetings
- provides for the orientation of new officers and chairs
- attends the following meetings: SIG Executive Board Meetings and Conference Calls, SIG Annual Business Meeting at the Combined Sections Meetings (CSM)
- submits progress reports and other pertinent materials to the Section office by the deadlines specified in the Section calendar (e.g. approves the proposed SIG budget before

the Treasurer submits to the Section by July 1st for inclusion in the Orthopaedic Section's budget)
- attends APTA meetings in which the President's presence is required to represent the SIG
- extracts relevant information from the minutes of Section and APTA meetings and distributes them to appropriate individuals
- responds to requests received from the APTA and its Components, sharing information with the Executive Board as indicated
- determines what SIG information is housed at the Section Office and maintains SIG information that is not kept at the Section Office
- contributes to the Newsletter and solicit information from others
- works with the officers to develop answers to Frequently asked Questions that are published in the *Orthopaedic Physical Therapy Practice* and then are available to send to people asking those same questions
- oversees State Liaison Network. Assist in setting questions for liaisons to investigate each year
- monitors insurance coverage availability
- requests committee reports from all committees to be available for the CSM business meeting
- solicits action items from all committee and SIG officers prior to Board meetings. Discuss any controversial requests
- makes sure SIG matters are brought before the membership i.e. bylaws, minutes of business meetings, results of elections, results of surveys.
- oversees all committees. Check in with Chairpersons periodically to make sure progress is being made toward goals
- reviews and edit the Newsletter before it is sent to Board Liaison
- reviews minutes of the business meetings before they are submitted to the Section
- assists in coordinating educational programs offered by the SIG. Make sure SIG programming occurs at CSM to maintain visibility and credibility with the section
- solicits goals from each committee and facilitate the team to choose 2-3 goals to focus on for the upcoming year
- documents a written outline of duties and responsibilities and helpful information for understanding of this office and or orientation to the successor

Immediate Past President:

Duties per Bylaws:
- serves in an advisory capacity to the Executive Board

Additional Responsibilities:

- participates in Executive Board Conference Calls if requested by the Board

VICE PRESIDENT:

Duties per Bylaws:
- assumes the duties of the President if she/he is unable to serve and/or attend scheduled meetings
- is the Education Chair for the SIG and provides proposal for programming, works with the Section education chair to plan programming and serves as moderator for SIG educational sessions

Additional Responsibilities:

- serves as a voting member of the Executive Board
- reviews the policies and procedures and updates annually
- serves as liaison to Orthopaedic Section Meetings/Projects Coordinator regarding changes to Policies and Procedures
- attends the following meetings: SIG Executive Board Meetings and Conference Calls, SIG Annual Business Meeting at CSM
- forwards copies of official correspondence to the President and to the Section's Meetings/Projects Coordinator
- assists the President in providing for the orientation of new officers and chairs
- reviews and edit the Newsletter before it is sent to Board Liaison
- coordinates the annual survey of the membership and submits for publication in the Newsletter
- assists in setting questions for liaisons to investigate each year
- reviews the Web site periodically and make suggestions to section office
- contributes to the Newsletter and solicit information from others
- documents a written outline of duties and responsibilities and helpful information for understanding of this office and or orientation to the successor

SECRETARY/TREASURER:

Duties per Bylaws:
- assumes responsibility for submitting the SIG budget to the President for approval and then to the Section
- assumes responsibility for the disbursement and accurate recording of all SIG funds
- presents a written financial report at the Annual Business Meeting and at Executive Board Meetings
- records minutes of the Annual Business Meetings and Executive Board Meetings
- carries on official correspondence on behalf of the SIG including mailed notification of meetings and elections
- sends notices as specifically requested by the SIG Executive Board

Additional Responsibilities:

- serves as a voting member of the Executive Board
- serves as liaison to the Section Treasurer and Finance Committee
- distributes annual budget reports to the Executive Board via the Section office
- attends the following meetings: SIG Executive Board Meetings and Conference Calls, SIG Annual Business Meeting at CSM
- presents an updated budget proposal for the finance committee prior to the July 1st deadline
- forwards copies of official correspondence to the President and to the Section's Meetings/Projects Coordinator, if one has been assigned
- maintains a file of annual budget reports for use in assisting the President in the orientation of the successor to the office of Treasurer
- contributes to the Newsletter and solicit information from others

- records minutes of Executive Board Conference Calls
- distributes minutes to the Executive Board via the Section office
- serves as Editor for the newsletter if another Newsletter Editor has not been assigned
- sends all information to be included in Orthopaedic Physical Therapy Practice prior to each deadline (newsletter submissions) to the Section office
- serves as liaison to the editors of Section and APTA publications (eg, OPTP)
- forwards copies of official correspondence to the President and to the Section's Meetings/Projects Coordinator
- maintains a file that includes the following items for use in assisting the President in the orientation of the successor to the office of Secretary: minutes from meetings and conference calls, records associated with the newsletter
- makes reservations for dinner for SIG officers and lecturers at CSM
- assumes responsibility for answering Frequently Asked Questions as requested from the President from SIG members, potential SIG members, and other people interested in SIG matters. Provides the answers to these same questions to support staff at Section office, so that they have information to field simple phone requests
- documents a written outline of duties and responsibilities and helpful information for understanding of this office and or orientation to the successor

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