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www.aptasce-wm.org

President's Message

Greetings... Happy Spring!

In every edition of the section newsletter I attempt to share a bit of insight into where the section is heading. I really feel it is time we celebrate our successes. We have all heard plenty disappointing news related to our country's economic situation. So I ask all of you to put that aside for a few moments and celebrate our section's successes over the past 6 years.

- Our membership remains at an all time high.
- We completed our strategic plan and have begun implementation of our strategies.
- The executive committee and ACE have committed to work together for the benefit of EMG practice within the practice of physical therapy. Please note our co-chairs, Andy Robinson and Sonny Mills.
- The Electrotherapy committee has gone to co-chairs, Meryl Gersh and Christine Conroy. They were also active participants in first ISEPA conference at CSM.
- The Wound Management group continues to grow. They have completed the educational guidelines, and are presently involved in a practice survey for a potential new CPT code related to multi-layer compression wraps.
- Our membership committee, what a stellar group of individuals lead by Karen Gibbs. We have a new booth, section pins, and great

purple polo shirts. I felt certain after CSM, our colleagues knew the Clinical Electrophysiology and Wound Management Section was alive and kicking.

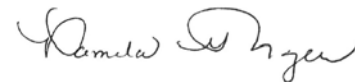
- Many of us just came home from the largest CSM meeting ever. Well over 8,000 attendees. Congratulations to Karen Albaugh for a well orchestrated and sought after programming.
- Our treasury now has well over three years of operating expenses in reserve. Jeff Slear, thank you for your excellent leadership.
- The executive committee voted to explore administrative help for the section through APTA.

I could continue to brag about all of our successes. Instead I ask all of you to continue to engage, reach out to your colleagues, share with them the benefits of belonging to APTA, and ask them to join our success.

In the very near future you will receive your ballot for this year's section election. This is your opportunity to elect a new section president and program chair. As well as approve the bylaw changes. Please remember to **VOTE!**

Thank you again for all of your support...

Your President,



Newsletter of the
CEWMS of the
American Physical
Therapy Association

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Report from the Electrotherapy Committee Meeting at CSM, 2009

Twenty physical therapists and physical therapist students joined us for our annual Electrotherapy Committee meeting on February 10, 2009 in Las Vegas. We debated the current evidence base for the use of subsensory transcranial electrical stimulation for the treatment of headache and other indications, and responded to questions about the application of electrical stimulation and pulsed electromagnetic energies for healing fractures in patients with osteoporosis. The formation of the International Society for Electro-Physical Agents was also introduced. See the article that describes the ISEPA in this Newsletter.

The time has come to review and revise The Curriculum Guidelines for Electro-Physical Agents in order to develop language consistent with the Guide to Physical Therapy Practice and the Normative Model for Physical Therapist Education. Last year the Wound Management Special Interest Group developed the Curricu-

lum Guidelines for Wound Management, which was ultimately approved for dissemination by the APTA. Our plan is to revise our Guidelines in a format consistent with theirs. Several members, including Rose Ortega, Sara Maher, and Christine Conroy have stepped forward to begin this important and valuable task. If you would like to participate in this activity or provide input regarding the revision, please contact Christine Conroy (cconro@midwestern.edu) or Meryl Gersh (mgersh@mail.ewu.edu).

Finally, after many years serving as the Chair of the Electrotherapy Committee for the SEWM, I am pleased to hand the leadership reins on to Chris Conroy, one of our members who given a great deal of her time and herself to our Section. For the present time, we will co-chair this Committee, so please feel free to contact either one of us with any questions or suggestions you may have. Thank you for the opportunity to serve.

Meryl Gersh, PT, PhD

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International Society for Electro-Physical Agents (ISEPA)



In 2007, at the 15th International WCPT Congress in Vancouver, Canada, Ah Cheng Goh PT, PhD chaired 2 meetings related to the formation of an ElectroPhysical Agents (EPA) subgroup within WCPT. These meetings were held in conjunction with a Focused

Symposium on EPA jointly organized and presented by Luther Kloth (USA), Val Robertson (Australia), David Baxter (NZ), and Ah Cheng Goh (Japan). A total of 41 representatives from 14 countries participated in lively and passionate discussions on the future of EPA for the Physical Therapy profession. There was unanimous support from everyone present for the formation of an International Society for Electrophysical Agents (ISEPA) to serve the following objectives:

- a. To realize the potential benefit and contribution of EPAs in the treatment of disease and improvement of health for all
- b. To represent the interests of the Physical Therapy profession in all matters related to the practice, education and research of EPA.
- c. To provide leadership for moving EPA forwards in an evidence-based practice environment.
- d. To foster research (clinical, animal, in vitro) that will add to the existing body of knowledge related to EPA technologies.
- e. To advocate clinical practice guidelines consistent with evidence-based practice

- f. To advocate educational curriculum guidelines for the teaching of EPA which are consistent with evidence-based practice
- g. To advocate a research model and prioritize a research agenda for EPA.
- h. To advocate the adoption of a common terminology and a set of safety standards for EPA
- i. To disseminate information pertaining to the appropriate usage and clinical effectiveness of the various EPA modalities
- j. To co-ordinate, liaise and co-operate with other clinical interest groups within WCPT

In addition, Professor Luther Kloth was tasked with the organization of the first ISEPA Congress in the USA. Professor Kloth and Dr. Karen Albaugh sought and obtained approval of the American Physical Therapy Association in co-hosting the ISEPA Congress together with the APTA Section on Electrophysiology and Wound Management as a Pre-conference symposium prior to Combined Sections Meeting (CSM) 2009.

The successful ISEPA Congress took place at the Mandalay Bay Hotel on February 8-9, 2009 and the new society was formed.

For information on how to join and participate in the ISEPA please contact Dr. Ah Cheng Goh at gohac@shinshu-u.ac.jp or Dr. Meryl Gersh at meryl.gersh@mail.ewu.edu.

Luther Kloth, PT, MS, FAPTA

Welcome New Members

12/5/08 to 3/13/09

Yamilette Ronda-Velez
Nicole Puller
Dan Colcer
Dominador Papa
Joseph Barnett
Alexis Stahler
Sarah Blakey
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4 Membership Matters

Membership Matters

Our Section started 2009 with a fresh face! We unveiled the new exhibit booth at CSM in February and it was a big hit. Thanks to Sharon Lucich, Christine Conroy, and Vanessa Nolan for working with me on getting the booth ready in time for Las Vegas. Thanks also to all the Section members that staffed the booth during CSM - it was a fun place to hang out and visit with each other.

We also introduced our new CEWM logo pins at CSM. Free to all members, if you didn't get yours in Las Vegas, your next opportunity will be in Baltimore in June at APTA's Annual Conference. Yes, we're taking the booth to AC this year! Since Melissa Johnson and the WM-SIG has been working with APTA in planning an integumentary CEU track for AC, we felt it was appropriate to support the Section's involvement by taking the booth. So, if you're going to AC, stop by the booth and pick up your pin. You can also check out our new CEWM logo shirts – Sharon Lucich did a great job in selecting these cool mesh polos.

Our membership numbers continue to hold in the 950-1,000 range which is great. I know many of you are just looking for new ways to get involved in the Section. One suggestion - check out the Strategic Plan on the website (www.aptasec-wm.org), as you can see there are multiple projects coming up. If you're interested in participating in any of the Strategic Plan goals, please let me know. I'll put you in contact with the right person and we'll get you started!

Regarding the website, we have a fresh face there as well. If you haven't visited it lately, click on over and see what you think. Several pages and projects are still under construction, but we're working on getting things updated and more organized.

I'm open to your comments, suggestions, or questions as to how the Membership Committee can be of more service to you. Please don't hesitate to contact me at kgibbs@txstate.edu. I look forward to hearing from you and hopefully I'll see many of you in Baltimore for AC. Take care and enjoy the Summer!

Karen Gibbs
*Membership Committee
Chair*



WMSIG Update

Harriett B. Loehne, PT, DPT, CWS, FACCWS
President
hloehne@earthlink.net

Our WMSIG continues to grow, not only in numbers, but in truly active members and activity. Now 74 strong, we hope to identify more interested PTs and PTAs with the creation of a new Membership Committee to respond to the efforts of the Section Membership Committee. If you are a member of the Section, and are or want to be a member of the WMSIG and have not been receiving our email blasts, please notify the new Chair of the Membership Committee, Sharon Lucich, at sharon.lucich@clarian.org. There are no dues required – just the desire to work together with colleagues in the interest of wound management.

As not only our area of interest, but also all of medicine moves toward evidence-based practice, with reimbursement playing a huge role, the WMSIG also has created a new Research Committee. Following the excellent role the Research Task Force (TF) played in responding to APTA's request for identifying the job description of a Research Committee, the Chair of the TF, Glenn Irion, has been named Chair of the new Committee. If research is where your interest lies – not necessarily performing research – please contact Glenn at girion@jaguar1.usothal.edu.

Our annual meeting at CSM 2009 in Las Vegas was well attended. It was good to visit with colleagues and catch up on news around the country. Our members are very active in our profession, as many were recognized for new CWS[®] certification, DPT degrees, presentations and/or posters at CSM and other conferences, published articles and book chapters, editors of text books, research, and other awards. One special honoree is Carrie Sussman who was awarded the World Union Wound Healing Society Lifetime 2008 Achievement Award. Also Jaimee Haan and Sharon Lucich were first place poster winners at the Clinical Symposium for Advances in Skin and Wound Care 2008: "Ankle Foot Orthoses in Prevention and Treatment of Heel Pressure Ulcers: A Physical Therapy Perspective".

Elections took place at the meeting, with our officers and committee members as follows:

- President: Harriett B. Loehne
- Vice-President: Melissa Johnson – elected
- Secretary/Treasurer: Jaimee Haan
- Nominating Committee (elected positions)

- Chair: Stephanie Woelfel
- Sharon Lucich
- Corky Atkins – elected
- Education Committee
 - Chair: Melissa Johnson (per Bylaws, the VP)
 - Jenna Driscoll
 - Beth Altenburger
- Practice Committee
 - Chair: Val Sullivan
 - Diane Merwarth
 - Jaimee Haan
 - Rose Hamm
- Research Committee - New
 - Chair: Glenn Irion
 - Mary Kroohs
 - Mary Jo Geyer
- Membership Committee - New
 - Chair: Sharon Lucich

If you would like to serve on any of the above committees, please contact the Chair. Email addresses are listed in the Newsletter. This is a wonderful way to become active in the SIG.

We were excited and pleased to have David Scalzitti from APTA announce at our meeting that the week before CSM, the first integumentary scenarios were available on the APTA Hooked on Evidence site. Those include burns, neuropathic ulcers, vascular ulcers, and pressure ulcers. Soon to follow will be arterial, gangrene, pyoderma, necrotizing fasciitis, MRSA, and road rash. This is an excellent resource for evidence-based treatment and wound management. The Reference Committee is working on more references for the subsequent scenarios.

Pam Unger updated us on recent coding and reimbursement issues, always a hot topic, and an ever-changing one. There are many new Local Coverage Decisions (LCDs) – if anything arises in your area, please notify the SIG so that APTA can be notified and respond if necessary.

Stephanie Woelfel reported on the recent NPUAP meeting, stating that Treatment and Prevention Guidelines for Pressure Ulcers will be published in May 2009, with the hope that these will replace the "Purple Book".

A listing of many of the Wound Conferences for 2009 was in the Agenda handouts, and is available if anyone would like one. Please contact our Secretary, Jaimee Haan. The WMSIG does not endorse the events or speakers, but simply provides a listing of dates and places. One we definitely DO endorse and encourage you to

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6 PASS

A Report on The Physical Therapy and Society Summit (PASS)

By John Halle, PT, PhD, ECS
(Gallery Member)
Research Committee Chair

Wow! A first-of-its-kind Physical Therapy and Society Summit (PASS) that was held February 27th and 28th in Leesburg, Virginia. Its mission was to determine areas of opportunity to empower physical therapists to be leaders in: 1) integrating innovative technologies and practice models, and 2) establishing collaborative multidisciplinary partnerships that address current, evolving, and future societal health care needs. The opening ‘wow’ relates to the quality of the speakers during the first day, the wide-ranging questions that were raised along with the implications for the profession of physical therapy, and the overall level of energy demonstrated by all of the participants. This future oriented summit challenged everyone that participated, and the outcomes from the discussions held may help influence where physical therapy is headed in the future. It is clear that all of health care will be exposed to dramatic changes over the next few years, and that the best way to predict what those changes will be is to have a role in shaping whatever the new realities are. While this summit was not designed to advance or even discuss specific specialty section’s areas of interest, the general topics that relate to the entire profession are clearly related to those professionals interested in either wound care or electrophysiological testing.

The PASS was originally conceived from a 2006 American Physical Therapy Association (APTA) House of Delegates Motion. The summit was envisioned as a meeting where current and evolving needs of society could be identified and, where appropriate, matched with the profession of physical therapy. From this initial concept in 2006, a steering committee composed of leaders within the APTA has been working to put this type of meeting together. Notification of the summit was posted on sites by the APTA, and individuals were nominated to represent the many and diverse interests within the APTA. Additionally, outside experts or leaders in their respective fields that were not physical therapists, were nominated as potential participants to this summit. Once the potential participant pool was identified, the steering commit-

tee made the final selection on who would be invited to participate, and in what role. Structurally, the summit was organized into two groups, the ‘pit’ and the ‘gallery’. The members of the pit were either physical therapists or outside experts that would be either presenting or serving as active participants by asking questions or providing comments. There was a total of approximately 56 members of the pit. The gallery composed of about 60 individuals, were there to listen, but were not in a position to ask questions. Their real role was to be reflective listeners, with any comments deferred until the second day when all of the participants broke into one of five groups. As alluded to, in addition to being members of the pit or gallery, each participant was assigned to one of five areas of interest that would form the basis of group meetings at lunch, in the evening, and during the second day of the meeting. The five group areas were: (1) Professional preparation, (2) Technology, (3) Research, (4) Practice models, and (5) Health-care access – systems and funding.

This summit was designed to build upon AP- TA’s Vision 2020 and ideally look strategically out into the future. Assumptions associated with the meeting were that from a policy standpoint, healthcare in the United States is at a tipping point, and physical therapy as a profession has a clear role to play in the policies developed in the future. The speakers and participants were asked to engage in visionary thinking, excellence, innovation, collaboration, and develop strategies that were accountable. With this backdrop, the summit was kicked off by APTA’s President, Dr. Scott Ward, then immediately shifted to a futurist, Dr. Clement Bezold from the Institute for Alternative Futures. A total of 12 speakers provided their perspectives on their areas of expertise during the morning session, covering two very broad topic areas. Those two areas were: (1) Innovative perspectives: technological drivers of change, and (2) Innovative perspectives: drivers of systematic change. In the afternoon session, the meeting was more of a ‘give-and-take’, with the thematic focus of ‘Acting on the opportunities’.

Before talking briefly about the second day, it is appropriate to stop and highlight some of the ‘so what’ elements that resonated from the initial gathering. A key point from societies standpoint

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EMG Issues

Jeff Slear PT, ECS and
Sarah Nicholls-Sharp
Assistant Director
Payment Policy and Advocacy
APTA

Usually this column delves into legislative issues regarding EMG testing. However, after consulting with Justin Elliott, Director, State Government Affairs, APTA, it was learned that there has not been any state legislation in 2009 related to EMG. So he actually had nothing to report. Which is good news!

However, an issue that is relevant to EMG has to do with the Medicare Contracting Reform process, which has led to a rash of local coverage determinations (LCD) related to EMG and other services provided by physical therapists. First, some background information. The Medicare Modernization Act of 2003 mandated that Medicare decrease the number of Medicare contractors handling Part A&B administrative functions, such as claims processing, from approximately 35 contractors to 15 contractors. This downsizing is ongoing. This process is being further slowed by the fact that those contractors not awarded contracts in the bidding process can file appeals. This very thing happened in January 2009 when 4 bidders filed a protest with the government over the selection process. The Government Accountability Office now has 100 days to resolve the issue. Meanwhile, no further action is able to be taken until May 2009. Thus, the contractor transition for the four regions under dispute grinds to a halt.

In any event, as the new Medicare Administrative Contractors (MACs) take over from the previous ones, they are discovering that the LCDs issued by the previous contractors can number upwards of 900. Nationally, the number of LCDs is approximately 5,000. For PTs doing EMG testing, it is important to stay informed regarding the MAC transition process, especially with new LCDs being adopted by the new MAC. Because payment policies can differ from one MAC to another due to differing LCDs, if a PT fails to code according to the new LCD it can lead to denials. There is also a national coverage decision (NCD) on EMG and physical therapist (i.e. ECS certification required, etc.) which helps. MACs are required to abide by NCDs. But the issue of state practice acts also comes into play here. If the state PT

practice act prohibits PTs from doing EMGs such as in New Jersey or Michigan, then the NCD and LCD defer to the practice act.

An example where this process has been good for PTs and EMG is the recent LCD from one of the new MACs, Highmark. Their draft LCD, which has just completed the comment phase, does not exclude PTs from performing and billing for EMG. The experience with Palmetto however shows how the process can lead to problems.

Palmetto is the new MAC that took over for California, Nevada, and Hawaii. The previous contractor, NHIC, was paying PTs for EMG. However when NHIC lost the contract, Palmetto raised concerns of whether the California practice act allowed PTs to bill the professional component for EMG. As a result, some PTs conducting EMG/NCS in California have been getting denials for EMG. APTA and physical therapists in the state are working with officials at Palmetto to resolve this issue. Palmetto, which also has the contract for Hawaii, must also contend with restrictions the Hawaiian practice act places on PTs conducting EMG.

Other examples of issues raised by the MAC consolidation process is adequate staffing to deal with unresolved issues of the previous contractor. For example, one MAC was caught off guard when it determined the outgoing contractor had left approximately 25,000 provider enrollment applications unprocessed. These unprocessed applications prevented providers from billing Medicare for their services. At this time, this issue appears to be resolved.

For PTs confronting these issues, the APTA Web site has a Medicare Resource Center that includes information on NCDs and LCDs (www.apta.org/medicare scroll down to the section on coverage issues). Also, APTA staff routinely notifies the section and chapter leadership when draft LCDs are available for comment. As the new MACs lead the transition process and face many issues, including EMG, it is possible that more uniform LCDs will be adopted throughout the country. If the policies recognize the role that physical therapists play in providing quality patient care to Medicare beneficiaries, the consolidation process could ultimately be beneficial.

THE SYMPOSIUM ON ADVANCED WOUND CARE IS
EXCITED TO ANNOUNCE THE LAUNCH OF

SAWC FALL

THE SYMPOSIUM ON ADVANCED WOUND CARE

Scheduled for **September 16–18, 2009**, at the **Gaylord NATIONAL Hotel and Convention Center** in the greater **Washington, DC** area, this new symposium will offer up to 40 clinical sessions and host a major exhibition of products and services for wound care professionals. The SAWC is committed to providing the highest level of clinical education and information to physicians, podiatrists, nurses, and allied health professionals dedicated to the advancement of wound care and healing. We've been doing so for more than 20 years.

We sincerely hope you will join us in
Washington, DC, September 16–18, 2009,
for what surely will be a rewarding business experience.

For more information about this meeting, please visit the
Symposium on Advanced Wound Care website at www.sawc.net

The official Meeting of the



AAWC

Association for the
Advancement of Wound Care

2009 CSM Platform Presentations for the Clinical Electrophysiology and Wound Management Section

Presented Wednesday, February 11th, 2009 (Las Vegas)

Title: The American Physical Therapy Association's (APTA) Section on Clinical Electrophysiology and Wound Management (SCEWM) Guide for Integumentary/Wound Management Content in Professional Physical Therapist Education

Speaker(s): Karen A. Gibbs*, Harriett B. Loehne, Karen Albaugh, Luther C. Kloth (Institution of speaker*: Department of Physical Therapy, TSU, San Marcos, TX)

Purpose: The purpose of this project was to establish recommendations for academic and clinical physical therapy faculty regarding specific integumentary/wound management information that today's graduates need for entry-level practice. The SCEWM determined detailed recommendations were necessary based on numerous inquiries regarding specific topics that should be included in entry-level programs and the vagueness of current guidelines.

Description: Written in the Normative Model format, this document provides 36 specific content recommendations with examples of behavioral and instructional objectives for the classroom. Instructional objectives for clinical settings are also supplied and written in a manner so students may accomplish these goals during most general clinical rotations. After substantial peer review, APTA approved the 18 page document in November 2007.

Summary of Use: The goal of this timely and relevant document is to promote consistent integumentary/wound

management education across institutions without dictating methods of delivery. The recommendations may be used as a general checklist against current course syllabi or as a guide for developing a complete wound management program. This document may also be used to educate healthcare providers outside of the profession of physical therapy as to how physical therapists can be involved with multidisciplinary wound management.

Importance to Members: As the profession of physical therapy moves toward direct access and the entry-level doctorate degree, many programs are reevaluating and expanding curricula. Utilization of the Guide for Integumentary/Wound Management Content in Professional Physical Therapist Education during this process may assist programs in delivering consistent integumentary education necessary for contemporary entry-level physical therapy practice.

Title: Use of High Intensity Electrical Stimulation to Resolve Medial Calf Pain in a Collegiate Ice Skater

Speaker(s): Lynne Sturgil*, Tara Manal (Institution of speaker*: University of Delaware, Newark, DE)

Background & Purpose : Injury to the musculotendinous junction of the gastrocnemius may result in calf pain and limited function. The purpose of this case is to describe the use of electrical stimulation as an adjunct to eccentric

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The Section's Membership Committee at CSM 2009. From left to right, Vanessa Nolan, Karen Gibbs, Christine Conroy, Sharon Lucich

CSM Abstracts

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strengthening of the plantar flexors for a collegiate synchronized ice skater diagnosed with a calf strain.

Case Description: A 19 year old female was referred for evaluation and treatment of L calf pain. Her Foot and Ankle Ability Measure was 85%. She reported limitations in walking, running, stairclimbing and training for her sport. Observation revealed decreased muscle mass in her medial gastrocnemius. Her pain was reproduced with performing a single leg toe raise on the involved side. A thickened band of soft tissue in the R medial gastrocnemius was noted with palpation. This patient had received 8 previous physical therapy treatments including concentric plantar flexor strengthening, soft tissue mobilization and motor-level TENS with no lasting relief of symptoms or improvement in function. It was believed that a plantar flexor strength deficit was still present; palpation also suggested that adhesions played a role in her continued symptoms. Therefore, High Intensity NMES was initiated in an attempt to ameliorate those impairments. This was performed utilizing a 2500 HZ sine wave electrical stimulus at 75 bursts/sec applied to the gastrocnemius-soleus complex. This stimulus was delivered with a 2 second ramp time for a total on time of 12 seconds and an off time of 50 seconds. The patient was standing with the plantar aspect of her foot in contact with the floor to achieve an isometric contraction. The patient received 10 electrically elicited contractions each treatment on a resting muscle. In addition, she was given a home program of eccentric plantar flexor strengthening exercises. This patient received 5 treatments of NMES.

Outcomes: At discharge this patient was able to perform 30 single leg toe raises without pain; this was symmetrical to her uninvolved side. She had no tenderness or tissue abnormalities with palpation. She returned to her previous activity level and her Foot and Ankle Ability Measure was 100%.

Discussion: High Intensity electrical stimulation was a helpful adjunct in the treatment of a patient with calf pain.

Title: The Use of Trigger Point Electrical Stimulation for a Patient with Significant Dysfunction: A Case Study

Speaker(s): Douglas G. Adams*, Lynn Snyder-Mackler (Institution of speaker*: University of Delaware, Newark, DE)

Background & Purpose: The purpose is to explain the use and effectiveness of trigger point electrical stimulation in the clinical management of a patient with significant pain and disability.

Case Description: The patient is a 58 year old retired male with co-morbidities including DM, COPD, and morbid obesity. The patient reported at initial evaluation that he experienced 9/10 pain and difficulty breathing due to pain with all activities. Pain was located on the right side of the middle thoracic region and on the right side in the quadratic lumborum region. Physical examination revealed 10/10 tenderness to palpation over these areas as well as a palpable irritation. The patient was hesitant to let anyone

touch the areas or to lie or sit with his back contacting any surfaces. His pain prevented him from sleeping for greater than two hours for three months and his goal for treatment was to sleep through the night without waking due to pain. The focus of treatments for the exquisitely tender areas consisted of trigger point electrical stimulation. The ultrasound head of the combined ES/US unit was used to localize the point and then as the active electrode for delivery of pulsed noxious electrical stimulation for five 30-60 second stimulations per point. The patient returned to PT the day after the initial trigger point treatment having slept better and after the second treatment he slept through the night for the first time in three months. The patient continued to receive trigger point electrical stimulation with longer lasting pain relief with each treatment. The intensity of the stimulation was progressed according to the patient's tolerance.

Outcomes: After five treatments with trigger point electrical stimulation the patient went from a constant 9/10 on a verbal pain scale to a 2/10 at worst. He reduced his Oswestry score from a 48% at initial evaluation to a 16% at the fifth treatment. Tenderness to palpation reduced from a 10/10 to a 2/10 over the erector spinae and quadrates lumborum locations. The patient met his goals for therapy to sleep through the night on a consistent basis by the 4th treatment.

Discussion: Trigger Point Electrical Stimulation provided an effective and efficient clinical tool for a patient experiencing debilitating pain who was unable to tolerate traditional soft tissue trigger point management techniques.

Title: Characterization of central activation and contractile properties of the lumbar extensor muscles

Speaker(s): Rachel G. Ruggeri*, David Russ, Stephanie M. Gustwiller, James Thomas (Institution of speaker*: Ohio University, Athens, OH)

Purpose/Hypothesis: To determine the central activation and force-frequency properties of a muscle group in which these data have not previously been reported: the lumbar extensors.

Number of Subjects: Healthy young subjects (n=12) without history of low back pain.

Materials/Methods: Subjects were tested in a custom apparatus designed to measure lumbar extensor force with a cable-mounted load cell sampling force at 1 kHz. Participants were tested in a modified kneeling position with the lumbar spine in neutral and the pelvis immobilized. Subjects performed 3 maximum voluntary isometric contractions (MVICs) with verbal cuing to eliminate gluteal substitution. Maximum stimulated force was determined by increasing the current until no further increase in force was elicited by a single pulse. Stimulus amplitude was reduced so that a 100-ms, 100-Hz train produced 50% of MVIC and the force-frequency relationship of the muscle group was determined by stimulating the muscles every 10s with 2, 500-ms trains of the following frequencies: 1, 5, 10, 20, 40, 60, 80, 100 Hz. The force-frequency data were fit with a 4-parameter Hill equation to obtain the frequency at

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CSM Abstracts

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which 50% of peak force was obtained (F50) and the Hill coefficient, which indicates the steepness of the linear portion of the relationship. Central activation was determined by increasing the stimulus amplitude to the previously determined maximum values and delivering a 100-ms, 100-Hz train to the lumbar muscles during the MVIC. The MVIC and stimulated forces were used to calculate the central activation ratio (CAR) for each subject using the formula: $CAR = MVIC\ force / (MVIC + stimulated\ force)$, with a value of 1 indicating full central activation. All stimulation pulses were delivered via 2 constant-current stimulators, each connected to a pair of 2" electrodes, one on the right extensor muscle mass, the other on the left.

Results: Mean MVIC was 77.10 (SD = 28.29) lbs, and mean CAR = 0.95 (SD = 0.06). The force-frequency data showed a mean F50 of 16.40 (SD = 3.15) and mean Hill coefficient of 2.21 (SD = 0.50).

Conclusions: Central activation and force-frequency testing of the lumbar extensor muscles is feasible, and the data reported here represent, to our knowledge, the first of their kind in this muscle group. The CAR values reported here are similar to those reported in several other muscle groups. Relative to these other muscles, the present F50 and Hill coefficient values are most similar to the ankle dorsiflexors. Interestingly, the lumbar extensors and dorsiflexors are involved in gait and posture, but are not typically involved in high-power contractions or fine-motor tasks.

Clinical Relevance: Central activation and force-frequency data represent important muscle physiological parameters, but have not been previously reported in this muscle group. Having demonstrated the feasibility of collecting these data in healthy subjects, it will now be possible to directly assess the contribution of these factors to low-back pain and dysfunction and identify potential targets for rehabilitation strategies.

Title: Median and Ulnar Neuropathies in U.S. Army Dental Assistants (68E) Pre- and Post-Training as Preventive Dentistry Specialists (68E-X2)

Speaker(s): Bryan Pickens*, Tiffany L. Mason, Carla Carrillo, Chelsea Jordan, David G. Greathouse, Thomas G. Sutlive, Scott W. Shaffer, Josef Moore (Institution of speaker*: U.S. Army-Baylor University Program in Physical Therapy, Fort Sam Houston, TX)

Purpose/Hypothesis: Dentists and dental hygienists have been reported as having a high prevalence of upper-extremity musculoskeletal disorders, including carpal tunnel syndrome (CTS). Unfortunately, there has been limited research involving dental assistants or the impact of dental training. Therefore, the purpose of this study was to determine the presence of median and ulnar neuropathies in U.S. Army dental assistants pre- and post-training as preventive dentistry specialists.

Number of Subjects: Forty-two (42) U.S. Army dental assistants, enrolled in the preventive dentistry specialist course, volunteered to participate in the study. Thirty-five (35) preventive dentistry specialist students (mean age 23.3

± 5.8 yrs; 11 males, 24 females) completed both the pre- and post-training data collections.

Materials/Methods: Subjects were evaluated during the first and last weeks of their 12-week 68E-X2 course. Subjects completed a history form, were interviewed, and underwent a physical examination. Nerve conduction status of the median and ulnar nerves of both upper extremities were obtained by performing motor, sensory, and F-wave nerve conduction studies (NCS). Descriptive statistics for subject demographics and nerve conduction study variables and Chi square analysis for NCS comparison studies were calculated.

Results: Twelve of the 35 subjects (34%) presented with abnormal electrophysiologic values suggestive of median mononeuropathy at or distal to the wrist. Eight subjects had findings pre- and post-training, three subjects had findings pre-training only, and one subject had findings post-training only. Four of these 12 subjects had clinical examination findings (special tests) consistent with the electrophysiological findings. The ulnar nerve electrophysiologic assessment was normal in all subjects sampled. Additionally, there was no statistically significant shift in the prevalence of median neuropathies following the 12-week training program (Chi-square, 0.280; $p = 0.60$).

Conclusions: The prevalence of median mononeuropathies in this sample of U.S. Army dental assistants closely mirrors the prevalence reported for other dental professionals. This study demonstrates that for this sample, the 12-week training program did not appear to affect the electrophysiologic status of the median or ulnar nerves.

Clinical Relevance: Median neuropathy at or distal to the wrist has been reported in dental personnel including dentists and dental hygienists, and is also prevalent in this sample of dental assistants.

Title: Nerve Conduction Velocity and F-wave Latency During the Upper Limb Neurodynamic Test for the Ulnar Nerve

Speaker(s): John R. Jefferson*, Chris Allison, Justin Fetsko, Rachel Fountain, Wendy Woods (Institution of speaker*: University of South Alabama, Mobile, AL)

Purpose/Hypothesis: The upper limb neurodynamic test (ULNT) for the ulnar nerve is commonly used to screen for ulnar nerve entrapment. The purpose of this study was to determine the effects of an ULTT for the ulnar nerve on nerve conduction velocity (NCV) and F-wave latency in asymptomatic individuals.

Number of Subjects: Twenty-two healthy young adults were evaluated bilaterally (44 arms) in a neutral and ULNT position.

Materials/Methods: Motor NCV and F-wave latencies were recorded using a Cadwell Sierra II Wedge unit, supplied by Cadwell Laboratories, Inc. Above-elbow and below-elbow NCVs and F-wave latencies were compared between the standard position for ulnar nerve recording and the ULNT position for the ulnar nerve. Symptom response, radial pulse status and results of Tinel's test were also recorded in both positions. Pulse measurements were obtained manually and by pulse-oximetry

Results: There was no difference in above-elbow or below-

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elbow motor nerve conduction velocity between positions. A significant difference ($p=0.006$) in F-wave minimal latencies for the non-dominant extremity was found between positions. A strong correlation in F-wave measurements between positions (0.92-0.96) and between extremities (0.86-0.92) was revealed. A loss of palpable pulse occurred 3 times, symptoms were produced 5 times, and Tinel's was positive twice. There was no apparent difference between subjects with or without symptoms or palpable pulse and NCV or F-wave parameters.

Conclusions: Although the difference in F-wave latency was statistically significant for the non-dominant arm, it was only 0.53 ms, which is less than the clinically accepted difference for F-wave latencies between limbs. Overall,

both NCV and F-wave parameters were similar in both testing positions, suggesting value for their use in electrodiagnostic testing. F-wave latencies in particular, were highly correlated between positions and between limbs.

Clinical Relevance: Nerve conduction studies are usually performed with the upper limb in a relatively neutral or mid-range position, while patients often get their symptoms in more provocative positions. Several studies have reported getting more positive results during electrodiagnostic testing on patient populations when using provocative positions. The lack of normative data on the ULNT for the ulnar nerve limits interpretation of neurophysiologic findings performed in this position. This study suggests that both NCV and F-wave latency for the ulnar nerve are minimally affected by ULNT positioning in healthy adults.

2009 CSM Poster Presentations for the Clinical Electrophysiology and Wound Management Section (Las Vegas)

Title: The effect of low-level laser therapy and manual ischemic compression on myofascial trigger point pain in adults: A randomized clinical trial

Author(s): Olig Barshay, Ralph Garcia, Nicholas Rutigliano, Yan Yusupov, Imanuel Fuzailov, Emil Euaparadorn (Institution: Touro College, Forest Hills, NY)

Purpose/Hypothesis: Pain from myofascial trigger points (MTrPs) is frequently addressed by therapists in clinical practice. Both manual ischemic compression (MIC), and low-level laser therapy (LLLT) have demonstrated to be effective treatments in previous studies. The purpose of this study was to compare the effect of MIC and LLLT in reduction of MTrP pain.

Number of Subjects: 28 subjects (8 males, 20 females), ages 20-50

Materials/Methods: 28 subjects with a MTrP in the upper trapezius were randomized into two groups (1: MIC, 2: LLLT). The outcomes were level of pain, assessed by visual analog scale (VAS), and pain pressure threshold (PPT) via digital algometer. A total of 4 treatments were conducted over a 2 week period. Comparison was made within and between the groups at baseline and at follow-up after the 4th treatment

Results: Both groups statistically improved ($p<.05$) in PPT scores (group 1: 6.02-9.92 kg/cm²; group 2: 8.6-10.34 kg/cm²), with group 1 also improving ($p<.05$) in VAS scores (6.92-3.95 cm). Between groups comparison showed favorable for group 1 differences in the percentage change for VAS and PPT scores.

Conclusions: At the parameters used in this study, MIC and LLLT were found to be effective in MTrP pain reduction, measured by VAS and digital algometer. A higher percentage change in VAS and PPT scores may suggest a more effective therapeutic effect utilizing MIC.

Clinical Relevance: The conclusion of this study illustrated

perhaps that MIC is a more effective technique in combating a very common phenomenon seen in the management of musculoskeletal dysfunction.

Title: Behavior patterns of physical therapists in screening for loss of protective sensation in clients with diabetes.

Author(s): Lisa J. Barnes, Lisa G. Latham, Thomas J. Lipscomb (Institution: The University of Mississippi Medical Center, Jackson, MS)

Purpose/Hypothesis: Peripheral neuropathy is a common consequence of diabetes with a resultant loss of protective sensation in the feet. Since change in sensation may be subtle, sensory testing should be performed as early as possible to identify sensory loss. The purpose of this study was to assess the behavior patterns of licensed physical therapists in various clinical settings as to their opinions and behaviors related to sensory testing for individuals with diabetes.

Number of Subjects: The participants were 106 licensed physical therapists practicing in a variety of clinical settings across the United States. Their clinical experience ranged from 0-5 years to greater than 25 years, and they held varying entry-level physical therapy degrees.

Materials/Methods: A questionnaire was developed that consisted of 6 demographic items and 9 items related to clinical practice. The questionnaire was sent via email to 502 licensed physical therapists. The respondents participated by submitting the questionnaire electronically to an encrypted and secure server. The researchers utilized frequency distributions for statistical analysis of the data.

Results: A majority (97.1 %) of the respondents were in agreement that early identification of sensory deficits could lead to a decrease in the number of wounds in patients with sensory loss. In addition, 95.2 % of the respondents were in agreement that sensory testing was useful as an early

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intervention method. When asked if physical therapists should be active in the sensory testing process, 98 % either agreed or strongly agreed. However, only 21.7 % of respondents reported that they always perform the procedure on patients with diabetes as a comorbidity. When examining patients with diabetes as a primary diagnosis, 54.4% of respondents reported that they always perform sensory testing.

Conclusions: The data revealed that the respondents had a strong level of agreement in their opinions related to the benefits of sensory testing in patients with diabetes. However, the data suggested that the therapists' actual performance of sensory screening did not concur with these stated opinions. It also demonstrated that the therapists performed sensory testing more consistently on patients with a primary diagnosis of diabetes than on those who had diabetes as a co-morbidity.

Clinical Relevance: Early identification of sensory changes and education regarding the insensate foot could result in a decrease in the number of diabetic foot wounds. The information gained from this survey could be useful to the profession and its clients. The act of responding to the questionnaire could have facilitated some reflective thought in the participants regarding professional opinions and behaviors. Those patients who seek the care of physical therapists have put their confidence in the expertise of the clinician, and are depending upon the clinician to perform all applicable testing techniques.

Title: A randomized control trial to determine immediate effects on strength of low level laser for persons with musculoskeletal pathology

Author(s): Alan J. Howell, Jeff Krecting, Jeff Angeline, Amy Ballman, Kelly Ralston, Kari Dunning (Institution: The Howell Rehab Center, Cincinnati, OH)

Purpose/Hypothesis: Previous studies have investigated the effectiveness of low level laser therapy (LLLT) in treating various orthopedic pathologies. Although theories have been proposed, the exact mechanisms of LLLT are unknown. We have anecdotal therapist reports of immediate increases in strength after LLLT. The purpose of this study is to determine short term effects of LLLT on strength among outpatients with musculoskeletal pathology. The hypothesis was that one LLLT treatment would significantly improve hip abduction strength in subjects who have lower extremity pathology compared with subjects receiving placebo.

Number of Subjects: Over a 10 month period, 31 subjects (19 females and 12 males) enrolled and completed the study with an average age (standard deviation) of 48.8 (15.9) years.

Materials/Methods : Data was collected in three outpatient PT clinics. Eligible patients were those at least 18 years old with musculoskeletal pathology and being seen for their initial PT evaluation. After signing an IRB approved

consent, subjects were randomized to either laser (Erchonia PL5000) or placebo laser. The LLLT (laser and placebo laser) protocol included frequencies 9, 16, 42, and 53 Hz for 120 seconds on hips/back and for 120 sec over the solar plexus (the standard protocol in the instruction guide for muscle pathology). The placebo laser resembled the real laser in all aspects so subjects were blinded. Hip abduction strength was measured sidelying using a handheld dynamometer and an established reliable protocol. A blinded rater measured strength before and after a one time session of laser or placebo laser. Randomization groups were compared for differences in age and gender using ttest and chi square, respectively. Changes in hip abduction strength from pre to post were compared using a paired ttest. Change in hip strength was compared between randomization groups using a ttest. Statistical significance was defined as $p < 0.05$.

Results: Laser (n=16) and placebo laser (n=15) groups were similar in gender ($p=0.38$) and age ($p=0.43$). Change in strength was normally distributed. On average, subjects randomized to laser increased hip abduction strength 7.5% from 23.6 to 25.5 pounds ($p=0.03$). On average, subjects randomized to placebo laser increased hip strength 0.4% from 23.4 to 23.5 pounds ($p=0.86$). Change in strength did not differ significantly between groups ($p=0.13$). Power to compare change in strength by group was 50% ($\alpha=0.05$).

Conclusions: This is the first study investigating changes in lower extremity strength using LLLT among patients with musculoskeletal pathology. Subjects receiving laser significantly increased hip abduction strength immediately after one session (change of 1.9 pounds). More subjects are needed to compare change in strength by group (sample size of $n=36$ needed in each group for 80% power).

Clinical Relevance: The goal of this study is to understand a possible mechanism by which LLLT increases strength by a one time laser administration. Increases in strength may be a mechanism by which laser improves function.

Title: The effect of pulse duration on muscle torque produced by neuromuscular electrical stimulation

Author(s): Wayne B. Scott, James B. Causey, Tara L. Marshall (Institution: Department of Physical Therapy, East Carolina University, Greenville, NC)

Purpose/Hypothesis: Neuromuscular electrical stimulation (NMES) is an effective therapeutic technique for strengthening weak muscles. NMES displays a positive dose-response relationship between the elicited muscle forces during training and strength gains. Patient discomfort limits NMES muscle forces, potentially comprising efficacy. The purpose of this study was to compare the NMES muscle torques produced by stimulation trains consisting of short versus long pulse durations. We hypothesized that a relatively short pulse duration would allow subjects to tolerate greater muscle torques during NMES.

Number of Subjects: Ten able-bodied adults.

Materials/Methods: A single-subject design with the two

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pulse duration conditions (50 and 200 μ sec) tested on opposite legs. Muscle torque was measured with a HUMAC Norm force dynamometer. Stimulation was delivered with a Digitimer DS7AH stimulator interfaced with a Digitimer DG2A train/delay generator and surface electrodes. The maximally tolerated isometric knee extensor torques was the primary dependent variable. The peak currents and phase charges that produced the maximally tolerated torques, as well as the sensory, motor and pain thresholds for the two pulse conditions were also compared.

Results: The 200 μ sec pulse condition resulted in subjects tolerating significantly greater muscle torques and this was associated with significantly greater phase charges but significantly lower peak currents. These observations were not obviously related to the currents and phase charges at the motor and pain thresholds for the two pulse conditions.

Conclusions: It has been suggested that short pulse durations are most appropriate for NMES because they are less likely to recruit nociceptors. The results of this study, however, support the use of long as opposed to short pulse durations because they allowed subjects to tolerate greater muscle torques with similar levels of discomfort.

Clinical Relevance: Clinicians should consider selecting relatively long pulse durations when performing NMES for muscle strengthening to allow subjects to tolerate high muscle forces.

Title: Clinical benefit of noncontact, low-frequency ultrasound therapy for chronic wound treatment in a long-term, acute care setting

Author(s): Lisa Cotterall, Jane Nguyen, Lori Thomas (Institution: PT, Mercy Health System, Philadelphia, PA)

Background & Purpose: Healing chronic wounds in medically complex patients is a persistent challenge in the long-term acute care (LTAC) setting. Low-Frequency Ultrasound Transport Technology is a non-contact ultrasound system currently utilized in multiple disciplines, including wound management. The objective of this case series is to measure its effectiveness on chronic wounds in a long-term acute care setting. Clinical effectiveness of ultrasound treatment was assessed through changes in wound tissues, dimensions, and drainage. Selection criteria was based on wound severity, the failure of the wound to improve with standard treatment, the pt's ability to give consent and an adequate length of stay.

This case series suggests that the use of Low-Frequency Ultrasound Transport Technology, in a long-term acute care setting, is more cost-effective than the current standard of care.

Case Description: The 1st patient was a 57-year-old man with a full-thickness wound over his spine, resulting from a spinal abscess with cord compression treated by incision and drainage. Wound volume decreased by 95% with 5 weeks of noncontact ultrasound therapy.

The 2nd patient was a 73-year-old woman with an infected Stage IV pressure ulcer that was surgically debrided.

Wound volume decreased by 56% with 4 weeks of noncontact ultrasound despite multiple complications status post surgery, including low pre-albumin, elevated blood glucose, and a hemoglobin drop that required a blood transfusion. The 3rd patient was a 64-year-old female with a diabetic foot ulcer with multiple co-morbidities. Wound volume decreased by 94% with 11 weeks of noncontact ultrasound, despite multiple medical problems during that time.

Outcomes: All of the wounds decreased substantially in volume and percentage of necrotic tissue after the ultrasound therapy.

Discussion: When used as an adjunctive therapy, ultrasound may facilitate earlier transition to the next level of care or a secondary procedure, such as a skin graft or skin substitute. This translates into decreased utilization of inpatient care by decreased length of stay and decreased risk of infection from prolonged hospitalization.

Title: Effects of high and low frequency TENS on knee osteoarthritis pain

Author(s): Carol G. Vance, Barbara A. Rakel, Nicole P. Blodgett, Josimari M. DeSantana, Annunziato Amendola, Dierdre M. Walsh, Laura A. Frey-Law, Kathleen A. Sluka (Institution: Physical Therapy and Rehabilitation Sciences, University of Iowa, Iowa City, IA)

Purpose/Hypothesis: The purpose of this investigation was to determine the effect of TENS on pain at rest, movement-evoked pain, and primary and secondary hyperalgesia in subjects with osteoarthritis of the knee. We hypothesized that TENS would decrease hyperalgesia associated with movement and not decrease pain at rest in subjects with knee osteoarthritis knee.

Number of Subjects: 48 subjects (31-94 years old, M=17, F=31) with known knee osteoarthritis completed informed consent and participated in a 3 hour test session.

Materials/Methods: Subjects were randomly assigned to High frequency TENS (HF; 100Hz) (n=16), Low frequency TENS (LF; 4Hz) (n=16) and Placebo (P) (n=16) groups. Pre test measures included Von Frey monofilament sensation and pain thresholds, algometer pressure pain threshold (PPT), heat pain threshold (HPT), thermal temporal summation (TTS) at 45.5 C, Timed Up and Go (TUG), and VAS pain intensity and distress at rest and during the TUG. Data were collected on the affected knee, ipsilateral anterior tibialis muscle, and same sites on the contralateral side. TENS treatment was applied by a second examiner keeping data collection blinded. Electrode sites were chosen to bracket the knee using the optimal electrode placement technique of points of least resistance. TENS pulse duration was 100 μ sec. Intensity was set at motor threshold minus 10% or highest tolerated sensory stimulation. All tests were repeated 20 min. following the start of TENS application and the TENS unit remained on for all post test measures. At the end of the session, subjects were asked to determine if they received an active or placebo TENS treatment. Repeated measures ANOVA compared differences across time and between groups with post hoc testing using a Tukey's test.

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Physical Therapy Society and Society Summit

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is that we have a 'Hummer healthcare system' that is not sustainable. What the metaphor means is that the United States healthcare system is large, has lots of bells and whistles, but is using up so many resources (like a Hummer uses fuel), that the system is eventually not sustainable. As would be expected under this theme, cost and alternate delivery models were outlined and discussed. Another key point was the potential role of 'informatics' in the delivery of healthcare, and the way that may change both our educational systems and our clinical care systems. Other clear thematic trends included practice models that provide physical therapists with more direct access opportunities, how to function as an optimal member of the overall health care team, the role of the physical therapy profession in promotion of optimal health, quality of life, and prevention; and the role of research (beyond evidence based practice) for our profession. The combination of so many cutting edge visions was energizing, in that it is clear that our profession is well positioned to help meet many health needs of society. Along with that optimism, however, it is clear that all members of our profession and other members of the health care team, will need to have increasing exposure and mastery of the following areas that we don't typically think about: (1) informatics, (2) stem cell research (adult stem cells), (3) bioengineering, (4) chemistry, (5) molecular science, (6) genomics, and (7) exercise physiology and elements of training.

The list above leads back to the 'wow' that was presented at the opening of this article. There is a tremendous change that is occurring around us, where there are unlimited possibilities, but the profession will need the foresight, energy, and leadership to positively shape our

WMSIG Update

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attend is **APTA Annual Conference PT 2009 in Baltimore June 11-13, 2009**. APTA asked us for 15 hours of wound management programming! Melissa Johnson has done a wonderful job of organizing this main tract for the conference. Don't forget **CSM next year in San Diego February 17-20!** Deadline for session proposals is April 2, 2009 and for posters and platforms is June 3, 2009. All must be submitted online – check the APTA website.

Hope to see you in Baltimore!

collective future. That realization led into the second day, where each of the five areas of interest outlined above, strategized on priorities for the profession. The morning was spent brainstorming and developing plans in each of these areas, and in the afternoon session, those plans were presented to the entire group. As the second day wrapped-up, those ideas and plans were given to the steering committee, who continued to work on those five areas over the course of an additional day. Shortly, it is expected that there will be an official summary of the entire PASS process, and when available, that URL will be provided to the members of the wound care and electrophysiology specialty section. The initial announcement from the APTA is found at: www.apta.org/AM/Template.cfm?Section=Current_Issue#article55882

The key point of interest in all of this, and of direct impact to all members of this specialty section, is that 'change is not an option anymore – change is coming'. While it is a given that everyone knows deep down in their heart, the pace of this change is accelerating. It is through summits like this one that some of the issues can be identified and potentially strategically addressed, to benefit both society and the practice of our profession.

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Results: Cutaneous sensation thresholds for the affected knee during both HF and LF were higher compared to P ($p=0.0001$). PPT over the ipsilateral anterior tibialis increased during HF, but not LF, compared to P ($p=0.02$). These increases were 32% for HF, 15% for LF, and 5% for P from pre-TENS values. TTS was less for the contralateral, but not the ipsilateral knee during HF compared to P ($p=.05$). Pain intensity and pain distress scores were decreased at rest and during the TUG test for all groups: HF, LF and placebo ($p<0.05$). Of those receiving the placebo, 58% guessed they were given an active treatment.

Conclusions: HF decreased secondary, but not primary, hyperalgesia in subjects with knee osteoarthritis as well as temporal summation for the contralateral limb. These data suggest TENS has a central effect potentially reducing central sensitization. A similar decrease in pain at rest and with movement occurred for active as well as placebo TENS suggesting TENS has a placebo component.

Clinical Relevance: Understanding which pain parameters TENS most effectively reduces will assist clinicians when choosing TENS as a component of their intervention plan for patients with osteoarthritis of the knee. TENS may be more appropriate in reducing hyperalgesia and pain with movement and less effective when treating patients who present primarily with pain at rest.

Abstract of Recent Research Published in Peer Reviewed Journals*

Stevens NM, Shultz T, Mizner RL, Gersh M.
Treatment in an outpatient setting for a patient with an infected, surgical wound with hypergranulation tissue.

Int J Low Extrem Wounds. 2009 Mar;8(1):37-44.
Epub 2008 Dec 30

The purpose of this article is to describe a multifaceted approach to wound care in an outpatient setting for a patient with an infected, nonhealing surgical wound with hypergranulation tissue following fasciotomy for acute compartment syndrome. A 44-year-old male underwent an anterior and lateral lower extremity compartment fasciotomy and developed a persistent right anterolateral lower leg wound. Thirty-six days after fasciotomy he came to the authors' clinic after 2 failed skin grafts with an infected wound covered in hypergranulation tissue. Treatment

included sharp debridement, saline irrigation, patient education, and dressing changes during 9 treatment sessions. The patient's total wound surface area decreased from 5.2 cm x 17.3 cm to 4 cm x 15 cm with increased epithelialization from approximately 40% to 85% after 29 days of treatment. This article demonstrates the positive effect of a multifaceted approach for facilitation of wound healing in a lower extremity wound following fasciotomy.

Submitted by: Dr. Meryl Gersh, PhD, PT, Electrotherapy Practice Chair

**Section members are encouraged to submit an abstract of recent studies published in peer reviewed journals in the areas of Clinical Electrophysiology and Wound Management. Please submit the abstract as an email attachment to M.G. Parker, PhD, PT, FACSM, Publications Chair and Newsletter Editor.*

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