

President's Message

Those of you who attended the Combined Sections Meeting in New Orleans know that the meeting was the largest and most successful Professional Meeting in the history of the APTA. That success was measured not just in the number of participants but in the quality of the programming and the amount of work that was done within the Section.

Educationally the Section had a very well attended and very successful pre-conference course on wound debridement presented by Luther Kloth, Karen Albaugh, and Harriett Loehne. This was followed by outstanding programming in wound management, electrophysiological agents, and electrophysiologic testing. Our program chair, Stephanie Woelfel did an outstanding job in coordinating this great effort and she is busy planning next year's programming. There will be at least two pre-conference courses sponsored by the Section next year. The courses will include an EMG/NCV Course for educators by Dr. Andrew Robinson and Sunny Mills, and a course on Laser Therapy by Dr. David Baxter of New Zealand.

In conjunction with the EMG/NCV for educators course the Section will soon be publishing updated guidelines for electrophysiologic testing in DPT education. Andrew Robinson and Sunny Mills are the primary authors of that document which has been edited and reviewed over the past year and is undergoing final review by the APTA.

The Section has been working on another document entitled: The American Congress of Electroneuromyography and The Section on Clinical Electrophysiology and Wound Management's position statement on the Minimum Standards of Performance and Interpretation of Electrophysiologic Tests. This document is in the final stages of approval through the APTA and should be published in the next month. This will give our organizations an official statement that we can present to third party payers to demonstrate the qualifications of physical therapists to perform all aspects of the electrophysiologic examination. As you will see in Jeff Slear's article in this newsletter this continues to be an important issue.

This has been a very tumultuous time for those of us involved in electrophysiologic testing. I am hopeful that by our next newsletter I will be able to write a full summary of the events that are now taking place.

The Section has been very busy on multiple fronts. The Task Force that was charged with determining the feasibility of the Section developing a Journal issued its report at CSM. The task force studied multiple journal formats, interviewed numerous publishers, editors and authors of traditional journals, on-line journals and other publications. We then met through a series of conference calls, emails and meetings to discuss the data. The bottom line on journal production is the cost and work required to obtain the articles, edit and publish the journal is beyond the reach of the Section at this time. However, it is clear we need to improve our professional communications and begin to try to build toward a possible journal in the future.

With that goal in mind a committee was established to improve our professional communication pipeline in our current newsletter. Dr. David Boyce of Bellarmine University has agreed to chair this committee. We as a Section should see an immediate impact from the committee's work in our next Newsletter. The committee will establish a group of authors and editors who will provide the newsletter with critical reviews of the literature and other information that will help members of our section stay current in the literature. The mechanism for the delivery of this information will be developed by the Professional Communications Committee.

We also are implementing a Valuable Partner's Program. This program is based on similar programs in state chapters, particularly the Kentucky Chapter. The full details will be published soon but basically we will be offering companies, universities and other interested entities opportunities to become valuable partners to the section. In return for a \$1,000.00 annual membership the partners will get a link on our website acknowledging their support of the section and a half page advertisement in the 4 quarterly newsletters. We are organizing a marketing committee to help get this program going. So far the committee consists of John Lugo and myself. Anyone who would like to help in this endeavor please contact me at rsellin@rmuohp.edu.

Robert A. Sellin, PT, DSc, ECS
President

In Memoriam Arthur J. Nelson, PT, PhD, FAPTA

Dr. Arthur J Nelson Jr, former chair of the NYU Physical Therapy Department and internationally known researcher, educator, and a consummate clinician died on Sunday, November 7, 2010 at 8 PM.

Dr. Nelson received his BS degree (cum laude) and physical therapy certificate in 1954, his MS in 1958, and his PhD in 1966 from NYU.

Starting in the clinic in 1954, he began as a staff physical therapist at New York Hospital. The following year, he became Director of the Cerebral Palsy Unit (PS 48) at the Department of Health in New York City, and then from 1956 to 1958, served as a commissioned officer of the United States Public Health Service. He later became Director of Rehabilitation at St Vincent's Medical Center of Richmond until 1966.

Dr. Nelson's 36 year teaching affiliation with NYU began in 1958 where he served as an instructor at NYU's PT program. He became an Associate Professor in 1969 and Professor and Chairperson of the Department in 1970. Of the many reason NYU students crowded lecture halls to see Dr. Nelson, one was legendary - his ability to symmetrically draw the nervous system on a chalk board using both hands simultaneously, a technique that he had first seen performed by Dr. Bergman, one of Dr. Nelson's men-

tors. In 1970 the Department received approval from New York State to offer a PhD degree program in physical therapy and from 1973 to 1994, Dr. Nelson served as Director of Doctoral Studies in Pathokinesiology at NYU. This program, under his stewardship, produced many of the great leaders in the field today, including those who went on to have prolific research careers, build doctoral programs, or serve as editors of internationally-recognized health journals. Later, as Project Director of the Doctoral Traineeship Grant for Clinical Research in Physical Therapy, from the US Department of Education's National Institutes of Disability Research and Rehabilitation (1989-1997), Dr. Nelson was instrumental in training a whole new generation of physical therapy researchers.

In 1994, he joined CUNY as Professor of Biology at the College of Staten Island. Along with various other teaching appointments he held as a visiting professor [Boston University (72-73), Thomas Jefferson University (1991-92), and Touro College (1988-90)], Dr Nelson also owned a private practice of physical therapy that he started in 1983.

As a quinessential researcher, Dr Nelson authored many important works including a cutting edge study

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Officers

President

BOB SELLIN
rsellin@rmuohp.edu

Vice President

HARRIETT LOEHNE
hloehne@earthlink.net

Secretary

JEFF SLEAR
jslear1@verizon.net

Treasurer

KATHY GALLOWAY
kathy.galloway@belmont.edu

Immediate Past President

PAM UNGER
punger@celleration.com

Executive Director

ANNE DAUGHERTY
annedaugherty@apta.org

Committee Chairs

Program Chair

STEPHANIE WOELFEL
stephpt@hotmail.com

Publications Chair

MICHAEL PARKER
mparker@umary.edu

Membership

KAREN GIBBS
kgibbs@txstate.edu

Electrotherapy Practice

MERYL GERSH
meryl.gersh@mail.ewu.edu
CHRISTINE CONROY,
Co-Chair
cconro@midwestern.edu

EMG/ENC Practice

ANDREW ROBINSON
robby@ithaca.edu
SUNNY MILLS
james.t.mills@us.army.mil

Nominating

SHARON LUCICH
slucich@iupui.edu

Research

JOHN HALLE
john.halle@belmont.edu

Government Affairs Liaison

STACY FISHER-EISEN
fisherpt@cox.net

Web Master

DAVID GIBBS
david@davidgibbs.com

WMSIG Officers

President

ROSE HAMM
rhammpt@msn.com

Vice President

MELISSA JOHNSON
melissa.johnson@pedmont.org

Secretary/Treasurer

JAIMEE HAAN
jhaan@clarian.org

Nominating

CORKY ATKINS
cordell.atkins@imail.org

Practice

VAN SULLIVAN
valsullpt@aol.com

Education

MELISSA JOHNSON
melissa.johnson@pedmont.org

Research

GLENN IRION
girion@mac.com

Membership

SHARON LUCICH
slucich@iupui.edu

WMSIG Update

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

It's hard to believe this is my last WMSIG Update column, now officially as Past President. What an honor it has been to serve as President these past six years – it has meant so much to me, not only professionally, but also personally. I have met and worked with so many great PTs and PTAs, and made what I hope are lasting friendships and wonderful collegial relationships. How exciting it has been to watch not only our profession grow, but also our area of interest, the Integument. We've grown in number, strength, and passion. Our members have written and edited wound management books and articles, presented at national and international PT and multidisciplinary conferences, presented posters and platforms, carried out and published research, taught continuing education courses, continued their education with tDPTs, PhDs, and multidisciplinary wound certifications, and been active in their communities, their country, and in foreign countries when disasters struck. We've developed the Guide for Integumentary/Wound Management Content in Professional Physical Therapist Education, started a web site, a List Serve, planned for auditory Webinars to begin this year, battled CMS and CPT® codes, created Membership and Research Committees, and finally begun our quest for PT Integumentary Clinical Specialization through the ABPTS.

Having already sent my handwritten “thank you note” to Jaimee Haan (or my Mama would come back to haunt me!), I want to thank all of you for the wonderful surprise gifts you gave me at CSM as I turned the reins over to our outstanding new President, Rose Hamm. For those of you who weren't at CSM at our WMSIG meeting, I now have the most beautiful silver band bracelet, the two amethysts (purple is my favorite color) surrounding a blue opal (though as I write this right now after Dook just beat the Tar out of my Heels in the ACC Tournament, it is with sadness that I think of Carolina Blue...). Have worn it many times, and will continue to do so, and always think of all of you and the special place in my heart that WMSIG occupies. Then an even bigger surprise was a Carolina T Shirt and a Carolina hoodie sweatshirt – embroidered with all the NCAA Tournaments we have won. There's still hope that I can add another date to them – if we can get our act together! Wore the sweatshirt that Saturday night of CSM in New Orleans as I watched my first Mardi Gras parade, and when we beat Dook last weekend (my apologies to my dark blue friends, but you got us back – but good).

Congratulations to our new officers: Rose Hamm, President; Jaimee Haan, re-elected Secretary/Treasurer; and Renee Cordrey, Nominating Committee

member. I know that they will provide excellent leadership for all of us for the next three years.

WMSIG had 223 members as of CSM time, and 43 arose early to attend our meeting at 7 o'clock Friday morning. We thank Celleration as a Gold Sponsor and Molnlycke as a Silver Sponsor for assisting us to provide a sit-down breakfast. This was to be the last “Roundtable” meeting, though, as APTA has stated that all meetings will have to be classroom style in the future, due to the difficulty of turning the rooms around in a short amount of time. We will miss the opportunity for discussion and meeting new friends and members that the roundtables provided.

Officers and committee members were introduced, elections were held as described above, and recognition of members' accomplishments were acknowledged. Several members played active roles at CSM 2011. An all day preconference course with lecture and labs on Debridement Skills was taught by Karen Albaugh, Lu Kloth, and I. The attendance was excellent, including many from academia. It has been suggested by several members that this be repeated every two years, as more states are requiring some type of sharp debridement education and “certification”. Jim Birke and Corky Atkins presented a session on the Carville Legacy; Laurie Rappl presented a session on SCI Skin Integrity; David Lorello on pediatric burns, and Jaimee Haan and Sharon Lucich on Interdisciplinary Team of Nursing and PTs. Karen Gibbs presented a platform on student evaluation of faculty, as did Karen Albaugh on use of a biocellulose dressing to reduce MRSA.

We encourage you to submit a proposal for CSM 2012 in Chicago February 8-11, deadline April 4, 2011. Poster and platform abstracts are due by June 6, 2011. All must be submitted through Scholar One. The Section Program Chair, Stephanie Woelfel, makes the final decision on programming.

The Oncology Section has approached us regarding working together to teach their members about Integumentary management for oncology patients and their wounds. If any of you are interested in working with this project, please contact Karen Gibbs.

The Task Force for the Petition for Integumentary Clinical Specialization through ABPTS is hard at work. All eleven Section reports were given to update members on the status of their assignments. The Leaders of the eleven Sections of the Petition are as follows:

Demand - Melissa Johnson

Need - Karen Gibbs

Number of Practitioners, Time Spent -

Stephanie Woelfel

Specialized Knowledge (Practice Analysis) -

Glenn Irion

Specialized Functions (Practice Analysis) - Rose Hamm

Education and Training - Pamela Scarborough

Transmission of Knowledge - Jaimee Haan

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WMSIG: Greeting from Your New President

By **Rose Hamm**
President, WMSIG

I am indeed honored to be trusted with the chairmanship of the Wound Management Special Interest Group, although the footsteps of Harriett Loehne are very, very difficult to follow. I applaud Harriett for taking the SIG to unexpected heights in both numbers and in influence within the APTA. She has reached out to embrace all of you who are involved in the physical therapy care of patients with wounds, and I am sure that she will take that same passion and enthusiasm on to the Section as she serves as Vice-President.

As I assume the chairmanship, I am excited, eager, and more than a little nervous. The talent in our SIS is so immense - I consider all of us leaders and I will be depending upon all of you to help fulfill the mission of the SIG. My personal goal during my tenure is to build bridges with other specialties such as orthopedics, oncology, neurology so that they understand how we as physical therapists incorporate all of our physical therapy knowledge and skills into our interventions for patients who have wounds, as well as those skills that are specific to our specialty. I have had to convince even my academic department chair that many of our patients are getting exercise, gait training, orthotics, and biophysical technologies in addition to the wound care, and that these are interventions that no other discipline provides these patients.

I am also committed to working with the Task Force that is petitioning for a Board Certification Specialty for wound care therapists so that we can develop residencies and fellowships that will train more of our young clinicians after entry level graduation.

Again I thank you for the opportunity to serve you, I welcome all of your suggestions, and I will need all of your help to meet our goals. Please contact me at rhammpt@msn.com with any concerns, questions, suggestions, and volunteer interests that you have. I look forward to hearing from you!!!

Welcome New Members

August 26, 2010 to February 28, 2011

Christopher Farr	Michelle Stewart
Valerie Gray	Nadia Sarapuddin
Clariza Ibanez	Rebecca Garza
Leslie Crompton	Kasie McNabb
Audra Mathis	Christina Murdock
Brandon Weipert	Matthew Shaffer
Deborah Andre	Douglas Angiel
Tomika Lowe-Lopez	Megan Rush
Kenneth Fabugais	Jeanie Hangartner
Jennifer Werwie	Matthew Wade
Brandie Tomme	Karesa Keesee
Linlee Martin	Daniel Hirsch
Amanda Williams	Laura Reising
Loupel Antiquiera	Jesse Coffelt
Eugene Antunes	Ashley Beavers
Kelci Rodgers	Yingna Li
Rebecca Labastida	Eva Loewen
Magdalena Bialas	Joseph Jacquez
Brie Holst	Megan Galloway
Dawn Carrigan	Condes Jessica
Veronica Perez	Alvaro Hinojosa
Brandi Spears	Alexandria Adkins
Ricky Alaniz	Willie Beavers
Ileana Moreno	Robert Zeid
Travis Kimbrough	

WMSIG Update

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Petition Signatures - Sharon Lucich

Definitions: Name, Definition, Title -

Harriett Loehne

Eight Year Pro Forma Financial Statement -

Val Sullivan

Minimum Eligibility Requirements - Pam Unger

The next status report will be June 22, 2011. Our deadline for completion is November 2011. This will depend on whether or not the Practice Analysis done by Joe McCulloch's group that they are allowing us to use, will be satisfactory for what we need. Our ABPTS liaison, John Halle, is working with Glenn Irion, Leader of the Specialized Knowledge of the Practice Analysis Section. Rose Hamm's Section on Specialized Functions of the Practice Analysis is complete.

Sharon Lucich, Leader of the Petition Signatures, had the Petition of Interest ready for inauguration at

CSM for signatures. 100 signatures are required – we were thrilled to count 140 signatures at the CEWM Section Meeting Friday night. The more signatures we have, the better it will be. Please go to the Section website, print out the Petition, and have as many of your colleagues sign it as possible, then snail mail it back to Sharon. The only requirements for signing are that you must be a PT (PTAs not eligible – there is a PTA Proficiency exam already in place), practice wound management (does not have to be full time), and support our seeking specialization. You do not have to be a member of APTA and it does not obligate you to taking the exam if approved. The Specialization is not meant to take the place of the multidisciplinary certification available.

Thank you again for the privilege of serving as President of this terrific group of people. Happy Spring to everyone!

Harriett

In Memoriam

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on "The Relationship of Gamma De-efferentation to Tension in Skeletal Muscle" where he employed a human rather than animal model. His seminal paper, "The Functional Ambulation Profile," published in 1974, led to the development of an objective ambulation score that has since been adapted by clinicians and researchers worldwide. The development of this "functional ambulation performance (FAP) score", which provided a summary score for walking, along with the creation of a GaitRite portable walkway system, which electronically quantified temporal and spatial parameters of gait, galvanized a plethora of researchers who used his system to publish the gait characteristics in a wide range of patients. These populations included patients with multiple sclerosis, dystonia, club foot, elders with falls, Williams syndrome, stroke, cerebral palsy, spinal muscular atrophy, Parkinson's disease, rheumatic arthritic feet, fibromyalgia, diabetes, Frederick's ataxia, children with hemophilia, Hurler syndrome, Huntington's disease, Alzheimer's disease, cerebellar dysfunction, and a patient with Chariot-Marie-Tooth.

In addition to his research, Dr. Nelson served on numerous advisory boards including the Editorial Board of the Journal of Orthopedic and Sports Physical Therapy, the Archives of Physical Medicine and Rehabilitation, and the Peer Review Panel of the US Agency for Health Care Policy Research. He had been a Grant Reviewer for the National Institute for Disability Rehabilitation Research as well as the Center of Complementary and Alternative Medicine of the National Institutes of Health.

Dr. Nelson was an ardent supporter of the American Physical Therapy Association (APTA), serving on numerous task forces including Chairperson on the Section on Research, Chairperson on the Committee on Continuing Education of the New York Chapter of the APTA, Vice-chairperson on the Section of Electrophysiological and Electrokinesiological Measurement (now Clinical Electrophysiology), and Treasurer on the Section on Education. Art was a pioneer in EMG/NCV education. He was involved as a Charter member of the Section on Clinical Electrophysiology. Art was one of several pioneering therapists to codify the educational requirements for therapists seeking advanced training in EMG/NCV. Having helped develop the first five-day course in EMG (sponsored by APTA) in 1973, he taught for more than 35 years in EMG/NCV training.

Dr. Nelson had also received numerous honors and awards throughout his esteemed career. He was a Catherine Worthingham Fellow of the APTA and a Founders Day Honors Scholar at NYU (1966), received the Distinguished Service Award from the New York Chapter of the APTA (1973), and has been listed in both *Who's Who in America*, and *Who's*

Who in Health Care. On April of 2002, Dr. Nelson was honored at NYU with the Distinguished Faculty Award during the NYU PT Department's 75th Anniversary, Diamond Jubilee.

As testimony to the NYU PT Department's profound appreciation for Dr. Nelson's monumental contribution to the field, the Department's human performance laboratory had been named in his honor several years ago. Faculty and graduate students routinely conduct research and generate new knowledge at the Department's "Arthur J. Nelson Jr. Human Performance Laboratory," a state-of-the-art facility with a focus in the area of pathokinesiology. Also in his honor, the department continues to bestow "The Arthur J. Nelson Award" annually to a deserving graduating student who achieves superior academic and clinical excellence and demonstrates interest and potential to be a leader in the field of electrotherapy.

The physical therapy profession, NYU's Department of Physical Therapy and generations of students are indebted to the vision and leadership, research and teaching, clinical talents and mentorship of this great man - a "Father" of the Physical Therapy Profession.

Dr. Nelson is predeceased by his wife of 47 years, Jacqueline M. Nelson and their son Paul. He is survived by his wife Ardeth, whom he married in 2002; his daughter, the Rev. Susan Nelson-Colaneri, her husband Joseph and daughter Katie; his son James Nelson, his wife Deborah, their daughters Kari, Tonya and Krysta and their son Erik; his sister Adrienne Ødegård and two brothers, Peter and Roger Nelson and their families. He is also survived by Ardeth's daughter Susan Stolzenhaller; her sons Blane, Davis and Keith Logan; and their families.

Donations may be sent to the NYU Physical Therapy Support Fund (noted for the Arthur J. Nelson Award and Lab in the memo section), New York University, Department of Physical Therapy, 380 2nd Ave., 4th Floor, New York, NY 10010.

Clinical Electrophysiology and Wound Management Section

Michael Parker, Editor

Editorial and Advertising Office

MICHAEL PARKER

University of Mary

7500 University Drive, Bismarck, ND 58504

mparker@umary.edu

Newsletter (ISSN 0889-7824) is published three times per year. Annual subscription rate is \$30/USA and \$40 foreign. ©1991. All advertisements in the newsletter are accepted on the basis of conformance with ethical standards of the CEWMS. No effort is made to verify accuracy, nor does the printing of advertisements imply endorsement.

Advertising prices: Full-page/\$800, 3/4 page/\$600, 1/2 page/\$400, 1/4 page/\$200. These rates are for all three issues. The price is prorated for ads placed in less than three issues.

Membership Matters

By **Karen Gibbs**

CEWM Membership Chair

Hello Everyone! First off – a big “thank you” to everyone that helped staff the Section’s booth at CSM. It was a great conference and we had lots of people visiting the booth. Also, thank you to all the members who signed the ABPTS wound management specialization petition during CSM. We needed to have a minimum of 100 signatures to demonstrate sufficient support for the application. Over 140 signatures were obtained at CSM!!! The goal is to overwhelm ABPTS with support, so if you haven’t signed the petition yet, go to the website (www.aptasce-wm.org) and download it today!

The Membership Committee is working on providing more opportunities for our student members to become more involved in the Section. We have over 100 student members! An email went out early in March requesting help in four different areas: 1) help with developing our Facebook page, 2) additional booth staffing at conferences, 3) developing a student area of the newsletter, and 4) developing opportunities for students to share their PT/PTA related research projects, videos, and presentations with the rest of us via the website. Based on the initial responses I’ve received, I believe we’ll have a

few active student committees working on projects by the end of April! If anyone has additional ideas on how to make our Section’s student membership more valuable, please let me know!

The next big conference will be APTA’s Annual Conference in National Harbor, MD, June 8-11th. I could really use some help staffing the booth during the following times: Thursday, June 9th from 1:00-6:00, Friday, June 10th from 11:00-4:30, and Saturday, June 11th from 10:00-1:00. If you can help out, please email me.

Sharon and I will be taking the booth to the National Student Conclave in Minneapolis, MN, October 21-23rd. I don’t know the exhibit hall hours for this conference yet, but if anyone is planning on attending and would like to spend some time at the booth, please let me know. Several students stopped by the booth last year and requested wound management programming so Sharon and I are working on trying to make that happen. Hopefully we’ll hear back from APTA about this soon.

If you have ideas about how the Membership Committee can better serve you or if you’re looking for more ways to become involved in the Section, please just email me - I’ll drag you right in! Have a wonderful Spring, enjoy the sunshine and warm days, and I hope to see you at AC!

Information from Your Executive Director

By **Anne Daugherty**

Executive Director

Below are a couple of items from the American Physical Therapy Association I thought you would find some interest in:

APTA Unveils Today’s Physical Therapist

APTA is pleased to roll out Today’s Physical Therapist: A Comprehensive Review of a 21st Century Health Care Profession, a resource designed to educate policymakers, payers, prospective students, and the public about the physical therapy profession. This new publication pulls together various subject matters and issues about the physical therapy profession from licensure and specialization to education and research, to the role of the PTA and payment for physical therapist services. Today’s Physical Therapist: A Comprehensive Review of a 21st Century Health Care Profession provides readers with a “one-stop” location to learn where physical therapy is as a profession today and where it is going in the 21st century. This document also will assist in the battles that many APTA chapters face at the state level, as other health care professions often attempt to inaccurately or inappropriately define the physical therapy profession through legislative and regulatory efforts.

As part of APTA’s Go Green initiative, the associa-

tion will push use of this document via electronic avenues. A PDF copy of the document is available at www.moveforwardpt.com (under For Health Care Professionals).

Registration Open: 2011 PT Day on Capitol Hill

Be a part of this important time in the history of the profession and join your colleagues for the 2011 PT Day on Capitol Hill June 8-9. This year’s event will be held in conjunction with the House of Delegates meeting and Annual Conference, providing a unique opportunity to have your voice heard by your legislators. At the event, participants will hear from decision makers on Capitol Hill, learn to effectively communicate with elected officials, receive an update on the legislative and regulatory issues of APTA, and lobby members of Congress on behalf of the profession.

The PT Day on Capitol Hill will begin with afternoon programming on Wednesday, June 8. A networking breakfast starts at 6 am on Thursday, June 9, with the PT Rally on Capitol Hill beginning at 8 am. The event will conclude with the opportunity for you to take your message directly to your member of Congress. Wednesday evening PT-PAC will host entertainment by the Capitol Steps (tickets needed).

For a full agenda and more information about

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EMG Corner

By Jeff Slear, PT ECS

Since the last newsletter, much has happened with EMG studies. Three areas in particular have been active.

The first deals with the Medicare intermediary for New York, Indiana, Kentucky and Connecticut, National Government Services (NGS). Following hearings in autumn 2010, (which were attended by PT's doing EMG/NCV studies), NGS issued a local coverage decision (LCD) in January 2011 that was to go into effect in March of 2011. This LCD would have denied payment for the professional component (PC) of the EMG examination to physical therapists.

The Section, APTA, and the Kentucky and New York chapters of APTA requested the LCD not be implemented. In addition the Section, APTA and the Kentucky chapter hired a Medicare consultant, Dr. Gerald Rogan, to explore what options were available to overturn this LCD. After discussion with the medical director of NGS as well as the physician who wrote the LCD, implementation was delayed for 45 days until the middle of April 2011. Gayle Lee, the Director of Federal Payment and Regulatory Affairs for the APTA sent a letter on March 07, 2011 to Dr. Costantino, the medical director of NGS, thanking him for delaying implementation of the LCD. In her letters Ms. Lee details current CMS policy and concluded with the following:

Therefore, we strongly urge you to revise your policy to ensure that certified physical therapists (and those who are grandfathered) can continue to bill for both the technical and professional components of these tests so that it accurately reflects state law and Medicare's policy on physician supervision of diagnostic tests, which was issued in Program Memorandum B-01-28 and reaffirmed in Transmittal 2119 dated December 14, 2010.

At the time of writing this article we are awaiting the response from NGS.

PT's doing EMG studies in California have not been getting paid for the professional component (PC) of the examination. Palmetto GBA in California had mistakenly interpreted California state law as not allowing physical therapists to provide the professional component of EMG/NCVs. After much back and forth spanning several years, it appears at this point that the PC component will be paid retroactively back to 2008. However Palmetto GBA is still in the process of "making this happen" and is requiring documentation to be submitted by the PT's that are involved in this issue. Once this final request is dealt with, it is expected that payment will be made.

North Carolina is the final state with payment issues. Dr. Matt Hornsby PT, ECS who practices in North Carolina was kind enough to provide the following.

"In February 2008 BCBS of NC and several other states adopted the AANEM electrodiagnostic testing policy, essentially word for word. It clearly states that

only Physicians can perform EMG/NCV studies. BCBS created an MCAP (medical consultant advisory panel) committee made up entirely of neurologists who then prepared this new policy, of course without input from other providers. I and other physical therapists were not notified until December 2009 that we were not in compliance with new BCBS policy. I responded to that letter and notified Physical Therapy national and local organizations about our problem. We had several conference calls to discuss our course of action.

BCBS refuses to meet to discuss the issue. We have contacted the insurance commissioner's office, written appeal letters and sent letters from referring physicians all without success. I have recently met with our local state legislature representative, Jim Davis who is on the insurance committee. He has vowed to help with this problem due to the consumer harm it is creating. Dean McCall, our NC PT president is also working behind the scenes on several measures that may put pressure on BCBS. The APTA has also sent a letter on our behalf. The response from BCBS to that letter was that they will revisit the policy in 2012 (to be reviewed by the MCAP committee of neurologists who created this policy initially). I do know that South Carolina is having the same issue. It seems to be spreading to several states, if not already a national policy. I have personally performed over 100 EMG/NCV tests on BCBS patients without reimbursement over the past year. This biased policy is not only harmful to the consumer but is having a negative impact on numerous physical therapy practices here in NC.

Interestingly, the BCBS policy does allow neurologist's technicians and chiropractors' reimbursement".

As has been noted previously in this column, restricting/limiting third party payments to PT's doing EDX studies in the latest way that various physician groups are attempting to restrict our practice. As always please notify your local APTA chapter, the Section, or APTA if you experience any problems such as the ones highlighted here. That is the only way those organizations can work to correct them. A special thanks to Robert Sellin and Arnold Tripp for providing information for this column.

A Message from the Program Chair

By Stephanie Woelfel

A big thank you to all who were involved in CSM 2011 as participants, speakers, and volunteers. We look forward to another year of strong programming in Chicago for 2012. Abstract submission is still open on Scholar One until June 6, 2011 at <https://www.apta.org/CSM/>. Please contact me at stephpt@hotmail.com with any questions. Thank you!

CSM Poster Presentations

Clinical Electrophysiology and Wound Management Section

New Orleans, Louisiana
February 2011

Hinman MR, Powers NL, Snowden SA, Tunnell D, O'Connell DG.

Validity and reliability of TENS as a test of sensory perception

Institution: Physical Therapy, Hardin-Simmons University, Abilene, TX.

Abstract

Purpose/Hypothesis: (1) to determine the concurrent validity of transcutaneous electrical nerve stimulation (TENS) sensory threshold test with monofilament (MF) testing in adults with normal and impaired sensation; (2) to determine the interrater reliability of the TENS test; (3) to establish a range of normal values for the TENS test; and (4) to compare differences in TENS sensory thresholds between age groups and between those with normal and impaired foot sensation.

Number of Subjects: 73 subjects (M=23, F=50) aged 23 to 96 years were recruited from a local university and various senior centers in Abilene, TX.

Materials/Methods: After signing an informed consent and completing a demographic questionnaire, MF and TENS testing were conducted on both feet of each subject. Test sites included the dorsum of the foot and plantar surface under the 1st and 5th metatarsal heads and heel. MF testing began using a .5 gram MF; the MF weight was increased until the subject successfully detected pressure at that test site. Subjects were classified as normal or impaired based on their ability to detect at least a 10 gram MF over each test site. TENS testing was conducted with a Vectra® Genisys stimulator (Chattanooga Corp., Hixson, TN) using an asymmetric, biphasic waveform. Pulse parameters included a frequency of 100 Hz and duration of 60µsec; intensity (mA) was slowly increased until subjects perceived a change in sensation. A subset of 15 subjects was immediately retested on one foot by a second investigator to assess interrater reliability. Pearson and intraclass (ICC) correlation coefficients were used to determine the validity and reliability

of the TENS test, respectively. Sensory thresholds of subjects in each age group and each sensory group (based on MF testing) were compared using a multivariate analysis of variance. All data were analyzed at the .05 alpha level using SPSS 17.0.

Results: Significant ($p<.01$) moderate to strong correlations ($r=.50-.71$) between the TENS and MF tests were found at all anatomical sites. Good interrater reliability ($ICC=.82-.92$) was found at all sites except the 5th metatarsal head ($ICC=.31$). Significant differences in TENS thresholds were found between age groups at all sites ($F=18.494, p<.001$). In addition, TENS thresholds differed significantly between subjects with normal and impaired sensation even when controlling for the effect of age ($F=21.124, p<.001$). Normal ranges were documented for each test site based on the means and variance of normal subjects.

Conclusions: TENS is a valid method for detecting age-related or neuropathic changes in foot sensation in adult subjects. The TENS test appears to have acceptable interrater reliability.

Clinical Relevance: TENS units may be used as an alternative to MF testing to quantify sensory thresholds in adults with normal or impaired foot sensation. However, further data should be collected on neuropathic individuals to determine the specificity and sensitivity of the TENS sensory threshold test.

KEYWORDS: sensory screening, sensory testing, sensory threshold.

Cliff J, Crosby S, Johnson J, Knoernschild R, McIvor S, Powell K.

Reliability of Student Physical Therapists in Measuring Wound Surface Area

Institution: University of Tennessee Health Science Center, Memphis, TN.

Abstract

Purpose/Hypothesis: Accurate measures of wound surface area (WSA) are important for determining the healing rate of wounds, assessing the effectiveness of wound care plans, and

utilizing appropriate billing codes. Because patients are not always seen by the same physical therapist, wound measurements should have high interrater as well as intrarater reliability. In addition, wound measures should be easy to perform in a clinical setting and require minimal training. The purpose of this study was to determine the reliability of novice, student physical therapists in measuring WSA with a computerized wound documentation system and the counting squares method.

Number of Subjects: 27 wounds

Materials/Methods: Wound surface area was calculated by two methods: a computerized wound documentation system (Visitrak, Smith & Nephew) and the counting squares method (CSM). Each wound was traced on Visitrak grid sheets by two student physical therapists without observing each other. After all measurements were completed, each student used the Visitrak tablet and CSM to determine WSA. When using the Visitrak system, the grid sheet was placed on the Visitrak tablet, a stylus was used to retrace the wound tracings, and

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Executive Director

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this event, visit www.apta.org/capitolhillday. Registration for the event is free but required. APTA encourages members to get the word out to friends and colleagues and bring one along to the event. Register now and bring your voice to Capitol Hill on behalf of your profession.

APTA's Pro Bona Physical Therapy Services Web page

APTA's Pro Bono Physical Therapy Services Web page offers resources to guide APTA members in providing or supporting pro bono physical therapy services. The Web page includes information on networking with colleagues, legal and operational considerations, suggestions for involvement, suggested readings and resources, and information on current issues and needs.

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the tablet displayed WSA in cm². During CSM, each student counted the squares contained within the wound tracings to determine WSA. Full squares counted as 1 cm² and partially-filled squares counted as 0.25, 0.50, or 0.75 cm².

During all calculations, the two students worked independently and assessed wound tracings in a random order. The students calculated WSA twice for both methods to determine intrarater reliability. To determine inter-rater reliability, the first measures made by both students for each technique were compared.

Results: The intraclass correlation coefficient (ICC) was used to determine reliability: ICC(2,1) was used to determine inter-rater reliability, and ICC(3,1) was used to determine intrarater reliability.

The ICC values for CSM were as follows: 0.99 for intrarater reliability of rater A, 0.99 for intrarater reliability of rater B, and 0.98 for inter-rater reliability.

The ICC values for the Visitrak method were as follows: 0.99 for intrarater reliability of rater A, 0.99 for intrarater reliability of rater B, and 0.98 for inter-rater reliability.

Conclusions: With no wound care experience and minimal training, student physical therapists achieved good reliability with both wound measurement techniques.

Clinical Relevance: With greater availability, lower cost, and reliability equal to that of the Visitrak, CSM is a viable choice for measuring the area of a wound but may be time-consuming when calculating WSA of a large wound.

KEYWORDS: wounds, measurements, reliability.

Kerman BM, Parker J, Myers R.

Comparison of Multiple Mattress Overlays and Body Positions on Interface Pressure in an Individual with Paraplegia

Institution: MossRehab, Philadelphia, PA.

Abstract

Background & Purpose: Recent

evidence suggests the prevalence of pressure ulcers in people with spinal cord injury (SCI) has increased over the last 10 years. Individuals with SCI have a greater risk of developing pressure ulcers as a result of impaired circulation due to their immobility. Clinical practice guidelines developed by the Consortium for Spinal Cord Medicine recommend evaluation of the individual and his/her support surfaces for optimal maintenance of skin integrity. Pressure mapping provides a quantitative measure of interface pressure and the efficacy of various support surfaces. Data collected from pressure mapping can guide clinical decisions regarding the optimal support surface in various body positions. The aim of this case study was to determine the effectiveness of various mattress overlays and body positions in an individual with SCI through the use of a pressure sensing mat.

Case Description: The participant was a 19 year-old male with T5 ASIA B paraplegia, 3 months post-injury. He had a healing stage II pressure ulcer in the sacral area. Pressure mapping was performed using the FSA pressure sensing mat with the participant on 4 different support surfaces in 4 different body positions. The support surfaces included a standard hospital mattress, a gel overlay (Pyramid Industries Gel-Lite III), an alternating air mattress overlay (Prevent-a-Care II) and a 3-inch commercial foam mattress topper (Memory Touch Therapedic Mattress Comfort Topper). The body positions were supine with the head of the bed (HOB) at 0 degrees, supine with HOB at 30 degrees, side-lying and prone. Pressure mapping data was recorded in the pelvic girdle area after five minutes. Outcome measures included the highest peak pressure, sensing area, coefficient of variation and average pressure distribution.

Outcomes: In the supine position with the HOB at 0 deg and 30 degrees the commercial foam mattress had the best results in all outcome measures except for average pressure distribution in the 0 deg condition. In the side-lying position the alternating air mattress overlay performed the best followed by the commercial foam mattress. Pressure distribution was the best in all support

surfaces in the prone position with the commercial foam mattress and gel overlay performing the best. Despite its superior performance in the majority of positions, the commercial foam mattress showed a 27.94% increase in the highest peak pressure over a 5 minute period in the supine position. The patient reported the highest level of comfort with the commercial foam mattress.

Discussion: The quantitative data provided by the pressure mapping system suggested that the commercial foam mattress was the most effective in reducing interface pressure in this individual. Further research is necessary to determine the effects of time on the pressure relieving capabilities of this type of mattress. Possible advantages of using a commercial foam mattress include decreased cost, increased availability to general public, and increased patient comfort.

KEYWORDS: Spinal Cord Injury, Pressure Ulcers, Mattress.

Jefferson J, Brantley J, Gilliland C, Isom N, Kucala J.

Electrophysiological and Vascular Findings in Two Test Positions for the Ulnar Nerve

Institution: Physical Therapy, University of South Alabama, Mobile, AL.

Abstract

Purpose/Hypothesis: Patients with symptoms of ulnar nerve entrapment are commonly assessed via electrodiagnostic testing and clinical provocation tests for irritability to percussion and extensibility. Clinical findings with provocation tests are not always confirmed with electrodiagnostic findings. It has been suggested that this may in part be due to the positioning of the limb during testing. While electrodiagnostic testing is usually performed in a standardized test position, patients may only get their symptoms in more provocative positions, such as when their arm is over their head. The purpose of this study was to compare the effects of two arm positions - the National Institute of Safety and Health (NIOSH) standardized arm position for nerve conduction studies on the ulnar nerve and the upper limb

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neurodynamic test for the ulnar nerve (ULNT3) position - on electrophysiological and vascular parameters.

Number of Subjects: 26 (52 arms)

Materials/Methods: Electrodiagnostic parameters included ulnar motor nerve conduction velocity (NCV) to the abductor digiti minimi (ADM) and first dorsal interosseous (FDI) muscles, and ulnar F-wave minimal latency. Vascular status was assessed using a LASER doppler to measure digital tissue perfusion, and via radial pulse status on palpation. Subjective responses to the Tinel test at the wrist and elbow, and presence or absence of symptoms due to positioning were also recorded.

Results: The across-elbow NCVs were slightly higher (4m/s) in the ULNT3 position for both the ADM ($p=0.02$) and FDI ($p=0.04$). Digital perfusion was decreased by 65% at 30 seconds ($p<0.001$), by 58% at 60 seconds ($p<0.001$), and by 48% at 180 seconds ($p=0.004$) into the ULNT3 position. There was also a higher incidence of decreased radial pulse status on palpation in the ULNT3 position ($p<0.001$). Neither F-wave latency nor the incidence of a positive Tinel test was affected by limb position.

Conclusions: Despite a significant drop in digital tissue perfusion there was no corresponding drop in NCV or any increase in F-wave latency in the ULNT3 position. The ULNT3 produced distal symptoms in less than 10% of arms, suggesting the ulnar nerve and its neurovascular supply is fairly resilient to short duration stretching in a healthy population.

Clinical Relevance: In healthy individuals neither ulnar NCV nor F-wave minimal latency are adversely affected in the ULNT3 position, despite a drop in tissue perfusion and an increased incidence of radial pulse loss on palpation. These findings support the concept of performing electrodiagnostic testing for the ulnar nerve in a more provocative position in patient populations, with little fear of false positive findings during recordings of motor NCV or F-wave latency.

KEYWORDS: NCV, ulnar nerve, neural provocation test.

Rutland MD, O'Connell DG, Fadal C, York G, Richards T.

The Effects of Head Position on Muscular Strength and Recruitment of Spinal Stabilizers during the Isometric Squat

Institution: Physical Therapy, Hardin-Simmons University, Abilene, TX.

Abstract

Purpose/Hypothesis: To compare head position and 1) force output, 2) local and global muscle activation, and 3) differences in muscle activity between the left and right sides of the local and global muscle systems during a maximum isometric squat

Number of Subjects: 12 males (age=22.8+1.99 yrs, weight=184+17.44lbs, height=70.1+1.08in)

Materials/Methods: Participants experienced in weight lifting were recruited from 2 local universities. Surface EMG (wireless Noraxo TeleMayo 2400 unit and TeleMayo PC interface) EMG electrodes were placed bilaterally over the gluteus maximus, internal oblique, external oblique, lumbar erector spinae, and multifidus muscles. Cervical ROM headgear unit with laser-mounted pointer was fitted to subjects to obtain head neutral (HN), head upward (HU), and head downward (HD) positions. A 14.5 lb bar attached to a J-Tech Medical force transducer via two chains was fitted to each subject's height. Sixty degrees of knee flexion and 85 degrees of trunk flexion were utilized as the starting point for the ensuing 10 maximal lifts. Three lifts were performed for each of the 3 head positions, with 1 warm-up lift performed prior to testing. Subjects rested 3 minutes between each lift and 15 minutes between each position. Subjects performed 5-min. warm-up before each position. Order of subjects and positions were randomly selected.

Results: Although the mean force output in the HU and HN positions was higher than the output produced in the HD position, the ANOVA revealed no statistically significant differences in lift force produced between the 3 head positions ($DF=2, F=.802, p=.457$). Similarly, the HU

position consistently produced greater muscle activation than the HN or HD positions; however, the MANOVA indicated that these overall differences were not statistically significant ($DF=10, F=.459, p=.913$). The univariate analyses comparing the right vs. left side activation of individual muscle groups also produced no significant differences with the exception of the external oblique muscle; left external oblique muscle reached a higher activation level than the right in all 3 head positions ($DF=1, F=4.289, p=.042$).

Conclusions: Head position did not have a significant effect on force output and muscle activation during the squat exercise. With a power of 0.229, there is weak correlation between head position on both force output and muscle activation.

Clinical Relevance: Although head position did not have any significant effects on force output and muscle activation, a head neutral position would be the most beneficial position during the squat exercise. A head up position is a motor program integrated in most experienced lifters; consequently, the use of experienced lifters in this study may have biased the results. The head neutral position allows the spinal stabilizers to be activated throughout the entire squatting motion, and with the use of inexperienced lifters, this may help prevent future injuries. Due to the small sample size and experience of the lifters in the head up position, further research is indicated.

KEYWORDS: weight lifting, muscle recruitment, squatting.

Young D, Estocado N, Landers M, Black JM.

A pilot study providing evidence for the validity of a new tool to improve assignment of NPUAP stage to pressure ulcers

Institution(s): Physical Therapy, University of Nevada Las Vegas, NV.; Physical Medicine and Advanced Wound Care Services, Sunrise Hospital and Medical Center, HCA, Las Vegas, NV.; and College of Nursing, University of Nebraska Medical Center, Omaha, NE.

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Abstract

Purpose/Hypothesis: The stage of the pressure ulcer (PrU) is one measure of severity. Pressure ulcer stages also help determine the usual treatment plan. Further, reimbursement is available for facilities that admit patients with full thickness PrU. Most studies on accurate RrU staging report good reliability for the National Pressure Ulcer Advisory Panel (NPUAP) stages. However, many of these studies use experts as subjects that do not reflect the ability of the average clinician to stage PrUs. A tool is needed to aid the average clinician in accurate staging of PrUs using NPUAP criteria.

Number of Subjects: 101 health care providers representing physical therapy, nursing and medicine

Materials/Methods: A tool was developed, called the N. E. One Can Stage (NEOCS), which combines representative pictures of pressure ulcers and other wounds with key words from each of the NPUAP stages on a disposable L-shaped ruled paper. Subjects included 101 health care providers representing physical therapy, nursing and medicine who were given a test on PrU staging. Pictures of 10 wounds were presented and the subjects staged the wounds first without the NEOCS, and then with the NEOCS. They also repeated the test 1 week later, again using the NEOCS.

Results: Test-retest reliability for all subjects was calculated and yielded the following: ICC (3,1)=0.793. Also, there was a statistically significant difference between the overall percent correct ($p<.001$) when subjects took the test without the NEOCS and when they took the test with the NEOCS.

Conclusions: The NEOCS is a cost effective, reliable, and valid tool to increase the ability of clinicians to accurately stage PrUs.

Clinical Relevance: The NEOCS may improve reimbursement for facilities and could drive better care for people with PrUs.

KEYWORDS: pressure ulcer, reliability, validity.

Aviles F.

Clinical effectiveness of a contact low frequency ultrasound on chronic wounds

Institution: Louisiana Extended Care Hospital – Natchitoches, Natchitoches, LA.

Abstract

Background & Purpose: Advanced wound care modalities are available for clinicians to utilize on chronic wounds to aid and “jump” start the stages of repair.

Contact low frequency ultrasound provides the ability to prepare the wound bed by removing nonviable tissue effectively, helping with bacterial management and it has been suggested to also aid with angiogenesis.

Case Description:

#1 79 year old male admitted as a last minute limb salvage measure. Two previous physicians recommended amputation due to an infected nonhealing diabetic foot ulcer.

#2 68 year old diabetic male admitted for treatment of his left foot cellulitis. Upon admission, the plantar aspect of his left foot had a blister like lesion with no open areas. This patient was slated for amputation due to the advanced clinical signs of infection including maximal amount of purulence upon I & D of area.

#3 62 year old diabetic female admitted with diagnosis of abscess on R buttocks MRSA positive. Patient had an I & D performed with limited necrotic tissue removal. After standard wound care for an extended time frame, contact low frequency ultrasound was begun utilizing a cylindrical probe and immediate progression of healing cascade noted.

Other case studies - the following section will contain before and after pictures of complicated wounds with extensive necrotic tissue, effectively removed with contact low frequency ultrasound.

Outcomes: Case study #1 - After treatment with contact ultrasound, the wound continued to improve despite a positive culture with no effective

antibiotics given. Limb salvage was successful and patient is able to use his remaining extremity for functional mobility.

Case study # 2 - Limb salvage was successful after immediate surgical debridement followed by multiple treatment with contact low frequency ultrasound. Proliferation of granulation tissue and decreased signs of infection were rapidly noted.

Case study #3 - Wound progression from a chronic wound to a wound that follows the stages of repair.

Contact low frequency ultrasound achieved excellent results on our chronic wound patient population and complicated cases. It effectively removed nonviable tissue especially when surgical debridement was not an option and/or sharp debridement failed to produce desired outcome within a reasonable amount of time. Retrospectively, it was also noted that the bioburden was managed with the use of this innovative device, thus subsequently reducing infection and delaying the use of antibiotics.

Discussion: In conclusion, as you can see through the multiple case studies, excellent outcomes were achieved using contact low frequency ultrasound. This modality delivers ultrasound energy to the wound bed, while selectively debriding nonviable tissue and promoting angiogenesis, in a pain free manner especially on complicated patients. Another advantage is that the contact low frequency ultrasonic debridement can be performed by physicians as well as non-physicians healthcare personnel.

KEYWORDS: Low frequency ultrasound.

Abstracts



Platform Presentations

Clinical Electrophysiology and Wound Management Section

New Orleans, Louisiana
February 10, 2011

Albaugh K, Biely SA, Cavorsi JP.

A case series: Use of a biocellulose dressing to deliver a topical antibiotic to reduce methylicillin resistant staphylococcus aureus (MRSA) and Gram-positive organisms and enhance wound healing

Institution(s): Neumann University, Aston, PA., and The Center for Advanced Wound Care, Wyomissing, PA

Abstract

Purpose/Hypothesis: The purpose of this retrospective case series was to determine the efficacy of a biocellulose wound dressing (XCell) in delivering Vancomycin, an antibiotic effective against MRSA and Gram-positive bacteria, as well as promoting healing in an otherwise stagnant wound.

Number of Subjects: Twenty three patients with lower extremity wounds who met inclusion criteria of semi-quantitative swab cultures positive for MRSA or Gram-positive bacteria and failure to heal or failure to respond to antimicrobial wound dressings were selected for treatment with Vancomycin-infused biocellulose dressings. Chronicity of the wounds ranged from 5 weeks to 121 weeks.

Materials/Methods: Informed consent was obtained. A three week pre-treatment period was compared to a three week period with use of the antibiotic-infused dressing. Wound surface area was measured weekly using a linear method of greatest length by greatest width. Swab cultures were taken weekly, before and during the treatment period. With physician prescription, the pharmacy prepared a 1 gram syringe of Vancomycin for infusion into the 3.5" x 3.5" biocellulose dressing by the clinician at the time of application. Dressings were changed 2-3 times per week.

Results: Surface area at the start of treatment averaged 14.5 cm². Collectively, there had been a 14.5% increase

in wound surface area, per week, during the 3 week period just prior to treatment with the antibiotic-infused dressing. During the first 3 weeks of treatment, there was a 24.6% decrease in surface area per week, a significantly greater reduction in surface area per week as compared to the changes seen pre-treatment (p=.02). Concurrently, all twenty three wounds experienced a reduction or complete eradication of MRSA or Gram-positive bacteria. All wounds went on to close, with time to heal ranging from 2 to 17 weeks from start of antibiotic treatment.

Conclusions: The hydrophilic nature of the biocellulose dressing appears to be an ideal medium to hold and deliver the antibiotic topically, as evidenced by the reduction in bacteria. Additionally, the composition of the dressing itself helps to maintain an optimal balance of wound moisture. Therefore, once bacteria has been sufficiently controlled or eradicated, the body can focus on more rapid wound healing.

Clinical Relevance: Bacterial burden, especially when due to resistant organisms, impedes the normal cascade of wound healing. Treating chronic wounds with systemic antibiotics often results in questionable permeation to the infected tissue and the potential for increased antibiotic resistance. These research findings present a novel approach to topically dose a discreet area of affected tissue without the side effects of a systemic drug. The dressing, as a delivery vehicle, may be capable of focused administration of other therapeutic drugs. A randomized controlled study is planned to confirm these findings.

KEYWORDS: Wound healing, MRSA, Vancomycin.

Greathouse D, Shaffer SW, Koreerat N, Rice L, Santillo D, Moore J.

Median and Ulnar Neuropathies in U.S. Army MEDCOM Band Members

Institution: U.S. Army-Baylor University Doctoral Program in Physical

Therapy, AMEDD Center and School, Fort Sam Houston, TX.

Abstract

Purpose/Hypothesis: Musicians have been reported as having a high prevalence of upper-extremity musculoskeletal disorders, including carpal tunnel syndrome (CTS). Previous research has not involved professional military musicians. Therefore, the purpose of this study was to determine the presence of median and ulnar neuropathies in U.S. Army Medical Command (MEDCOM) Band members, Fort Sam Houston, Texas.

Number of Subjects: Thirty-five U.S. Army Soldiers (30 males, 5 females), in the MEDCOM Band volunteered to participate in the study. The mean age of the band members was 36 ± 8.4 years (range 22-51). There were 33 right handed musicians, and the mean length of time in the U.S. Army MEDCOM Band was 12.2 years (range 1-30 years).

Materials/Methods: Subjects completed a history form, were interviewed, and underwent a physical examination of the cervical spine and bilateral upper extremities. Nerve conduction studies of the bilateral median and ulnar nerves were performed. Electrophysiological variables served as the reference standard for median and ulnar neuropathy and included distal sensory latencies (DSL), distal motor latencies (DML), amplitudes, conduction velocities, and comparison study latencies. Descriptive statistics for subject demographics and nerve conduction study variables were also calculated

Results: Ten of the thirty-five subjects (29%) presented with abnormal electrophysiologic values suggestive of an upper extremity mononeuropathy. Nine of the subjects had abnormal median nerve electrophysiologic values at or distal to the wrist. Two of these nine subjects had bilateral abnormal values. One subject had an abnormal ulnar nerve electrophysiologic assessment at the elbow. Nine of these ten subjects had clinical examination findings consistent with the electrophysiological findings.

Conclusions: The prevalence of

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mononeuropathies in this sample of MEDCOM Band members is similar to previous research involving civilian musicians (20-36%) and far exceeds that reported in the general population. Prospective research investigating screening, examination items and injury prevention measures in musicians appears to be warranted.

Clinical Relevance: Median mononeuropathy at or distal to the wrist has been reported to be of significant concern in musicians, and this concern is reinforced in our sample of professional military musicians.

KEYWORDS: nerve conduction studies, prevalence of carpal tunnel syndrome, median nerve.

Schrank E, Telemeco T.

The Effect of an Analgesic Spray on Electromyography (EMG) Signal Parameters and on Alleviating the Pain Associated with Needle Examination

Institution: Division of Physical Therapy, Shenandoah University, Winchester, VA.

Abstract

Purpose/Hypothesis: To investigate the effects of a topical pain relieving agent on EMG signal parameters and on alleviating the pain caused by subcutaneous needle insertion during needle EMG examination.

Number of Subjects: A convenience sample of 28 volunteers was used. Exclusion criteria included: history of neurological disease, the presence of neuropathy, or any recent history of anticoagulative therapy.

Materials/Methods: An analgesic spray (Gebauer Pain Ease) and a placebo spray were used for this research. Prior to starting the test, the subject's arm to receive the analgesic spray was randomly selected. The other arm would then be used to receive the placebo spray. The selected muscle was sprayed with the appropriate spray (placebo or analgesic spray) for 5 seconds. The examiner would wait for 10 more seconds and then insert the needle into the muscle. Each subject received needle EMG insertion into six upper extremity muscles in each arm. The order of needle insertion was randomly varied with each

patient. Pain of the needle insertion was measured using a 10 cm visual analogue scale (VAS). EMG signal parameters including insertional activity, firing rate, duration, frequency, and amplitude were recorded for each needle insertion.

Results: Application of the analgesic spray resulted in a statistically significant reduction of pain as compared to the placebo spray at four of the six application sites. No significant difference in EMG signal parameters was found in sixteen of the eighteen measurements taken.

Conclusions: An analgesic spray appears to be a clinically useful option to decrease the pain of needle EMG insertion without altering the results of the EMG examination. This may encourage patients to complete the examination with less pain and anxiety regarding needle insertions.

Clinical Relevance: Use of this spray may increase a client's willingness to complete a needle EMG exam as well as ease patient anxiety that is common with this exam.

KEYWORDS: electromyography, pain, analgesic spray.

Boyce D.

The electrophysiological, functional, and prognostic characteristics of a patient that sustained a femoral neuropathy following total hip arthroplasty

Institution: Physical Therapy School, Bellarmine University, Louisville, KY.

Abstract

Background & Purpose: The anterior surgical approach in total hip arthroplasty is a relatively new technique. Advantages of this technique include a reduced incidence of post-operative hip dislocation and sparing of the hip abductors and extensors which are important in gait. A complication of this surgical approach includes injury to the femoral nerve in the region of the femoral triangle. The purpose of this case is to examine the electrophysiological and functional changes over a 12 month period in a patient that sustained a femoral nerve injury following total hip arthroplasty using an anterior approach. In addition, this case study will examine how electrophysiological and functional data can be of value as

a prognostic indicator.

Case Description: An 87 year old female status post anterior approach total hip replacement was experiencing difficulty meeting her inpatient patient rehabilitation goals of transfers, standing, and ambulation. The attending physical therapist noted signs and symptoms consistent with a uni-lateral femoral neuropathy on the operative limb. The attending physical therapist recommended that an EMG/NCS study be performed to evaluate the neuromuscular status of this patient. EMG/NCS testing revealed an axonal loss injury of the left femoral nerve. Serial EMG/NCS studies, functional outcome measures, and strength and sensation impairments were collected over a 12 month period in order to track the functional and electrophysiological changes of this patient. In addition, this data was compared to a prior investigation examining prognostic indicators in patients with femoral neuropathy.

Outcomes: Over a 12 month period this patient demonstrated improvements in EMG; however NCS findings and functional outcome scores changed minimally. Impairment scores related to strength improved, however, sensory testing was unchanged. This patient's prognosis at initial EMG/NCS examination was determined to be poor based on the criteria of a prior study evaluating prognostic indicators following femoral neuropathy. This patient's actual prognosis seemed to match what has been published in the literature.

Discussion: It is important to note that physical therapists can identify the need for referral, and in some instances where they are qualified perform EMG/NCS testing. Prior prognostic studies have found that patients exhibiting axonal loss injuries with greater than 50% side to side amplitude differentials (demonstrated via nerve conduction studies) have a poor prognosis at 12 months. In this particular case, prior established prognostic indicators held true. Even though this patient's quadriceps strength improved by 3 manual muscle test grades, functional outcomes and NCS testing changed minimally. These findings are important when attempting to predict a patient's prognosis and determine

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there rehabilitative needs in order to minimize their functional limitations and disability.

KEYWORDS: Electromyography, Femoral Nerve, Prognosis.

Galloway KM.

Focal Median Neuropathy at the Wrist in an Obese Adolescent

Institution: School of Physical Therapy, Belmont University, Nashville, TN.

Abstract

Background & Purpose: Childhood obesity is at an epidemic level in the United States. As a consequence, many children and adolescents are at an increased risk for diseases which typically afflict adults.

Case Description: An obese 13 year old right hand dominant female was referred for evaluation of possible carpal tunnel syndrome. She presented with right greater than left hand pain predominantly in the thumb and numbness in all fingers. Symptoms were more pronounced at night, with nocturnal awakening due to hand numbness. She did not relate a history of any focused activity using her hands and did not own any hand held electronic devices. She had no medical history of diabetes. Clinical exam revealed reproduction of hand numbness with phalen's test bilateral, and with tinel's test at the right wrist. She also demonstrated significant adipose tissue in bilateral forearms with moderate swelling into the hands and fingers bilateral.

Outcomes: Nerve conduction and EMG examination revealed moderate median motor and sensory nerve compromise at the right wrist and mild median sensory nerve compromise at the left wrist.

Discussion: This case presents an unexpected finding in someone of this age. She had no precipitating trauma or strain. It appears likely that upper extremity swelling related to her obesity may have produced increased compartment pressures within the carpal tunnel.

KEYWORDS: median nerve, obesity.

Galloway KM.

Neuropathy Following Gastric By**Pass Surgery**

Institution: School of Physical Therapy, Belmont University, Nashville, TN.

Abstract

Background & Purpose: There are a variety of procedures available to assist in weight loss. Many morbidly obese patients have turned to bariatric surgery in recent years. Massive weight loss after bariatric surgery is associated with complications to include difficulty absorbing nutrients, electrolytes and bile salts. This can result in deficiencies in protein, iron folate, vitamin B12, calcium and fat -soluble vitamins after surgery. Abnormal values of vitamin A, vitamin D, zinc, thiamine, copper and selenium are also reported.

Case Description: A 54 year-old female was referred for evaluation of burning in bilateral lower extremities. She had a history of lumbar pain and an ache in the right thigh for several years. She was diagnosed with type II diabetes 14 months previous. She reports having underwent a gastric bypass procedure one-year prior, and has subsequently lost 60 pounds. Clinical exam revealed grossly normal gait and lower extremity strength across nerves and nerve root levels. She displayed a trace muscle stretch reflex response at the knee and ankle bilateral and decreased sensation to pinprick and light touch circumferentially in both feet and legs.

Outcomes: EMG and nerve conduction examination revealed a generalized neuropathic process in the lower extremities with no sign of focal lumbosacral nerve root involvement.

Discussion: Malnutrition as well as specific nutritional deficiencies can result in peripheral neuropathic changes following gastric by pass surgery. Copper deficiency in particular can lead to a demyelinating polyneuropathy. In this particular case, it is difficult to definitively determine if the polyneuropathic changes are related to her history of diabetes or to post surgical nutritional deficiencies. She did not have an EMG or nerve conduction study prior to her bariatric procedure. Nutritional analysis and supplementation may be needed to ameliorate the symptoms.

KEYWORDS: gastric by pass, obesity, neuropathy.

Euaparadom E.

Establishing muscle inhibition of the peroneus longus: Normative values of strength changes of ankle eversion in healthy adults utilizing interpolated twitch technique

Institution: Touro College, New York, NY.

Abstract

Purpose/Hypothesis: Ankle inversion injuries are a common injury, which may be attributed to weak ankle everters. Weakness can be due to atrophy or muscle inhibition of the peroneus longus muscle. Muscle inhibition is defined as the inability to fire all the motor units of a muscle. An easy test to establish if a muscle is inhibited is the interpolated twitch technique (ITT). The procedure includes getting a baseline strength, then apply electrical stimulation on the muscle until a twitch is seen. Strength is then reassessed while the individual is receiving the electrical stimulation. An increase in strength suggests that the muscle is inhibited, due to the fact that the electrical stimulation fires all the motor units that the individual is unable to fire on their own. However, little is known as to what percent change in strength is indicative of muscle inhibition. The literature reports that a change of 20% may be indicative of muscle inhibition. However, many studies had small sample sizes or did not test the peroneus longus. The purpose of the study was to normative values of voluntary activation (VA) deficits of the peroneus muscle utilizing ITT in healthy adults.

Number of Subjects: Forty-three subjects, male and female, ages 20-50 were recruited from the student body of Touro College. A signed written consent form was also obtained from each subject.

Materials/Methods: Subjects were placed in supine. Two straps were placed around the subject's thigh and proximal tibia crest to prevent the subject's leg from abduction during testing, which may increase eversion torque. The subject's foot was placed in 5 degrees of inversion and in neutral. The dynamometer was then set up against the lateral foot before the fifth metatarsal. Strength was taken with and without electrical stimulation,

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using a frequency of 35Hz.

Results: A total of 43 subjects participated in the study. Ten subject's were tested unilaterally, due to the other limb having a previous injury. The remainder of the subjects were tested bilaterally. The other subjects included in the study were only able to provide a unilateral leg secondary to ankle injuries. There were 42 right legs tested there were 35 left legs tested.

There were 26 males with a mean age of 26.88 ± 6.11 years. There were 17 females that participated with a mean age of 26.24 ± 4.25 years. Mean ankle eversion strength before electrical stimulation was 9.35 ± 4.41 kg and 11.168 ± 4.95 kg after electrical stimulation, resulting in a 23.42% percent change.

Conclusions: There was an 23.42% increase in ankle eversion strength when electrical stimulation was applied. These results are similar to what

is found in the literature, across other joints.

Clinical Relevance: Different sources of weakness needs different interventions. This study serves as a preliminary normative values for ankle everter strength using ITT, and can serve as a guideline for clinicians.

KEYWORDS: Electrical Stimulation, Strength, interpolated twitch technique.

**Clinical Electrophysiology &
Wound Management Section**

American Physical Therapy Association
1111 North Fairfax Street
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