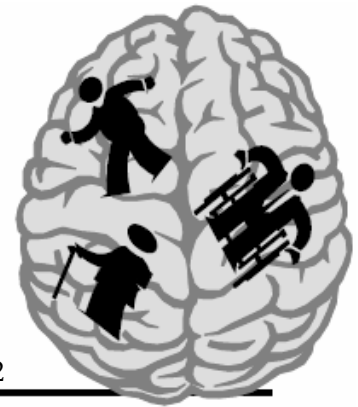


Degenerative Diseases

Summer 2007

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Newsletter of the Degenerative Diseases Special Interest Group
Neurology Section, APTA

A Message from the Vice-Chairperson

To My DDSIG Colleagues,

It has been my great pleasure to serve the DDSIG as the Vice Chair for the past three years. I would like to congratulate Donna Fry, PT, PhD for her election to the DDSIG Vice Chair position and to Daniel White PT, NCS for his election to the Nominating Committee. Together with the veteran SIG leaders Herb Karpatkin (Chair), Robbin Howard (Secretary), Cathy Curtis (Chair, Nominating Committee), Evan Cohen (Nominating Committee), they will continue to strengthen and advance our SIG towards achievement of all of its goals.

As part of my Vice Chair responsibilities, I have enjoyed planning the Combined Sections Meeting programming. The DDSIG programming at CSM 2007 included presentations by SIG executive committee members David Lehman, Cathy Curtis, and Donna Fry as well as Susan Bennett, PT, EdD, NCS. David and Sue's presentation entitled "Selected Topics Regarding Fall Prevention in Parkinson Disease and Multiple Sclerosis" attracted hundreds of participants who filled the room to capacity. The text of their presentations can be found in this newsletter. Our round table led by Cathy and Donna was also well attended and generated a lively discussion on "Research in the Degenerative Diseases". I sincerely want to thank all of the speakers who have provided excellent programming for the DDSIG during my tenure as Vice Chair.

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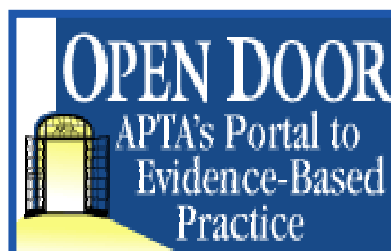
Newsletter Editor

Evan T. Cohen, PT, MA, NCS

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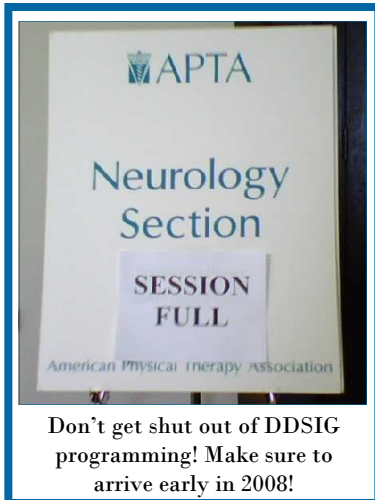
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Have you looked behind it?



Combined Sections Meeting 2007

February 14-18, 2007 Boston, MA



DDSIG Programming at CSM 2007 Presented to a Full House!

Despite the terrible blizzard, there was standing room only at the DDSIG programming at CSM 2007 in Boston. This was not surprising due to the quality of the presenters and the importance of the content. The DDSIG leadership would like to thank Susan Bennett, PT, EdD, NCS, MSCS and David Lehman PT, PhD for their excellent presentations. Drs. Bennett and Lehman presented on the “Evaluation and Treatment of Balance and Gait Disorders in Multiple Sclerosis and Parkinson’s Disease”. The hand-outs from their excellent presentation can be found online at the DDSIG website at the following web address: <http://neuropt.org/sigs/degen/SIG->

Combined Sections Meeting 2008

February 6-9, 2008 Nashville, TN



CSM 2008: Scheduled Programming

Plan ahead to attend the excellent programming that the DDSIG will offer at the 2008 APTA Combined Sections Meeting to be held Nashville, Tennessee from February 6-10.

- ◆ A presentation on “Respiratory Muscle Training in Individuals with Multiple Sclerosis – An Evidence-Based Approach” will be presented by Donna Fry, PT, PhD and Toni Chiara, PT, PhD. Impaired respiratory function is one factor that contributes to complaints of fatigue in individuals with MS. Donna and Toni will discuss how to assess respiratory muscle function and develop pulmonary exercise programs for individuals with MS based on research that they and others have conducted.
- ◆ Evan Cohen, PT, MA, NCS will lead the roundtable discussion on “Management of the Complex Patient with a Degenerative Neurologic Condition”. This discussion will focus on the decision making process during the physical therapy examination, evaluation and treatment planning for patients with neurodegenerative diseases using an evidence-based practice approach.

Don't miss these exciting opportunities to network with other Physical Therapy professionals and gain new knowledge to improve your practice!

Advances in Communication Technology using Brain Computer Interface (BCI)

Robert Cardillo and Jill Heathcock, MPT, Ph.D.

Finding appropriate communication devices continues to be a challenge for therapists and clients, especially in cases of advanced neurodegenerative diseases such as amyotrophic lateral sclerosis (ALS). Recent advances involving brain-computer interface (BCI) technology may offer a viable communication option, particularly for patients with little to no muscular or vocal control.

In general, BCI systems work by responding to the user's electroencephalogram, or EEG. The Wadsworth BCI group at the New York State Department of Health in Albany, New York has employed a well-known neural evoked potential termed the P300. This signal registers when the user perceives any event of interest. The BCI2000 software written by Wadsworth reads and interprets the user's EEG and translates the desired commands to the computer. A separate software program, BrainKeys, allows the user to interact with Windows-based applications such as Word, Eudora, or Internet Explorer. BrainKeys interfaces with the computer via a series of shortcut keys and consequently does not need a mouse, the use of which is often impossible for persons with movement dysfunction. An example of this would be choosing to print by hitting the keystrokes Ctrl + P instead of clicking on the print icon. In addition to allowing independent communication through text-based applications including email and voice synthesis, the BCI/BrainKeys system also offers environmental controls such as lights and television remote control.

In practice, an 8-channel electrode cap is placed on the user's head and the electrodes are filled with water-based gel. A caregiver verifies the signal quality using simple on-screen visualization. The user of the BCI application looks at a computer screen showing a grid of command options similar to a keyboard. The rows and columns of the grid light up in random order. BCI2000 monitors the user's EEG signal while the user attends to the desired row and column on the grid, thus effecting a selection.

Currently, one person with ALS is using BCI2000/BrainKeys on a daily basis. He makes several selections per minute and his effective word rate is increased using word-prediction software. This BCI system is his only means of independent communication and has allowed him to work 40 + hours per week, and to talk to his family, friends, and caregivers over email.

For more information on the BCI2000 home system study please contact Theresa Vaughn with the Wadsworth Center at vaughan@wadsworth.org. For more information on BrainKeys for use with any assistive communication system, contact Robert Cardillo at bob@cardillofamily.com.

A few articles related to BCI and rehabilitation...

Dobkin BH. Brain-computer interface technology as a tool to augment plasticity and outcomes for neurological rehabilitation. *The Journal of Physiology*. 2007;579:637-642

Ensrud, E. Can computers read your mind? *Neurology*. 2005;64:30-31

Kübler A, Nijboer F, Mellinger J, et al. Patients with ALS can use sensorimotor rhythms to operate a brain-computer interface. *Neurology*. 2005;64:1775-7

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Another task that I have enjoyed doing is working on the DDSIG newsletter. In addition to the CSM 2007 presentations by David and Sue, this newsletter features an article entitled "Advances in Communication Technology using Brain Computer Interface (BCI)" by Robert Cardillo and Jill Heathcock, MPT, Ph.D that contains information about innovative software that offers individuals with advanced neurodegenerative diseases an option for communication. Individuals with little or no muscular or vocal control may be able to use the system to communicate with their family, friends, and colleagues by e-mail. The DDSIG newsletter continues to be a great source of information for all clinicians interested in Degenerative Diseases.

In closing I would like to encourage members to become involved in the DDSIG. I have met many wonderful people and enhanced my professional knowledge and expertise through my association with the DDSIG. Members can advance the SIG by sharing their resources (i.e., videos, books, home exercise materials, etc.), suggesting ideas for case studies or research, contributing article summaries to the Hooked on Evidence database, contributing articles to the DDSIG newsletter or website, or running for an office. Contact any of the DDSIG leaders or attend the DDSIG meetings at CSM if you want to get more involved. I am so glad that I did.

Anne Kloos, PT, PhD, NCS

DDSIG HOOKED ON EVIDENCE AWARD!

Looking for a way to get more involved in the DDSIG and also earn CEU credits? Consider submitting article extractions to the Hooked on Evidence Database which can be accessed at the following website: www.hookedonevidence.com. More extractions of articles related to interventions for individuals with neurodegenerative diseases, especially amyotrophic lateral sclerosis and Huntington's disease, are greatly needed. The DDSIG plans to acknowledge the Neurology Section member with the greatest number of accepted extractions related to neurodegenerative diseases during the year 2007 with an award at the CSM 2008 DDSIG business meeting. If you would like to be considered for this award or have questions regarding article submissions, please contact DDSIG Vice-Chair Donna Fry at donnafray@umflint.edu

CONTRIBUTE TO YOUR DD SIG!

DO YOU HAVE ANY RESOURCES TO SHARE WITH OUR SIG? HOME EXERCISE MATERIALS, VIDEOS, BOOKS OR EVEN IDEAS FOR OTHERS TO FOLLOW UP WITH WOULD HELP TO ADVANCE OUR SIG AND HELP PATIENTS TO ACHIEVE THEIR GOALS!

DO YOU HAVE IDEAS FOR A CASE STUDY OR A RESEARCH PROJECT INVOLVING DEGENERATIVE DISEASES? CONTACT US AND WE MAY BE ABLE TO POINT YOU IN THE RIGHT DIRECTION REGARDING COLLABORATORS OR OTHER IDEAS!

INTERESTED IN CONTRIBUTING AN ARTICLE TO THE DDSIG NEWSLETTER? CONTACT US AND LET US KNOW WHAT YOU ARE INTERESTED IN WRITING!

Merci!
Danke!
Grazie!
Thanks!

The Leadership of the DDSIG would like to extend its gratitude to the outgoing members of the Executive Committee: Anne Kloos, PT, PhD, NCS, the outgoing DDSIG Vice-Chairperson, and David Lehman, PT, PhD, the outgoing DDSIG Nominating Committee Chairperson.

Anne and David, please accept our sincerest thanks for your service to the SIG and your profession. Your contributions will long be remembered. We hope that you will both continue your involvement with the DDSIG!

The DDSIG Leadership would like to extend it warmest welcome to the newly elected Leaders. Donna Fry, PT, PhD returns to the DDSIG Leadership as the incoming Vice-Chairperson. The vacancy on the DDSIG Nominating Committee was won by Daniel White, PT, NCS.

Thanks are also due to Catherine Curtis, PT, EdD, who will assume the role of Nominating Committee Chairperson for the coming year.

Bienvenue!
Willkommen!
Benvenuto!
Welcome!

DD Degenerative Diseases

Newsletter of the
Degenerative Diseases Special Interest Group

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DD SIG Information

DD SIG Home Page

<http://www.neuropt.org/sigs/degensig-degenerative2.cfm>

DD SIG Listserve Page

<http://health.groups.yahoo.com/group/DDSIG/>

PT Provider Directory

<http://www.neuropt.org/sigs/degensigproviderdirectory.pdf>