

PM&R Research News

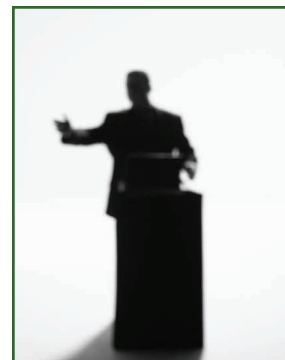
**UK Department of Physical Medicine & Rehabilitation
Division of Research**

Mission Statement: To provide excellence in rehabilitative care through advances in rehabilitation research, promoting collaborative efforts across health-related disciplines, endorse and support patient advocacy, and develop programs of excellence in education and teaching.

Volume 1, Issue 1

UK/PM&R—Cardinal Hill Research Seminar Series

The Department of Physical Medicine & Rehabilitation and Cardinal Hill Rehabilitation Hospital are pleased to announce a co-sponsored seminar series. The current plan for the research series is to hold four seminars a year in the Center of Learning at Cardinal Hill Rehabilitation Hospital. Three of the four seminars have currently been scheduled with keynote speakers including Dr. Stephen Page, University of Cincinnati; Dr. Ross Zafonte, University of Pittsburgh; and Dr. Brian Gold, University of Kentucky. Implementing this seminar series is another way that the PM&R Division of Research, in collaboration with Cardinal Hill Rehabilitation Hospital, seeks to fulfill its mission in promoting excellence in neurorehabilitative care.



New Faculty Member ~ Walter M. High, Ph.D.

The Department of Physical Medicine and Rehabilitation is pleased to announce that Dr. Walter High has joined the faculty as the Cardinal Hill Endowed Scholar in Brain Injury Neurorehabilitation. Dr. High came to UK from Baylor University where he served as Director of the Brain Injury Research Center at The Institute of Rehabilitation and Research (TIRR). He also was Director and a principal investigator of the NIDRR funded Traumatic Brain Injury Model System at TIRR. Dr. High is author of over 60 peer-reviewed publications and editor of the recent book *Rehabilitation for Traumatic Brain Injury*, published in 2005 by Oxford University Press. Dr. High's expertise and recognition strengthens our mission and efforts to make great strides in neurorehabilitation research.

NIH Funding ~ UK PM&R in Top 20

For the second year in a row, UK's Department of Physical Medicine and Rehabilitation ranked in the Top 20 among all United States Physical Medicine & Rehabilitation departments in NIH Funding. The recruitment of Dr. Walter High and the development of the Division of Research will increase our future funding opportunities.

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PM&R's 19th Annual Research Day

The Department of Physical Medicine & Rehabilitation announces its 19th Annual Research Day. The event will be held on Thursday, May 31st beginning at 9:00 a.m., at Cardinal Hill Rehabilitation Hospital. PM&R residents, students and post-docs, along with other disciplines involved in rehabilitation research will participate in this one-day event. We are delighted to announce that our featured speaker will be Dr. Ross Zafonte from the Department of Physical Medicine & Rehabilitation at the University of Pittsburgh. Dr. Zafonte's talk will focus on the "Future Perspectives on Rehabilitation Research and Care". In addition to scheduled presentations, a poster session will also be held. Awards will be presented for presentations and posters. Additional information may be obtained by emailing Barbara Hurst at bghurs1@email.uky.edu.

PM&R Research Seminar Series ~ Dr. Stephen Page



Stephen J. Page, PhD, is Director of Research and Associate Professor in the Departments of Rehabilitation Sciences, Physical Medicine and Rehabilitation, and Neu-

rosciences, all at the University of Cincinnati Academic Medicine Center. He is also Director of the Motor Recovery Laboratory at Drake Rehabilitation Center.

Currently, Dr. Page is the principal investigator of several grants, including 3 currently funded by the National Institutes of Health, and site PI for two FDA trials of new rehabilitative devices for stroke patients. Dr. Page graduated with a Bachelor's Degree from the College of Wooster,

completed a Master of Science Degree at Ball State University, and graduated with a Doctor of Philosophy degree in Motor Learning and Control from The University of Tennessee. At both Ball State and Tennessee, Dr. Page was recognized as Outstanding Graduate Student. Page also completed a post-doctoral fellowship in rehabilitation research at the Kessler Institute for Rehabilitation. In 2002, Dr. Page received the Early Career Award from the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD). He was also named a fellow of the Research Consortium of AAHPERD, and, in 2003, was named a fellow of the American Stroke Association. In February 2006, Dr. Page and the

Motor Recovery Laboratory received the HealthCare Hero Award, given annually by the Cincinnati Business Courier, and, in October, 2006, Dr. Page received the first ever Deborah Wilkerson Early Career Award, presented by the American Congress of Rehabilitation Medicine. In April, 2007, Dr. Page will receive the certificate of achievement for his research in stroke rehabilitation from the American Occupational Therapy Association.

Research Seminar Series #1
"Seeing is Believing: Mental Practice for Motor Function in Stroke"
May 9, 2007, 4:00 p.m.
Center of Learning, Cardinal Hill

PM&R Research Seminar Series ~ Dr. Ross Zafonte



Ross D. Zafonte, D.O. is Professor and Chairman in the Department of Physical Medicine and Rehabilitation at the University of Pittsburgh School of Medicine. Dr. Zafonte also serves as Vice President of Clinical

rehabilitation Services for the UPMC Health System and Executive Director of the UPMC Institute for Rehabilitation and Research. He has published extensively on traumatic brain injuries, spasticity, and other neurological disorders, as well as presented on these topics at conferences nationally and internationally. Dr Zafonte

is the author of more than 200 peer review journal articles, abstracts and book chapters. He also serves as principal investigator on the University of Pittsburgh NIDRR TBI Model System and NIH Clinical Trials Center grant. He is a member of a standing review panels for the NIH and the CDC. In addition, he is on the editorial board of the Journal of Head Trauma Rehabilitation and the American Journal of Physical Medicine and Rehabilitation. He has received numerous awards such as "Best Doctor in America", "Top Doctors in America", Young Investigator of the Year from the Brain Injury Association of America and has been invited as visiting professor to several

prestigious institutions. In 2006, Dr Zafonte was been selected the Walter Zeiter award and lectureship by the American Academy of Physical Medicine and Rehabilitation. Dr Zafonte is the founding chair of the Department at the University of Pittsburgh and helped to direct its tremendous growth in both the research and

Research Seminar Series #2
"Future Perspectives on Rehabilitation Research & Care"
May 31, 2007, 2:00 p.m.
Center of Learning, Cardinal Hill

PM&R Research Seminar Series ~ Dr. Brian Gold



Brian Gold, Ph.D. is an Assistant Professor in the Department of Anatomy and Neurobiology at the University of Kentucky. He received his Ph.D. from York University in Toronto, Canada. Dr. Gold's research lies within the field of cognitive neuroscience, with emphasis on neural correlates of language and memory processes. Research is conducted with healthy participants and with various patient popula-

tions and involves standard behavioral protocols, neuropsychological testing, and structural and functional magnetic resonance imaging. Research conducted with healthy participants primarily focuses on characterization and dissociation of brain regions involved in domain preferential and domain general controlled operations. Research conducted with clinical populations primarily involves characterization of early neuropsychological and neuroanatomical markers differentiating semantic dementia from Dementia of the Alzheimer type. A second field of clinical

investigation involves examination of functional neuroanatomical correlates of recovery patterns in aphasic populations.

Research Seminar Series #3
"Functional Neuroanatomical Correlates of Cognition"
July 10, 2007, 4:00 p.m.
Center of Learning, Cardinal Hill

Current PM&R Faculty Research



Dr. Joe Springer
Professor

“Neuroprotective Strategies and Functional Recovery in Traumatic Spinal Cord and Brain Injury”

It is well known that widespread neuronal and glial cell death occurs for extended periods of time following traumatic spinal cord and brain injury. In addition, important advances have been made in understanding the signaling pathways controlling cell death after injury. One goal of our research is to limit neuronal and glial cell loss by blocking steps occurring early in the cell death process. Recently, we have focused our efforts on identifying mitochondrial events responsible for regulating cell survival and death. We are particularly interested in identifying therapeutic agents that limit mitochondrial dysfunction and subsequent oxidative damage as a means of promoting cell survival, and my lab is currently testing two novel agents. A second major goal of our research is to identify whether these treatment strategies promote functional recovery in well-defined animal models. This includes a collaborative effort with Dr. McEwen on understanding how physical activity may affect functional recovery. Finally, the Division of Research in Physical Medicine and Rehabilitation is poised to take advantage of the strong neuroscience community at UK to take promising treatments to the clinic. Our research program works closely with various Departments and Centers at the University of Kentucky and the Cardinal Hill Rehabilitation Hospital to ensure that highly promising lab bench discoveries reach the bedside.

Dr. Melanie McEwen
Research Assistant
Professor

“Ontogenetic Differences in the Neuropathology of Spinal Cord Injury”

Pediatric spinal cord injury (SCI) is an understudied subject, probably because the prevalence is low compared to adults. However, patients with pediatric-onset SCI are less likely to live independently, be married, have children, or be employed, compared to uninjured peers—despite similarities in education level. These patients report similar musculoskeletal and neurological complications as patients with adult-onset SCI, but must cope with them for a larger percentage of their lifetime. My ultimate goal is to reduce the

burden of pediatric SCI so that every child has the chance to achieve his or her full potential for a healthy and productive life. One approach toward this goal is to understand how normal, ontogenetic differences in the spinal cord (e.g., cellular maturation, programmed cell death, axon outgrowth, myelination) influence cell death and subsequent recovery following an injury. The hope is that knowledge of ontogenetic differences in the progression of lesion development and the relative importance of the biochemical components of the cell death cascade will eventually lead to the identification of biomarkers for SCI in children. Such an accomplishment would be extremely important because SCI is often misdiagnosed in very young patients.



Dr. Walter High
Associate Professor

“Cost-Effectiveness of Rehabilitation Interventions Following TBI”

This study is funded by the National Institute on Disability and Rehabilitation Research (NIDRR) of the Department of Education. This study compares the estimated life-time medical costs and vocational losses of TBI for persons who have participated in rehabilitation interventions compared to those who have not participated in rehabilitation.

“Effects of Growth Hormone Replacement on Cognition and Functional Outcome Following TBI”

This study is funded by the Moody Foundation in Galveston, TX. In this study, persons with moderate to severe TBI are screened for deficient or insufficient growth hormone levels. Persons with low growth hormone are randomized, undergo neuropsychological and functional evaluations, and then are treated with either growth hormone or placebo for a year. Participants in the study and the investigators assessing the participants are blinded to group assignment. Participants are re-evaluated after one year and the blind is broken. Preliminary results indicate improved upper extremity motor speed and improved information processing speed and memory for persons treated with growth hormone compared to placebo. Future studies will investigate the effectiveness of specific training on motor and neuropsychological performance done in conjunction with growth hormone replacement. Functional MRI will be used to investigate possible cortical reorganization associated with improved performance.



Dr. Sara Salles
Assistant Professor

“Kinematic Biofeedback for Independent Motor Retraining”

Mission: We continue to provide rehabilitation services to stroke survivors. As technology improves, we need to remain current and determine if there are other therapies, modalities or equipment that may enhance neurological and functional recovery. This study, to be conducted at Cardinal Hill Rehabilitation Hospital, examines the effects of the SymSlide, a closed chain, lower extremity exercise device that may allow patients in the earliest stages of rehabilitation post stroke to practice functional sit to stand and side to side posture shift movements before participation in ambulatory therapies. The hypotheses are that it may expedite progress through the earliest phases of therapy so that more time can be allotted to functional tasks. Additionally, it may also translate to improvements in participation in activities of daily living, improve awareness of the affected limb and increase strength and endurance.



Dr. Robert Nickerson
Associate Professor

“Rehabilitation Training: Long Term Training—Rehabilitation Technology”

In conjunction with the Human Development Institute and Department of Vocational Counseling, the Department of Physical Medicine & Rehabilitation has a grant with the U.S. Department of Education to train residents in Rehabilitation Technology. The grant is for approximately \$80,000/year for five years. The residents at the University of Kentucky will take 24 computer-based learning modules once the full program is in place. Also, the residents perform a practicum in the 3rd year and go with one of several preceptors into the field to see how assistive technology is being used to assist patients. A long-term goal is to bring other residents at the University of Louisville and other regional institutions into the program.

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The logo for UK HealthCare, featuring the letters "UK" in a large, bold, serif font with a small registered trademark symbol, and the word "HealthCare" in a smaller, sans-serif font below it. The logo is centered within a white square, which is itself centered within a larger blue circle.

The overall goal of the research program in the Department of Physical Medicine & Rehabilitation at the University of Kentucky is to identify and test innovative and complementary rehabilitation interventions, and utilize rehabilitation outcome measures to document the short- and long-term impact of these strategies on improving quality of life. In essence, we have extended the “translational research” concept to include rehabilitation outcomes so that we move these discoveries “from the bench to the bedside AND beyond”. Our close affiliation and working relationship with Cardinal Hill Rehabilitation Hospital provides a broad range of unique research opportunities in many disciplines.