Frontiers in Rehabilitation Science and Technology - FIRST
Friday, October 25, 2013: 1:15 – 3:00 p.m.
Speakers: Fabrisia Ambrosio, PT, PhD; Jeffrey Kleim, PhD; Steven L. Wolf, PT, PhD, FAPTA, FAHA

Course Description:

Based upon the recommendations from the PASS (Physical Therapy and Society Summit) conference, APTA has been involved in initiatives that will advance the knowledge base of the profession by enacting a number of programs that deal with genomics, regenerative rehabilitation, bioengineering and telehealth. Many of these advances have previously been shared in a number of venues, including the recent Combined Sections Meeting (CCSM). Those individuals, both physical therapists and scholars outside the profession would like to share their thoughts and some of their research on these topics to students, who are the future of the profession. These talks will discuss where these programs are now, where they might progress in the future, and their impact on the provision of patient care.

Regenerative medicine is a multidisciplinary field of research and clinical applications that seeks the development of approaches to repair, replace or regenerate cells, tissues or organs in order to restore impaired function (Daar and Greenwood, 2007). The translation of regenerative medicine strategies, such as stem cell therapies and bio-inductive scaffold transplantation, has the potential to introduce exciting new treatment options for patients.

As both basic and clinical neuroscience advances, what opportunities are available for physical therapy students, clinicians, and faculty members to interface with these cutting-edge scientists? How may rehabilitation protocols be implemented to enhance the functional outcomes? Are there any contraindications to the administration of physical therapy modalities for an individual who has received a stem cell therapy? This course is designed to explore these questions and more. We will highlight these advances and propose opportunities for synergistic partnerships that span the field of basic neuroscience and rehabilitation.

By the end of this session, the needed integration of regenerative rehabilitation approaches into physical therapy education and practice will be clear, and methods to achieve such integration will be discussed.
Speaker Bios:

**Fabrisia Ambrosio, PT, PhD**
Dr. Fabrisia Ambrosio graduated with a Master of Science in Physiology from Laval University and a Master of Physical Therapy from the Medical College of Pennsylvania and Hahnemann University. In 2005, she graduated with a PhD in Rehabilitation Science & Technology from the University of Pittsburgh. Also in 2005, she accepted a position as a faculty member in the Department of Physical Medicine & Rehabilitation at the University of Pittsburgh. She holds secondary appointments in the Departments of Physical Therapy, Orthopaedic Surgery and Microbiology & Molecular Genetics, and is a faculty of the McGowan Institute for Regenerative Medicine. Dr. Ambrosio’s research has the goal of developing regenerative rehabilitation approaches to improve the skeletal muscle regeneration after injury. Her laboratory investigates mechanisms by which targeted and specific mechanotransductive signals can be used to enhance donor and/or host stem cell functionality in mouse and human models. Dr. Ambrosio’s research has been supported by the NIH, the DOD, the Foundation for PT, the Claude D. Pepper Center, and the University of Pittsburgh Institute on Aging. In 2006, she became a Scholar of the K12 Comprehensive Opportunities in Rehabilitation Research Training program. More recently, Dr. Ambrosio was awarded a K01 Career Development Award from the NIA.

**Jeffrey Kleim, PhD**
Dr. Kleim received his PhD in Psychology from the University of Illinois in 1997. He completed his postdoctoral fellowship at the Kansas University Medical Center in 1998 before taking a faculty position at the Canadian Center for Behavioral Neuroscience at the University of Lethbridge. In 2005 he moved to the Department of Neuroscience and the Brain Rehabilitation Research Center at the University of Florida. He joined the School of Biological and Health Systems Engineering at Arizona State University as an Associate Professor in 2011. His work examines the neural substrates underlying motor recovery after Stroke and Parkinson’s Disease using both animal models and human patient populations. Dr. Kleim is funded by several national funding agencies to conduct research directed at developing novel therapies for movement disorders based on principles of neural plasticity. He has recently completed a book entitled Neural Plasticity: Foundation For Neurorehabilitation.

**Steven Wolf, PT, PhD, FAPTA**
Dr Wolf received his PhD from Emory University in 1973. He is currently a professor in the Department of Cell Biology at Emory, where he has been on the faculty since 1985 with appointments in the Departments of Rehabilitation Medicine, Medicine, and Adult and Elder Care, as well as his current appointment. Dr Wolf’s research explores novel interventions to improve upper extremity use in patients with stroke as well as cortical reorganization and inter-joint coordination associated with such changes. His work has been well funded by the NIH, as well as other funding agencies. His recent work his lab has involved the use of robotics and mixed reality. Wolf has merged his research interests and his work on the APTA’s recent (2009) Physical Therapy and Society Summit (PASS) to spearhead an effort referred to as FIRST, or Frontiers in Rehabilitation Science and Technology. The FIRST initiative is an attempt by physical therapists and their colleagues to promote the translation and integration of science and technology and foster collaborations with colleagues in other professions and disciplines to optimize health care delivery.