The Eighth Annual Ann Putnam Kaleckas Lecture

Presented by the Department of Physical Therapy and Human Movement Sciences

"Capitalizing on Tissue Plasticity to Improve Health after Spinal Cord Injury."



Dr. Richard K. Shields, PT PhD FAPTA Chair & DEO, Physical Therapy and Rehabilitation Science Professor of Physical Therapy and Rehabilitation Science University of Iowa Carver College of Medicine Iowa City, Iowa

Monday, March 30, 2015 6:00pm Hughes Auditorium

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Abstract

After a spinal cord injury, skeletal muscle atrophies and transforms into fast, glycolytic, and insulin resistant tissue. Osteoporosis develops over the first year and limits the ability to exercise paralyzed muscle for risk of a fracture. The nervous system remodels below the level of the spinal cord lesion triggering hypertonicity. The skeletal, muscular, and neural systems are entrenched in a catabolic state, which is the basis for many of the secondary complications that plague people with spinal cord injury. These complications increase hospitalizations, elevate healthcare costs, and decrease quality of life. In this presentation, Dr. Shields will present several novel methods to induce adaptations at the tissue, organ, cellular, and molecular level in muscle, bone, and neural tissue in humans with spinal cord injury. Particular focus will be on how various doses of physical activity regulate skeletal muscle, mitochondria function, and systemic metabolism. Major concepts covered during this lecture, including epigenetics, will be relevant to all rehabilitation specialists who strive to enhance human performance through prescribed physical activity.

Biography

Dr. Shields received a bachelor's degree in biology, a post baccalaureate degree in physical therapy (Mayo Clinic), a master's in exercise physiology, and a PhD with emphasis in movement control (University of Iowa. Dr. Shields managed the acute spinal cord injury program at the University of Iowa for several years. He developed lines of research related to how various doses of stress impact tissue health in people with central nervous system injury. His work strives to improve the health quality of individuals who suffer from reduced activity from paralysis, obesity, injury, or age. His research has been funded for the last 20 years by the National Institutes of Health, the Department of Veterans Affairs, and several private foundations.

Dr. Shields has published over 100 scientific papers and has delivered over 200 scientific presentations. He was the recipient of the Iowa Neurology Clinical Research Award, Neurology Section Research Excellence Award, the University of Iowa Outstanding Mentor and Teaching Aware, the Mayo Clinic Outstanding Alumnus Award and named a Catherine Worthingham Fellow from the APTA. He is the current chair of the Department of Physical Therapy and Rehabilitation Sciences within the Carver College of Medicine, and the University of Iowa.

The Kaleckas Lecture follows the Class of 2015 Synthesis Project Poster Presentations 3:00-5:30 Reception 5:00 – 6:00

Reduced Parking vouchers available \$12.00 PT CEUs 1 contact hour contact: Gail Huber, Assistant Chair of Research Seminars <u>g-huber@northwestern.edu</u> 312-908-6791