Engineering Neuroscience & Health

Department of Biomedical Engineering Division of Biokinesiology and Physical Therapy

ENH SEMINAR SERIES

Presents:

Dr. Jason Kutch

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Monday

August 29, 2011

4:00 p.m.

Refreshments will be served:
3:30—4 pm

Pizza will be served :
4:00 pm at UPC

"Applying mathematical physiology to unravel compromised neuromuscular control in chronic pain"

Jason Kutch, PhD. Assistant Professor

Biokinesiology and Physical Therapy, Ostrow School of Dentistry

Chronic pain is defined to be pain that outlasts the expected period of healing, and is a major cause of illness. Research in the last few decades has lead to a changing perception of chronic pain, from a manifestation of undetected pathology to a disease in and of itself. One common chronic pain disorder is Chronic Prostatitis / Chronic Pelvic Pain Syndrome (CP/CPPS). CP/CPPS is the most common urological diagnosis for men under 50, affects between 6 and 12 percent of the population, and accounts for 8% of urological visits and 1% of all primary care visits each year. An interesting feature of CP/CPPS is that pelvic musculature exhibits involuntary and sustained activity - which forms the therapeutic target of physical therapy. While some percentage of CP/CPPS patients improve with physical therapy, a substantial percentage do not, which indicates the need for rigorous mechanistic studies of the disorder. I will be starting the Applied Mathematical Physiology Laboratory (AMPL) in the Division of Biokinesiology and Physical Therapy at USC in the Fall of 2011. We have a funded pilot study with USC Physical Therapy Associates to investigate involuntary muscle activity in CP/CPPS. In this talk, I will 1) provide background on the CP/CPPS disorder, 2) highlight my previous research on non-invasive methods to identify the spinal regulation of muscle, and 3) describe our current efforts to link electrophysiology with fMRI imaging of brain and muscle to test the hypothesis CP/CPPS represents a condition in which activation of stress and emotional centers in the brain becomes coupled with pelvic muscle activation. The importance of approaching physiology from a mathematical perspective will be highlighted throughout.

Locations:
Seminar is simultaneously presented

UPC: HNB 100 – LIVE
Hedco Neurosciences Building

UPC Campus Map/Directions:
http://www.usc.edu/about/visit/upc/

HSC: CHP 147 — Video Conference
Center for the Health Professional

HSC Campus Map/Directions:
http://www.usc.edu/about/visit/hsc/

Organized by Professor Francisco Valero-Cuevas http://bbdl.usc.edu/ENH

Web Cast
http://capture.usc.edu/college/Catalog/pages/catalog.aspx?catalogId=946350f1-ca84-40e7-b867-e16adba01e4e