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Concepts in Human Motion Mini-Elective Spring 2009

<u>Course Dates:</u>	February 2, 9, 16, 23 Mondays, 2:00-4:00 PM
<u>Maximum Students:</u>	8
<u>Class Year:</u>	MS1
<u>Course Director:</u>	Cara Camiolo Reddy, MD
<u>Contact Information:</u>	Cara Camiolo Reddy, MD 412-648-6138 camice@upmc.edu
<u>Registration:</u>	Betsy Nero, Office of Medical Education betsy@medschool.pitt.edu

Description:

This four-session mini-elective introduces students to concepts in human motion using examples from the field of Rehabilitation Medicine. Sessions are held at various locations for hands-on experience and observation including the UPMC Sports Medicine Center, UPMC Center for Assistive Technology at Forbes Tower, and the MUH Electromyography laboratory.

The goal of this program is to explore the relationship between anatomy, physiology, and human motion. This course highlights rehabilitative efforts in identifying and treating disorders of motion, as well as introduces the adverse effects of motion and velocity on the human brain as evidenced through sports concussion. Through both didactic and hands-on exposure at these sites, this series covers topics including:

- The Anatomy and Biomechanics of Overhand Throwing
- Acceleration/Deceleration Forces in Head Injury
- Neuropsychological Evaluation following Sports Concussion
- Wheelchair Mobility
- Nerve Conduction Studies and Electromyography

Objectives:

- To understand the anatomy and biomechanics of overhand throwing.
- To become familiar with common shoulder pathology and evaluation of throwing athletes.
- To become familiar with manual and power mobility options.
- To become familiar with wheelchair prescriptions, including the patient evaluation and physical examination.
- To understand the mild traumatic brain injury and the relationship to acceleration/deceleration forces in sports.
- To become familiar with methods for evaluating patients after sports concussion, including on-field assessments and neuropsychological testing.
- To become familiar with Nerve Conduction Studies and Electromyography and understand its role as an extension of the physical examination.

To review nerve and muscle physiology, including muscle recruitment as demonstrated by EMG.

Requirements:

- Active participation in all 4 course sessions.
- Reading assignments – one article to be read prior to each session.

Course Outline

Concepts in Human Motion

Course Director:

Cara Camiolo Reddy, MD
camice@upmc.edu
412-648-6138

Faculty:

Dana Martini, DO
Brad Dicianno, MD
Gary Chimes, M.D., Ph.D.

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Location:

Various locations as outlined below.

Week One: February 1, 2009

Assistive Technology

Location: Center for Assistive Technology, Forbes Tower

Instructor: Brad Dicianno, MD

At the UPMC Center for Assistive Technology, students are introduced the process of evaluating patients for assistive mobility, including manual and power wheelchairs. Wheelchair design is discussed and students participate in an Ultralight Wheelchair Skills class provided for patients by the CAT clinic.

Week Two: February 9, 2009

Understanding Muscle Physiology through Electromyography

Location: Scaife Hall, Rooms 464 A&B

Instructor: Dana Martini, DO

At the Electromyography Laboratory, students receive an introduction to Nerve Conduction Testing and Electromyography and the role these tests play in identifying disorders of muscle and nerves. An overview of muscle and nerve physiology is included in this hands-on demonstration.

Week Three: February 16, 2009

The Mechanics of Overhand Throwing

Location: Kaufman Building, Suite 201

Instructor: Gary Chimes, MD/PhD

Students will be introduced to the mechanics of overhand throwing, reviewing key shoulder anatomy and physical exam techniques. Students will learn how changes in biomechanics can alter pitches. Shoulder pathology will be discussed as students learn how physiatrists identify, classify, and treat such disorders.

Week Four: February 23, 2009

Acceleration and Deceleration Forces in Sports Concussion

Location: Sports Center, South Side

Instructors: Cara Camiolo Reddy, MD and Alex Taylor, PsychD

Students are introduced to the pathophysiology of mild traumatic brain injury and the effects of acceleration/deceleration forces on the brain. The discussion includes an introduction to the neuropsychological evaluation of sports concussion and ImPACT testing program. The ImPACT test battery is observed and the testing components are discussed in relation to brain injury and recovery.