Creative Inquiry in Bioengineering

Exploration into Rotator Cuff Injury, Diagnosis, and Treatment

BIOE 451-012

Project Description

The impact of injury on athletes is well known by the general public. Current research shows that many injuries are caused by repetitive stresses to a joint, tendon, or ligament. In this project we will use medical images to develop measurements, and analyses to detect and diagnose the potential causes, existence of, and eventually efficacy of treatment for rotator cuff injury. Students will use ultrasound data of subjects ranging from children, to professional athletes, to non-athlete adults. This project has a wide potential impact as well as the opportunity to work with clinicians in a clinical setting.

Students will work in cooperation with physical therapists, physicians, and bioengineers to develop diagnostic evaluation of medical images from patients, normal subjects, and professional athletes. Students will use these images as well as other diagnostic tests in order to attempt to better characterize the risk to athletes of injury or to attempt to guide therapy once injury is sustained.

David Kwartowitz, Ph.D. Delphine Dean, Ph.D.

Questionnaire

1) Name:
2) Major:
3) Email:
4) Year at Clemson University (as of May 2011): 1st
5) Current Overall GPA: /4.0
6) Do you have any previous research experience? What type of research did you perform? If not, what experience would you hope to gain by participating in research?

7) What have your experiences in team-based projects been? What role have you taken within the team dynamic?

Thought Question:

Let's say you were given an ultrasound image of a rotator cuff. What information would you like to have supplied to you about the image in order to determine the length of the rotator cuff?