MAYO CLINIC
College of Medicine

Please Post

BIOMEDICAL ENGINEERING SEMINAR

11:00 a.m.-12:00 noon, Friday, January 23, 2009
Mann Hall, Medical Sciences Building

Title: **Ultrasound Radiation Force Applied to Estimates of Arterial Wall Elasticity**

Presenter**: Miguel Bernal Restrepo**
Department of Physiology and Biomedical Engineering and Basic Ultrasound Research

Abstract: In the past decade arterial elasticity has gained importance as a predictor of cardiovascular diseases and mortality. One of the most widely used methods of estimating arterial stiffness is the Pulse Wave Velocity. However to estimate the elasticity of the arterial wall from the PWV the thickness and diameter of the artery must be known. In the ultrasound lab we are developing a noninvasive technique to estimate the elasticity of arteries in the longitudinal and the circumferential directions using measurements of velocity of waves in the arterial wall generated by ultrasound radiation force. Measurements in femoral arteries of swine indicate subtle variations, through the heart cycle, in the velocity of waves induced by this technique. The high precision and accuracy in addition to the high spatial and temporal resolution of the technique may be useful for early detection and follow up of cardiovascular diseases.

Title: **MR Elastography of the Bovine Globe**

Presenter**: Dan Litwiller**
Department of Radiology

Abstract: Like many organs in the body, disease states of the eye, such as macular degeneration, myopia, and cancer, are often indicated by changes in the mechanical properties of its constituent tissues. Assessments of ocular, intraocular and orbital rigidity, however, are currently limited to qualitative assessment by direct palpation, more invasive methods or other conventional methods such as tonometry, which may yield indirect or inaccurate results. The purpose of this work was to demonstrate the feasibility of using MR Elastography to measure the mechanical properties of the eye.

Title: **Characterization of Neuregulin as a Synaptic Based Trophic Influence on Phrenic Motoneuron**

Presenter**: Amine Issa**
Department of Physiology and Biomedical Engineering

Abstract: Trophic factors stimulate proliferation and promote cells survival and differentiation of neurons. Neuregulin is one such trophic factor that is known to effect the central nervous system. Our objective is to determine if Neuregulin exists around phrenic motoneurons in the spinal cord and to characterize the role it plays in the development of these neurons.

♦ See BME web page for list of speakers:
http://mayoresearch.mayo.edu/mayo/research/physio_bme/2009_bme_seminars.cfm

Course BME 8600 Armando Manduca,
Ph.D. 4-8163
Contact Marge at marge@mayo.edu to be added or deleted from this list.