RESEARCH AND DEVELOPMENT OF PERMEABILITY TESTING DEVICE FOR HYDRATED SOFT TISSUE

Mentor: J-K Francis Suh, Ph.D.
Department of Biomedical Engineering
Lindy Boggs Center, Suite 500
(504) 865-5852
E-mail: fsuh@tulane.edu

Description:

One of important physical characteristics in biological soft tissues is permeability. The permeability is a quantitative measure to determine how easily a fluid can flow through the tissue matrix. The permeability provides us with critical information about the diffusive transport of nutrients and metabolites to maintain the biology of the tissue, as well as about the biomechanics of the soft tissue. The experimental measurement of the permeability of hard tissue has been well developed. However, the permeability of compliant soft tissue has not been very successful, partly because of the technical difficulties of handling the softness of the tissue. The goal of the project is to develop a reliable permeability device which can be used to measure the permeability of various hydrated soft tissues, such as cartilage, tendon, ligament, muscle, and brain.

Objectives:

The student will work with a faculty advisor and graduate students in the lab to develop a conceptual design of a permeability device.

Prerequisites or Experience Required:

Mechanical engineering or biomedical engineering (or chemical engineering) background is required.