

Summer Student Research Program  
Project Description

**FACULTY SPONSOR'S NAME AND DEGREE:** John T. Capo, MD

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**PROJECT TITLE (200 Characters max):**

The assessment of joint stability with progressive PIP fracture dislocations

**HYPOTHESIS:**

Proximal Interphalangeal Joint (PIP) subluxation occurs when a significant portion of the joint surface is fractured. We seek to quantify the amount of surface required that induces this instability.

**PROJECT DESCRIPTION** (Include design, methodology, data collection, techniques, data analysis to be employed and evaluation and interpretation methodology)

The assessment of PIP joint stability will be determined using a cadaver model and an optical tracking system. With sequential fracturing of progressively larger portions of the middle phalanx at the joint surface the resulting PIP range of motion will be assessed. The Department of Orthopaedics Laboratory has a state of the art optical tracking system for joint motion that will be utilized. This project has begun and partially accomplished by students from previous years, and Orthopaedic lab staff. The work this summer would be to complete the project and submit it for publication.

**SPONSOR'S MOST RECENT PUBLICATIONS RELEVANT TO THIS RESEARCH:**

1. Capo JT, Hastings H II, Choung, E, Kinchelow T, Rossy W, Steinberg B: *Hemicondylar Hamate Replacement Arthroplasty for Proximal Interphalangeal Joint Fracture Dislocations: An Assessment of Graft Suitability*, J. Hand Surgery(Am) 2008; 33(5):733-9.

**IS THIS PROJECT SUPPORTED BY EXTRAMURAL FUNDS?**

Yes  or No

(IF YES, PLEASE SUPPLY THE GRANTING AGENCY'S NAME)

**THIS PROJECT IS:**     Clinical     Laboratory     Behavioral     Other

**THIS PROJECT IS CANCER-RELATED**

Please explain Cancer relevance

**THIS PROJECT IS HEART, LUNG & BLOOD- RELATED**

Please explain Heart, Lung, Blood relevance

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**THIS PROJECT EMPLOYS RADIOISOTOPES**

**THIS PROJECT INVOLVES THE USE OF ANIMALS**   
PENDING  APPROVED  IACUC PROTOCOL #

**THIS PROJECT INVOLVES THE USE OF HUMAN SUBJECTS**   
PENDING  APPROVED  IRB PROTOCOL # M

**THIS PROJECT IS SUITABLE FOR:**

UNDERGRADUATE STUDENTS  ENTERING FRESHMAN   
SOPHOMORES  ALL STUDENTS

**THIS PROJECT IS WORK-STUDY:** Yes  or No

**THIS PROJECT WILL BE POSTED DURING ACADEMIC YEAR  
FOR INTERESTED VOLUNTEERS?:** Yes  or No

**WHAT WILL THE STUDENT LEARN FROM THIS EXPERIENCE?**

How to perform a laboratory investigation utilizing cadaver joints and a complex joint tracking system. Further understand the normal joint functions and pathological conditions.