

**DEPARTMENT OF BIO-MEDICAL ENGINEERING  
College of Engineering**

**SUMMER RESEARCH OPPORTUNITIES  
FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: MARCH 1, 2004**

*The Department of Bio-Medical Engineering is pleased to offer the following research project(s) for the summer of 2004. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be, and if possible, develop a timetable for the twelve-week research period.*

**Development Ligament Replacement Materials and Procedures**

**Professor Jason Shearn**

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The focus of my research program is to develop materials and procedures that will increase the clinical success of ligament reconstruction. In an effort to attain this goal, I currently have two areas of research. The first area examines the current clinical procedures and potential methods to improve the outcome. The objective of this study is to determine how different parameters (flexion angle and external load), which can be controlled during rehabilitation, will affect the survival of a ligament reconstruction. Since it is known that these ligament reconstructions are only 25% successful after 2 to 3 years, a second study is in progress to understand where failure initiates after ligament reconstruction. However, my experience in the field has led me to believe that, with the current materials used to replace the injured ligament, the clinical success will always be low, so the second area of my research is focused on developing new materials. The ongoing projects in this area are aimed at understanding what happens to the cellular and solid component of the materials when it is implanted into a body.