

Department of *Pediatric Orthopaedics*
COLLEGE OF *Medicine*

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 1, 2011

The Department of Pediatric Orthopaedics is pleased to offer the following research project for the summer of 2011. 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.

PROJECT TITLE: Pediatric Biomechanics and Mechanobiology of Skeletal Growth

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Project Description

The purpose of the Orthopedic Research Laboratory at Cincinnati Children's is to improve treatment, diagnosis, and prevention of musculoskeletal disorders. The core competence of the laboratory is biomechanics, with particular focus on the effect of mechanical forces on growth. We have been extending the quantification and application of the 'Hueter-Volkmann' principle, the dose-response relationship between growth and stress. We collaborate with other divisions integral to surgery, such as pathology, radiology, and mechanical engineering. Projects include determining structural properties of spine segments, physiological stresses in the intervertebral disc and growth plates, and changes to organs and tissues due to surgical treatments and injuries that affect bone growth.