Department of Pediatric Orthopaedics
COLLEGE OF MEDICINE

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: March 1, 2012

The Department of Pediatric Orthopaedics *is pleased to offer the following research project for the summer of 2012. 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: Biomechanics of spinal deformity treatments

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Project Description

The purpose of the Orthopaedic Research Laboratory at Cincinnati Children's is to improve the treatment, diagnosis, and prevention of musculoskeletal disorders of childhood and adolescence. At our institution alone, well over 100 patients per year undergo surgery for spinal deformities. Our main projects focus on structural biomechanical changes due to surgical treatments for juvenile and adolescent scoliosis. We have determined that spine growth may be modified asymmetrically without fusion using a relatively simple implant. The structural changes to the intervertebral joint which initiate these growth gradients are under investigation. This device is currently in early-phase clinical trial. On the other hand, for those patients who require fusion with conventional spinal instrumentation systems, we are determining biomechanical differences between types of implant constructs. The goal is to reduce hypermobility of adjacent intervertebral joints and, therefore, the incidence of post-operative proximal junctional kyphosis. Possible student projects will involve *in vitro* testing and analysis of porcine models of spine deformity treatments.