

**Department of Orthopaedic Surgery
COLLEGE OF MEDICINE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2015

The Department of Orthopaedic Surgery is pleased to offer the following research project for the summer of 2015. 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 novel pediatric spine instrumentation

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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. Particular interests include the effects of mechanical forces on skeletal growth and medical device design and development, especially of the spine.

Very young patients with severe spine deformities require both correction of their spine curvature and preservation of spine growth, in order to allow for continued development of their chest and lungs. For these children, we are investigating whether polymeric materials and composite structures might be able to provide both sufficient stability for curve correction and more gradual motion transfer between instrumented and non-instrumented spine segments compared to current implant systems. The student project will involve computer aided design, engineering analysis, test design fabrication, and biomechanical testing of spine implants and mechanical test fixtures.