The Department of Pediatric Orthopaedics is pleased to offer the following research project for the summer of 2013. 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: BIOMECHANICAL TESTING AND ANALYSIS OF IN-VITRO MODELS 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. Our main projects focus on structural and biomechanical changes due to surgical treatments for childhood skeletal deformities of the spine and lower limbs, and biomechanical factors affecting growth plate injuries. We have determined that spine growth may be modified asymmetrically using a novel implant. The device is currently in early-phase clinical trial. For patients who require fusion with conventional spinal instrumentation systems, we have determined biomechanical differences between types of implant constructs. We next aim to investigate instrumentation systems for young children who require preservation of spine mobility and growth to allow for continued growth of their chest and lungs. Working with the laboratory staff, possible student projects will involve biomechanical testing and analysis of in vitro models of deformity treatments, or radiographic or histomorphometric measurements and analysis of models of growth modification or growth plate injuries.