



Update on the Biedermann Lab for Orthopaedic Research

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The Biedermann Lab is specifically designed to execute clinically relevant research projects focused on orthopaedic implant performance. This goal is achieved by partnering engineers with active clinicians— creating academic environments that foster collaborative investigations of clinical problems. The 3,200 square foot lab is located on the 10th floor at Penn Medicine University City, which provides consummate proximity for surgeons and staff of the Lab to develop and execute research projects.

Over the last year, the Lab has been working on over a dozen biomechanical research projects that are in various stages of development, execution, or publication. Ongoing projects have a wide scope of interests and employ a variety of techniques including in silico modeling, cyclic testing of implants, 3-D motion capture, measurement of articulating joint forces, and in vitro simulations of activities of daily living. To date, the Lab has developed several full-length manuscripts that have been accepted for publication at *The Journal of the American Academy of Orthopaedic Surgeons* and *The Journal of Orthopaedic Trauma*. The Biedermann Lab has also obtained external funding from several sources. Specifically, the Lab has been awarded a University of Pennsylvania McCabe Pilot Grant, two sponsored research agreements with DePuy Synthes, and two sponsored research agreements with Integra Orthopedics.

The Lab recently conducted an experiment in alliance with Dr. Derek Donegan focusing on screw biomechanics in Lisfranc injury reconstruction. Additionally, a project was performed in collaboration with Dr. Samir Mehta and Dr. Surena Namdari investigating implant placement during proximal humerus fracture repair. These projects have been submitted as abstracts to the annual meeting of the Orthopaedic Trauma Association and will be developed into full-length manuscripts. Copies of these abstracts can be found within this journal.

These studies illustrate the continuous goal of the Biedermann Lab: to perform research that is relevant and translatable so that the standard of care and quality of life for patients can be improved. In order to continually achieve this objective, a steady flow of research ideas and scientific collaborations is essential. Going forward, the Biedermann Lab will continue to develop and foster academic relationships at Penn and throughout the world. If you have a research interest that may be suitably addressed with the research competencies of the Biedermann Lab, you are encouraged to contact Michael Hast directly. For contact details and more information about the Biedermann Lab, please visit the Biedermann Lab's website: www.med.upenn.edu/biedermann/

