



## **Stephen Belkoff, Ph.D.**

Associate Professor

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### **RESEARCH GOALS:**

- Investigate the mechanical behavior of native soft and hard tissues
- Investigate the mechanical behavior of injured soft and hard tissues repaired using various surgical procedures
- To develop techniques and instruments to aid the repair of osteoporotic fractures

**RESEARCH SUMMARY AND SIGNIFICANCE:** Current research focuses on understanding the mechanism of injury of various osteoporotic fractures. Optimizing stabilization of these troublesome fractures is also a focus of the research effort.

### **CURRENT PROJECTS:**

### **RECENT PUBLICATIONS:**

1. Mears SC, Dinah AF, Knight TA, Frassica FJ, **Belkoff SM**. Visibility of surgical site marking after preoperative skin preparation. *Eplasty*. 2008 Jul 16;8:e35.
2. Oliveira MLR, Lemon MA, Mears SC, Dinah AF, Waites MD, Knight TA, **Belkoff SM**. Biomechanical comparison of expandable and locked intramedullary femoral nails. *J Orthop Trauma*. 2008;22:446-450
3. [Kobayashi H](#), [Fujishiro T](#), **Belkoff SM**, [Kobayashi N](#), [Turner AS](#), [Seim HB 3rd](#), [Zitelli J](#), [Hawkins M](#), [Bauer TW](#). Long-term evaluation of a calcium phosphate bone cement with carboxymethyl cellulose in a vertebral defect model. *J Biomed Mater Res A*. Mar 31, 2008
4. Smerek JP, Kadakia A, **Belkoff SM**, Knight TA, Myerson MS, Jeng CL. Percutaneous screw configuration versus perimeter plating of calcaneus fractures: a cadaver study. *Foot Ankle Int*. 2008;29:931-5.
5. Waites MD, Mears SC, Richards AM, Mathis JM, **Belkoff SM**: A biomechanical comparison of lateral and posterior approaches to sacroplasty. *Spine* 33(20):E735-E738, 2008.
6. Ruland RT, Hogan CJ, Randall CJ, Richards A, **Belkoff SM**. Biomechanical comparison of ulnar collateral ligament reconstruction techniques. *Am J Sports Med*. 2008 Aug;36(8):1565-70. Epub 2008 Jul 2.
7. Amato NS, Richards A, Knight T, Spector D, Boudrieau RJ, **Belkoff SM**. Ex vivo biomedical comparison of the 2.4 UniLOCK reconstruction plate using 2.4 locking versus standard screws of fixation of acetabular osteotomy in dogs. *Veterinary Surgery*. 2008;37:741-748
8. Richards AM, Mears SC, Knight TA, Dinah AF, **Belkoff SM**. Biomechanical analysis of sacroplasty: Does volume or location of cement matter? *AJNR Am J Neuroradiol*. 2009;30(2):315-317
9. Mears SC, Richards AM, Knight TA, **Belkoff SM**: Subsidence of uncemented stems in osteoporotic and nonosteoporotic cadaveric femora. *Proc Inst Mech Eng [H]*. 2009;223:189-194
10. Sooin SP, Knight TA, Dinah AF, Mears SC, Swierstra BA, **Belkoff SM**. Suture-button versus screw fixation in a syndesmosis rupture model: A biomechanical comparison. *Foot Ankle Int*. 2009;30(4):346-352.