



## Blaine A. Christiansen, Ph.D., B.S., M.S.

<b>Clinical Interests</b>	<p>The main focus of my research is adaption of musculoskeletal tissues to the mechanical environment, injury, aging, or disease. The musculoskeletal system has an innate ability to repair and optimize itself based on the mechanical demands placed on it. By studying this adaptation, we are able to uncover underlying mechanisms that contribute to diseases such as osteoporosis and osteoarthritis.</p> <p>My laboratory primarily utilizes small animal models, and quantifies adaptation using advanced imaging techniques, histology, and mechanical testing. I currently have three primary areas of research: investigation of mechanisms of post-traumatic osteoarthritis, investigation of systemic bone loss following a bone fracture or other injuries, and investigation of the role of sensory nerves in bone metabolism and adaptation.</p>
<b>Title</b>	Associate Professor
<b>Specialty</b>	Orthopaedic Research
<b>Department</b>	<a href="#">Orthopaedic Surgery</a>
<b>Division</b>	Orthopaedic Surgery
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<b>Education</b>	Ph.D., Biomedical Engineering, Washington University College of Engineering, St. Louis MO 2007 B.S., University of Nebraska, Lincoln NE 2001 M.S., Biomedical Engineering, Washington University, St. Louis MO 2004
<b>Fellowships</b>	Advanced Orthopedic Studies, Harvard Medical School, Boston MA 2008-2010
<b>Professional Memberships</b>	American Society for Bone Mineral Research Orthopaedic Research Society Osteoarthritis and Cartilage Research Society International
<b>Honors and Awards</b>	International Bone and Mineral Society, Sun Valley Workshop: Musculoskeletal Biology, Alice L. Jee Memorial Young Investigator Award, 2014 American Society for Bone and Mineral Research, Junior Faculty Osteoporosis Research Award, 2014



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### Select Recent Publications

IBMS/ASBMR Harold M. Frost Young Investigator Award, 2011

American Society for Bone and Mineral Research, Young Investigator Award, 2010

United States Bone and Joint Decade Young Investigators Initiative Participant, 2010

ASME Summer Bioengineering Conference, 1st Place- Student Paper Competition, 2005

Hsia AW, Anderson MJ, Heffner MA, Lagmay EP, Zavodovskaya R, Christiansen BA. Osteophyte formation after ACL rupture in mice is associated with joint restabilization and loss of range of motion. *Journal of Orthopaedic Research*. 2017;35(3):466-473.

Anderson MJ, Diko S, Baehr LM, Baar K, Bodine SC, Christiansen BA. Contribution of mechanical unloading to trabecular bone loss following non-invasive knee injury in mice. *Journal of Orthopaedic Research*. 2016;34(10):1680-1687.

Christiansen BA, Guilak F, Lockwood KA, Olson SA, Pitsillides AA, Sandell LJ, van der Meulen MCH, Haudenschild DR. Non-invasive mouse models of post-traumatic osteoarthritis. *Osteoarthritis and Cartilage*. 2015;23(10):1627-38.

Khorasani MS, Diko S, Hsia AW, Anderson MJ, Genetos DC, Haudenschild DR, Christiansen BA. Effect of alendronate on post-traumatic osteoarthritis induced by ACL rupture in mice. *Arthritis Research & Therapy*. 2015;17:30.

Christiansen BA, Emami AJ, Fyhrie DP, Satkunanathan PB, Hardisty MR. Trabecular bone loss at a distant skeletal site following noninvasive knee injury in mice. *Journal of Biomechanical Engineering*. 2015;137(011005):1-6.

Satkunanathan PB, Anderson MJ, De Jesus NM, Haudenschild DR, Ripplinger CM, Christiansen BA. In vivo fluorescence reflectance imaging to quantify sex-based differences in protease activity in a mouse model of post-traumatic osteoarthritis. *Osteoarthritis and Cartilage*. 2014;22(10):1461-9.

Heffner MA, Anderson MJ, Yeh GC, Genetos DC, Christiansen BA. Altered bone development in a



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mouse model of peripheral sensory nerve inactivation. *Journal of Musculoskeletal and Neuronal Interaction*. 2014;14:(1):1-9.

Lockwood KA, Chu BT, Anderson MJ, Haudenschild DR, Christiansen BA. Comparison of loading rate-dependent injury modes in a murine model of post-traumatic osteoarthritis. *Journal of Orthopaedic Research*. 2014;32:(1):79-88.

Christiansen BA. Assessment of bone mass and microarchitecture in rodents. In C.J. Rosen (Ed.), *Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism – Eighth Edition*. 2013;59-68.

Christiansen BA, Anderson MJ, Lee CA, Williams JC, Yik JH, Haudenschild DR. Musculoskeletal changes following non-invasive knee injury using a novel mouse model of post-traumatic osteoarthritis. *Osteoarthritis and Cartilage*. 2012;20:(7):773-82.

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