

SEMINAR SERIES

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MECHANICS, ENERGETICS, AND STABILITY: MODIFIABLE FACTORS TO PRESERVE INDEPENDENT MOBILITY IN OLD AGE

Featuring Dr. Jason Franz

University of North Carolina at Chapel Hill

North Carolina State University

October 4, 2019 | 12:00 - 1:15 pm | H&K 112

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ABSTRACT

There is a critical and immediate need for innovation in our study of the biomechanics and neural control of movement, toward more effective translational efforts to preserve walking ability and mitigate falls risk due to aging and gait pathology. I will discuss recent discoveries from several complementary lines of research in our Applied Biomechanics Laboratory to meet this need. Foremost, I will describe our ongoing use of novel ultrasound imaging techniques to study aging effects on muscle-tendon structure and function in the context of age-related deficits in walking performance and metabolic energy cost. I will also outline our efforts to leverage the insights gained from those studies to inform and systematically evaluate novel rehabilitation techniques and bio-inspired assistive technologies with broad translational applications. Finally, I will briefly introduce our use of virtual reality and sensory perturbations to detect preclinical walking balance impairment and subsequently to enhance walking balance integrity through task-specific training.

ABOUT DR. FRANZ

Dr. Franz received his B.S. (2004) and M.S. (2006) degrees in Engineering Mechanics from Virginia Tech and, after serving as a staff scientist in PM&R at the University of Virginia, received his Ph.D. (2012) in Integrative Physiology from the University of Colorado, Boulder. He then completed an NIH Post-Doctoral Fellowship in the Department of Mechanical Engineering at the University of Wisconsin-Madison. Since 2015, Dr. Franz has served as an Assistant Professor in the Joint Department of Biomedical Engineering at the University of North Carolina at Chapel Hill and North Carolina State University and the Director of the UNC Applied Biomechanics Laboratory. He currently serves as Principle Investigator or Co-Investigator on multiple NIH-funded research projects, all predominantly focused on rehabilitation engineering strategies to mitigate age- and disease-related mobility impairment and falls risk..

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