BUMECHE

FALL 2022 SEMINAR SERIES

Friday October 28th | 11:00 am
110 Cummington Mall, Room 245

The Role of Bone Quality in Conditions that Increase Fracture Risk

In addition to the age-related increase in fracture risk known as osteoporosis, other common and rare diseases, or their treatment, also cause bone fragility. Unfortunately, tools that were developed to diagnose and treat osteoporosis do not necessarily translate to the management of diseases that are known to increase the risk of a low-energy fracture of the hip or spine independently of bone mineral density. Using three different mouse models of secondary osteoporosis, namely hypertension, glucocorticoid therapy, and neurofibromatosis type 1 (NF1), Dr. Nyman will describe how bone quality is a potential target for improving the clinical assessment of fracture risk. Based on detected differences in characteristics of bone quality between mice with and without disease (or young vs. old), there are several laboratory techniques that could potentially be translated to the clinic. They include 1H nuclear magnetic resonance relaxometry, Raman spectroscopy, quantitative computed tomography-based finite element analysis, and micro-indentation.

Jeff Nyman

Vanderbilt University
Professor of Orthopaedic Surgery and Biomedical Engineering

Dr. Jeff Nyman is a Professor of Orthopaedic Surgery at Vanderbilt University Medical Center and Biomedical Engineering at Vanderbit University. After completing a post-doctoral fellowship at the University of Texas at San Antonio investigating determinants of bone toughness, he moved to Nashville in 2006 and helped launch the Vanderbilt Center for Bone Biology. In 2022, he became the director of the center. The goal of his research is to lower the number of bone fractures associated with diabetes, aging, osteoporosis, cancer, and genetic diseases.