

Gholamreza Rouhi, PhD

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Dr. Rouhi received his B.Sc. and M.Sc. degrees in Mechanical Engineering from Sharif University of Technology, Iran, in 1991 and 1995, respectively. He then joined a research centre in Tehran where he worked for a couple of years as a research Engineer on mechanical gyroscopes. In September 2002, he went to Canada to do his PhD at the University of Calgary in Mechanical Engineering. He finished his PhD in March 2006 in Mechanical Engineering, major in Biomechanics, and then joined the Department of Mechanical Engineering at the University of Ottawa as an Assistant Professor, where he is cross-appointed in the School of Human Kinetics. In his PhD, he worked on bone remodeling and resorption theories using continuum mechanics and mixture theory.

Dr. Rouhi's research interests center on biomechanics of growth, in general, and biomechanics of bone remodeling, in particular; constitutive equations for hard and soft biological tissues; biomechanics of musculoskeletal systems from cell to tissue level; and orthopaedic biomechanics (bone-implant interaction and stress-shielding effect). He is actively involved in various research projects including: bone remodelling theories; bone-implant interactions and stress shielding; nano-biomechanics; knee biomechanics; and biomechanics of femoro-acetabular impingement. His ultimate goals are to: (1) Understand the effects of different kinds of mechanical stimuli on bone cells activity, and consequently on the rate of bone resorption and formation; (2) Find applicable ways to reduce implant loosening through a better understanding of bone remodeling process; and (3) Discover new features of bone remodeling process.

In his talk, he'll first introduce biomechanics. Then, he will be discussing about bone physiology and anatomy; bone mechanics; bone remodelling process; and some of the well-known bone remodelling and resorption theories (including their own contributions).