



We utilize multiscale approaches to study composition, architecture, mechanical integrity, and fracture resistance throughout the hierarchy of bone:

- To understand differences caused by disease
- To modify tissue properties with interventions
- To increase fracture resistance even if tissue is defective
- To focus on the critical role of collagen in bone health

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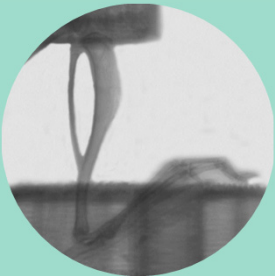


Bone Biology and Mechanics Lab
 Principal Investigator
 Dr. Joseph Wallace

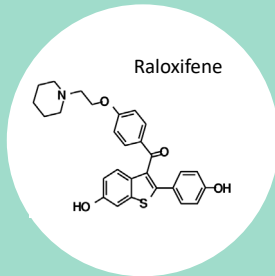
Aiming to improve bone health and quality of life for:

Diabetes • Chronic Kidney Disease • Osteogenesis imperfecta • Lathyrism • Osteoporosis • and more!

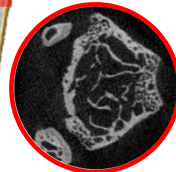
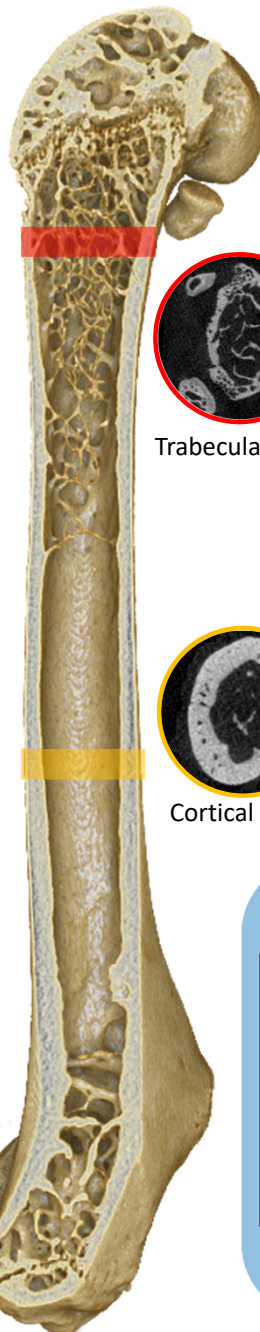
Treatments under Investigation



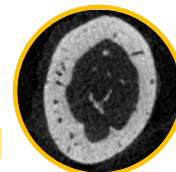
Exercise and mechanical stimulation



Anabolics and SERMS

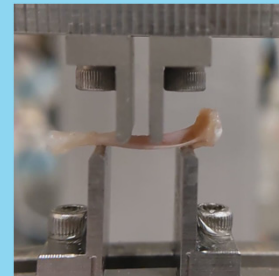


Trabecular bone

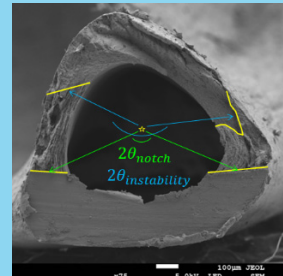


Cortical bone

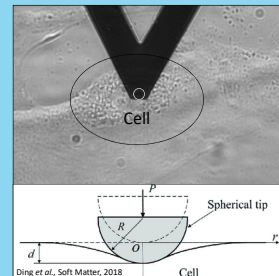
Mechanical Analyses



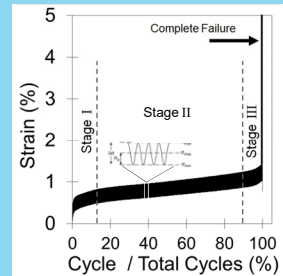
Bending tests



Fracture toughness

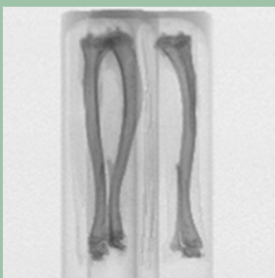


Nanoindentation

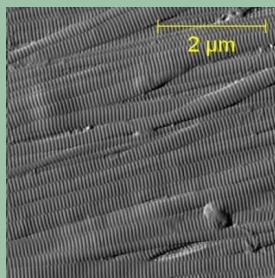


Fatigue

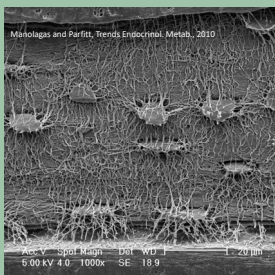
Imaging and Microscopy



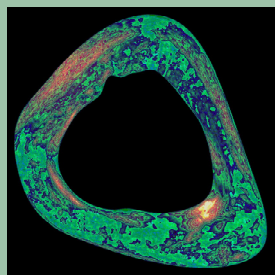
Micro-computed tomography



Atomic force microscopy

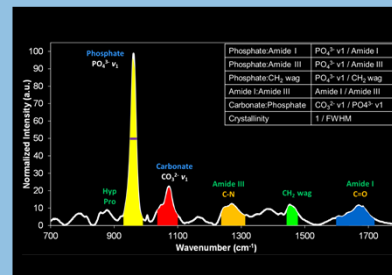


Scanning electron microscopy

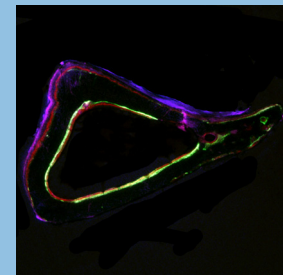


Polarized light microscopy

Composition and Organization



Raman Spectroscopy



Dynamic histomorphometry