ELEVENTH ANNUAL
Suzanne Bernier Memorial Lecture in Skeletal Biology
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Elise F. Morgan
Professor, Mechanical Engineering, Biomedical Engineering, Materials Science, Orthopaedic Surgery
Associate Chair for Graduate Research Programs, Mechanical Engineering
Director, Micro-Computed Tomography Imaging Core Facility
Boston University

Lecture: 3:00pm LABATT Health Sciences Building HSB 40
Reception: 4:30pm FIMS Atrium

“The Search for Better Predictors of Fracture Risk in the Spine”.

ABSTRACT: Fractures of the bony vertebrae in the spine are the most common complication of osteoporosis. Estimates place the number of vertebral fractures occurring worldwide at between 1.4 and 4.2 million annually. Vertebral fractures are associated with pain, loss of mobility, poor mental health, increased risk for additional fractures, and increased risk of death.

Despite the common occurrence and serious consequences of vertebral fractures, the methods currently available in the clinic to evaluate an individual’s risk of fracture are widely recognized as inadequate. These methods rely on average measures of bone density in the spine and thus ignore the structural complexity of each vertebra.

This talk will present evidence that the search for better methods of predicting fracture risk requires first a better understanding of how this complex structure—the vertebra—fails and what factors control the failure process.

Through a combination of laboratory experiments, computer modeling, and population studies, we are able to elucidate the failure process, evaluate methods for accurately simulating this process, and develop new predictors of the likelihood of fracture.

These tools, and the knowledge gained from them, help to chart a clear path towards obtaining accurate, patient-specific predictions of fracture risk in the spine.

Elise Morgan is a Professor and Associate Chair for Graduate Research Programs in the Department of Mechanical Engineering at Boston University. Dr. Morgan received her Ph.D. in Mechanical Engineering.
from the University of California Berkeley, and spent one year as a postdoctoral fellow in the Departments of Mechanical Engineering and Surgery at Stanford University.