Presents:
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Monday
January 12, 2009  
4:00 p.m.
Refreshments will be served 3—4 p.m.

Biological and Biomechanical Basis of Skeletal Muscle Injury

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Forced lengthening of skeletal muscles (i.e., “eccentric contractions”) produce injury and, ultimately, muscle strengthening. Such contractions are common in everyday movements as well as sports activities. Because they are mechanically unique and have dramatic biological consequences, it is becoming increasingly popular to study the mechanics and biology of eccentric contraction-induced muscle injury. Current data suggests that the earliest events associated with injury are mechanical in nature and are based primarily on sarcomere strain. Such strain results in relatively rapid breakdown or reorganization of cytoskeletal elements within the muscle cell can cause waves of muscle-specific gene expression. We have developed animal models of muscle injury that mimic the effects seen in humans. In addition, the use of muscles with “knocked out” or modified cytoskeletal proteins give insights into load bearing and transmission in skeletal muscle. Ultimately, an improved understanding of the damage mechanism may improve our ability to provide rehabilitative and strengthening prescriptions that have a rational scientific basis.

BIOSKETCH

Professor: Department of Orthopaedic Surgery and Bioengineering  
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Locations:  
Seminar is simultaneously presented

HSC: CHP 147 - LIVE  
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