

## Why do we walk the way we do?

Walking is much easier to do than understand. After all, we could put a man on the moon before we had a good idea as to how he would move once he got there. Our understanding of walking has been limited not by effort or creativity but by the complexity of the problem. This complexity is a consequence of the tight interactions between the mechanics of muscles and limbs, the control of the brain and spinal cord, and the constraints of the physical environment. While sometimes frustrating, it is also what makes the study of locomotion physiology so fascinating and is responsible for walking's many unsolved mysteries. For example, why does amputee walking requires more energy than able-bodied walking? And, are their advantages of bipedalism over quadrupedalism? The goal of this talk is to provide insight into some of the general principles that underlie walking as well as the interesting techniques that have elucidated these principles. Many of these principles were originally identified, or have since been expanded upon, by the participants in the ongoing MBI Workshop titled "Biomechanics and Neural Control: Muscle, Limb and Brain".

## Tuesday, January 15, 2008, 5:30pm

355 Jennings Hall (MBI Auditorium)

Lecture is free and open to the public

A reception with complimentary food and drink will follow



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Dr. Donelan's research focuses on understanding the fundamental principles that underlie the physiology of legged locomotion as well as the application of these principles to improve human health. Dr. Donelan has a Ph.D. in Integrative Biology from Berkeley and was an AHFMR/NSERC postdoctoral fellow in the Centre for Neuroscience at the University of Alberta. He is currently an Assistant Professor in the School of Kinesiology at Simon Fraser University, and was named an MSFHR Scholar in 2006 and a CIHR New Investigator in 2007. Dr. Donelan is also Chief Scientific Officer of Bionic Power Inc, an SFU spin-off company that is developing energy harvesting technology to power portable devices for military and medical applications.



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