The Udall Center of Excellence for Parkinson's Disease Research Update

December 16, 2015
1:30 pm – 2:30 pm
4130 Undergraduate Science Building

On Balance and Falls in the Elderly: What Do and Don't We Know?

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For more than a quarter of a century researchers have probed why falls become increasing common with advancing age and certain diseases. When those falls result in injuries, they become increasingly problematic and costly for the individual and society.

In this seminar I have been asked to review work in which my colleagues and I have explored balance, and biomechanical, attentional and other factors involved in the initiation of, and the failure to recover from, a fall. How does the brain control balance? How does the brain sense a loss of balance? What are the fastest human reaction times? How are these affected by age? What might be the role of attention or inattention in initiating a fall? Why do some falls result in injury while others don't, even in the same person? Is there time to minimize the risk of injury in a fall? Are all falls even necessarily bad? How can they be better prevented? In discussing these questions we will try to identify opportunities for meaningful future research.

Dr. Ashton-Miller directs the U-M Biomechanics Research Laboratory (http://me.engin.umich.edu/brl/). The more one learns, the less one can feel one knows, but witnessing students make really meaningful contributions is one of life's greatest pleasures. To this end he, his students and colleagues are funded by NIH, NSF and industry to use experimental and theoretical approaches to better understand the mechanisms of unintentional injuries so they can be better prevented in the future. The injuries studied include those from falls in the elderly, birth-related injuries in women (and how they can later lead to incontinence and uterine prolapse), and ACL and spine injuries. He has authored 250 peer-reviewed publications and several patents, graduated 30 doctoral students and mentored several physician-scientists through K and/or R awards. He is a past-President and fellow of the American Society of Biomechanics (ASB), a fellow of American Society of Mechanical Engineering (ASME) and AIMBE, as well as Chair of the Health Science section of the Gerontological Society of America. He is the recipient of the 2009 ASB Giovanni Borelli Award and the 2015 ASME H.R. Lissner Medal for contributions in biomechanics and biomedical engineering.