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NEUROSCIENCE SPEAKER SERIES



James Finley

**Divisions of Biokinesiology, Physical Therapy &
Neuroscience
University of Southern California**

**Identifying Principles of Motor Skill Learning to Improve
Mobility**

Thursday, October 13
4:00 PM
Seaver Commons RM 102
Pomona College

Abstract: Motor skill acquisition is the basis of a broad class of rehabilitation interventions for people with neurological impairments. For example, when developing assistive devices, designers often consider reducing the energy cost of walking or increasing stability as key design objectives. Here, I will share some of our recent work in which we examine the role of energy optimization and balance control as people learn to walk on a split-belt treadmill. This task presents a unique opportunity where people can modify their walking pattern through trial-and-error practice to gain assistance from the environment and potentially reduce the energy cost of walking, similar to using a powered exoskeleton. Understanding the factors that influence how people learn to acquire and take advantage of assistance is critical for designing effective training algorithms that can adapt to changes in the user's behavior. I will conclude with a discussion of how energy cost and stability shape the gait patterns that emerge following stroke and highlight how fundamental studies of sensorimotor learning can inform the design of interventions to increase mobility.