

## The Neuromechanical Foundations of Handedness



**Dr. Robert Sainburg** did his undergraduate work at NYU, where he received his baccalaureate in Occupational Therapy, and subsequently practiced in clinical rehabilitation. He received his master's degree in physiology and neurobiology and his doctorate in neuroscience from Rutgers University. He then did postdoctoral research under the mentorship of Claude Ghez in the department of Neurobiology at Columbia University in New York. He is now an Associate Professor of Kinesiology and Neurology and co-director of the interdisciplinary graduate program in neuroscience at Penn State University. Dr. Sainburg integrates biomechanics and neurobiology to elucidate the neural principles underlying the planning and execution of arm movements, mechanisms underlying intralimb and interlimb coordination, and the mechanisms underlying coordination deficits associated with neurological disorders. His research provides

the foundation for the Dynamic Dominance Model of motor lateralization, hypothesizing that the dominant and nondominant hemispheres of the brain divide up tasks when controlling movement of the extremities consistent with the hemispheric separation of perceptual, cognitive, and language activities. This research has implications for understanding motor deficits resulting from strokes that impair sensory activities and motion-control on only one side of the body.