Upper Extremity Function Following Neurological Disorder
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The overwhelming majority of people with neurological injury experience loss of UE movement and function. Use of the UE is critical for successful performance of meaningful self-care, work, and social activities; therefore UE motor impairment can have devastating consequences. Recovery of UE motor function is often a priority goal of those with neurological disorder. The Upper Extremity Motor Function Laboratory Center, housed within the College of Health Professions at MUSC, aims to provide rehabilitation therapists and people with neurological disorders a framework for understanding and treating UE motor deficits. Our work is based on contemporary theoretical models which suggest that a dynamic interaction of neural, musculoskeletal, and contextual factors contribute to UE motor impairment. The next generation of restorative UE rehabilitation strategies depends upon establishing precise characterization and measurement of these factors in order to appropriately target interventions. We seek collaborators to (1) examine application of treatment principles derived from animal models of neurological injury to the design of human UE rehabilitation programs, (2) utilize cutting-edge imaging techniques to explore the relationship between neural structure/function and functional UE motor behavior, (3) explore methods to characterize the interplay of contextual factors and UE motor recovery, (4) probe avant-garde UE measurement techniques and treatment devices, (5) investigate the effectiveness of neuro-stimulation approaches, (6) advance biomechanical modeling of the upper body to more accurately reflect the kinesiology of 3-dimensional UE movements, and (7) help establish a two-way dialogue with real-world rehabilitation therapists to facilitate integration of research and practice.