



PHD IN HEALTH & REHABILITATION SCIENCES

Program Overview

The field of rehabilitation sciences has become more exciting, more complex, and more demanding. By integrating clinical and basic sciences, Drexel's faculty members educate high quality rehabilitation research scientists with a background that is both broad in scope and rigorous in depth.

Through this program, Drexel faculty have prepared exceptional research scientists and educators for three decades. Our graduates are prepared within the contextual paradigm of health and disability research to expand the body of knowledge in rehabilitation sciences through understanding the mechanisms of movement impairments, preventing and reducing mobility limitations and disability, and promoting health, physical performance and participation in people across the lifespan.

Program Objectives

On completing the Doctor of Philosophy degree, graduates will be prepared to:

- Create innovative mechanisms, methods, interventions and approaches for service delivery for health promotion and rehabilitation
- Establish a research agenda that will impact health and rehabilitation sciences
- Collaborate, integrate expertise and conduct research within interprofessional teams
- Write competitive research funding proposals
- Disseminate and translate research through presentations, publications, and contemporary media
- Teach effectively and contribute to the academic community
- Institute a plan for continued professional development as a research scientist

Program Features

- Individualized plan of study aligned with faculty research
- Faculty advisors and mentors committed to your success
- Federal and foundation funded faculty researchers
- 30-year history of PhD education

Curriculum

The curriculum offers considerable freedom in structuring an individualized program. The curriculum includes a mix of advanced courses, independent studies and practica. The interprofessional core courses prepare students for collaborative interdisciplinary research. Core courses are offered in research methods, biostatistics, and teaching with additional courses in the student's chosen area of interest.

Research Facilities

Our research facilities include well- equipped research laboratory space, including biomechanics, gait and neuromuscular performance labs, with equipment including force plates, EMG, motion analysis and human performance measurement equipment. This space includes conference rooms, PhD and post doc offices. The PhD faculty have clinical research collaborations with pediatric and adult healthcare facilities in the region.

Scan the QR code for more info or call us at (267) 359-5535



DREXEL UNIVERSITY

Physical Therapy and
Rehabilitation Sciences

College of Nursing and Health Professions

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Program Faculty

Ben Binder-Markey, PT, DPT, PhD, Assistant Professor Dr. Binder-Markey's research interests are in how skeletal muscle structure and function adaptations following injury (stroke, cerebral palsy, trauma) or disease (cancer) affect physical function. As a clinically trained DPT and PhD trained biomedical engineer, his work integrates physical therapy, basic science and engineering principles through experimental and computational modeling methods. He uses these integrated methods to improve the understanding of changes in muscle properties while developing new technologies and interventions to improve both muscle quality and patient outcomes. He has received funding from the NIH, American Heart Association, Foundation for Physical Therapy Research, and local institutions.

Sudeshna A. Chatterjee, PT, MS, PhD, Assistant Professor Dr. Chatterjee has a strong interest in understanding the neural mechanisms underlying the control of walking and how these may change due to person-specific factors such as older age, cognitive function, fear of falling, and neurologic disorders. She has extensive experience in conducting clinical research targeting brain function and mobility using functional neuroimaging (fNIRS) and non-invasive brain stimulation (tDCS). Her research investigating the association between genetic polymorphisms associated with brain function and mobility in older adults has been supported by the NIA funded Claude D. Pepper Older Americans Independence Center.

Lisa Ann Chiarello, PT, PhD, FAPTA, Professor Dr. Chiarello conducts research in the areas of family-centered, community-based service delivery; engagement of families and children in rehabilitation; and participation of children with physical disabilities in home, school, and community activities. She was co-principal investigator for the Move & PLAY (NIDRR & CIHR funded) and PT COUNTS (DOE funded) study and co-investigator for the On Track (PCORI & CIHR funded) study. Dr. Chiarello is currently co-investigator for the Engagement in Pediatric Rehabilitation and Developing a Measure of Resiliency-related Adaptive Self-Capacities for Rehabilitation Intervention studies (CIHR funded).

Margaret A. Finley, PT, PhD, Associate Professor Dr. Finley's research has strongly relied on biomechanical analyses of human dynamics in functional activities, translating scientific innovation into clinical practice. Her interest is primarily in secondary conditions affecting persons with chronic impairments, activity and participation limitations. Her ongoing work will provide specific information on how pain, biological, psychological and social determinants impact community participation in individuals, specifically in the transition from the acute phase following newly acquired SCI throughout community re-integration. Currently her lab is developing accessible, inclusive physical activity programs to address psychological factors, social factors, and activity engagement to mitigate the long-term adverse effects of inactivity in people with disabilities. She has been funded by the Department of Defense and currently by the Craig H Neilsen Foundation.

Clare E. Milner, PhD, FACSM, Associate Professor Dr. Milner's research interests are in human movement during daily functional activities, such as walking and other activities of daily living in people with musculoskeletal conditions, and in fitness and leisure activities such as running. As an applied biomechanist, she also has research interests in the technical aspects of biomechanical measurement, including the accuracy and precision of biomechanical tools and wearable monitoring devices.

Lynnette Montgomery, PT, PhD, Assistant Professor Dr Montgomery's research is focused on motor control and the processes that facilitate neuroplasticity and functional recovery following neurological injury. Her PhD work involved studies of brainstem motor pathways and their involvement in the control of reaching. Her postdoctoral work was in the area of rehabilitation after spinal cord injury. She is currently continuing her research in the Marion Murray Spinal Cord Research Center at Drexel University College of Medicine. Using anatomical and behavioral techniques, she investigates the impact of different neurorehabilitation approaches on functional recovery after spinal cord injury.

Annalisa Na, PT, DPT, PhD, Assistant Research Professor Dr Na's research focuses on understanding and developing interventions to address the interactions of multimorbidity diseases on functional outcomes among community-dwelling older adults. Her work leverages research, clinical expertise, and multidisciplinary approaches to develop non-pharmacological pain management interventions to prolong physical function and mobility while aging in the community. Her current studies examine various common multimorbidities in older adults at the highest risk for pain-related functional disabilities - specifically, cognitive decline (dementia, Alzheimer's disease), musculoskeletal pain (arthritis) and metabolic diseases (diabetes, hypertension, obesity). She is supported by a geriatric research grant from the Foundation for Physical Therapy Research and NIH. Her research and training has been funded by the Academy of Orthopaedic Physical Therapy and NIDLRR.

Glenn Williams, PT, PhD, ATC, Associate Professor Dr. Williams directs the Orthopaedic & Sports Rehabilitation Research Laboratory. His research focuses on neuromuscular plasticity after knee joint injuries (ACL injury, meniscus injury), optimizing rehabilitation of these injuries, knee osteoarthritis, and using emerging technologies such as wearable sensors to advance treatment of knee injuries and our understanding of human performance. Dr. Williams has been funded by the NIH, NFL Charities Medical Research Grants program and industry. Noteworthy collaborations include research with the Multicenter Osteoarthritis Study (MOST, NIH funded), Osteoarthritis Initiative (OAI, NIH funded), and Multicenter Orthopaedic Outcomes Network (MOON, NIH funded).