For more information, please contact:

Dr. Thomas Buchanan
Director, Delaware Rehabilitation Institute
Laird Professor of Mechanical Engineering
25 N. College Avenue
219 McDowell Hall
Newark, DE 19716
302-831-0619
www.udel.edu/dri
Our Mission
The Delaware Rehabilitation Institute (DRI) is devoted to research, education and practice in rehabilitation.

Our mission is to find innovative and improved ways to help people recover from injury and disease by providing an intellectual hub for clinicians, scientists, engineers and policy-makers to work together to improve the state of the art in rehabilitation medicine.

Our research ranges from the bench to the bedside, enabling us to take our breakthrough findings from the laboratory to the clinic and provide rehabilitation to the people of Delaware in all phases of the lifespan from infants to the elderly.

Our partners in the Delaware Health Sciences Alliance provide important clinical support for our research. Through DHSA, DRI partners with researchers and clinicians at Christiana Care Health System, Thomas Jefferson University, and Nemours/A.I. duPont Hospital for Children.

Our Research
• Solute transport in bone
• Development of robotic exoskeletons for stroke rehabilitation
• Effect of high-frequency, low-magnitude vibration on bone in children with osteogenesis imperfecta
• Motor coordination in children with autism, dyslexia, and developmental coordination disorder
• Development of community exercise programs for stroke and Parkinson’s Disease patients
• Adaptation of osteoblasts to mechanical stimulation
• Knee stability and osteoarthritis
• Use of functional electrical stimulation to improve fitness in children with cerebral palsy
• Technology development and training for infant power mobility
• Use of neuromuscular electrical stimulation for knee and shoulder rehabilitation
• Non-surgical approaches to rehabilitating knee joints following ACL reconstruction
• Vocal fold tissue regeneration
• Rehabilitation strategies to reduce the potential for post-surgery arthritis on the non-surgical limb
• Treadmill training and functional electrical stimulation to improve the walking patterns of stroke survivors
• Exercise interventions for adults with chronic low back pain
• Mechanotransduction: how signals of mechanical events are transmitted in bone
• Chronic ankle instability
• Neuromusculoskeletal and biomechanical factors related to non-contact injuries
• Effects of surgery on gait

Our Resources
• Laboratories for research in cytomechanics, motor control, rehabilitation robotics, motion and gait analysis, structural biology, bioimaging, biomechanics, infant motor behavior, musculoskeletal, physiology, athletic training, motor behavior, human muscle performance, tissue engineering, electromyography
• National Institutes of Health recognized Center of Biomedical Research Excellence
• Internationally recognized interdisciplinary Biomechanics and Movement Science (BIOMS) graduate program
• Top-ranked doctoral program in physical therapy

DRI has more than 50 faculty members in five colleges and ten departments conducting research in this area across the University of Delaware campuses.