HOLISTIC APPROACH

Each year there are almost 800,000 stroke cases in the United States. Nearly 130,000 Americans die from it – one every four minutes. Survivors often suffer varying degrees of cognitive, motor or behavioral disability. Our goal is to improve quality of life and function for stroke survivors by looking at patients holistically. We take an intensely collaborative approach to research, engaging experts in physical therapy, biological sciences, applied physiology, engineering and psychology to improve our ability to develop effective rehabilitation strategies.

The results of basic research aimed at improving understanding of muscle coordination, the brain-body connection, and the mechanisms of movement dysfunction following stroke are integrated into new, patient-centered rehabilitation therapies. The Stroke Research Group investigates ideas from the University of Delaware Physical Therapy Clinic before they are implemented in clinical practice.

We continue to explore the use of innovative technologies such as functional electrical stimulation and transcranial magnetic stimulation in stroke rehabilitation and foster industrial partnerships which open the door to commercialization of new rehabilitation devices.

CONTINUED ON REVERSE…
The Stroke Research Team works with patients on state-of-the-art rehabilitation equipment. Researchers conduct several stroke studies investigating new techniques to examine how brain damage affects performance and to improve function after a stroke.

**COORDINATION AND COLLECTIVE DATA**

Through our collaboration with DRI’s Clinical Research Core (ResCore), we have developed a streamlined, single, central process for recruitment, screening and enrollment of stroke survivors into studies. This helps our participants easily find the research study that is most appropriate for them without having to contact multiple investigators separately. Prior to enrollment, most participants undergo a thorough evaluation by one of our experienced research physical therapists. Information from this evaluation is shared among the Stroke Research Group investigators in a comprehensive database. Combining resources in this way allows us all to access a large dataset, from which we can probe the spectrum of disability impairments, from physical and cognitive to emotional and social domains.

**CONNECTION TO CLINICS**

Although the members of our group are located across the University of Delaware campus, we have a core research facility in the Health Sciences Complex on the STAR Campus. The DRI ResCore provides patient support for our studies, while the Nurse Managed Health Center performs cardiac clearance protocols and other physical exams required for participation in our studies.

We welcome new members to the group at any time. If you are interested in joining us, please email StrokeResearch@udel.edu for more information.

**STROKE RESEARCH GROUP MEMBERS**

- **Stuart Binder-Macleod** (Physical Therapy)—Improvement of walking function using fast treadmill training and electrical stimulation of lower-extremity muscles
- **Jill Higginson** (Mechanical Engineering)—Muscle coordination for activities of daily living through coupled experimental and simulation studies
- **Jared Medina** (Psychology)—Understanding how the brain integrates sensory information to provide knowledge regarding our bodies
- **Susanne Morton** (Physical Therapy)—Motor learning in health and disease; noninvasive brain stimulation for physical recovery following stroke
- **Darcy Reisman** (Physical Therapy)—Understanding the mechanisms of movement dysfunction following stroke

**ABOUT DRI**

DRI brings together researchers from various science disciplines for collaborative research in a scholarly environment to further the field of rehabilitation medicine. Its high-quality interdisciplinary research positions DRI as a leading national center for rehabilitation research. For more information, visit www.udel.edu/dri.