

Physical Therapy

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USARIEM Grant Supports Research on New Assessment for Wounded Warriors

A new grant from the United States Army Institute of Environmental Medicine (USARIEM) will help Physical Therapy Professor Karen McCulloch and an interdisciplinary research team further develop a new assessment protocol specifically designed for military service members who have sustained mild traumatic brain injuries (mTBI). Military medical personnel who make return-to-duty decisions often rely on input from occupational and physical therapists who have treated these wounded warriors, but traditional rehabilitation assessments are problematic because of ceiling effects, lack of face validity for military stakeholders, and inadequate sensitivity to duty-relevant vulnerabilities after mTBI.

USARIEM will fund a two year project titled Assessment of Military Multitasking Performance: Validation of a Dual-Task and Multitask Protocol or AMMP. The research team will evaluate the reliability and validity of this new

protocol to prepare for its use by therapists in the future.

“Traditional assessments do not fully take into account the intense physical and cognitive demands that military service members face, particularly in military conflict,” said McCulloch. “We have developed the AMMP to more accurately replicate the activities that a soldier needs to be able to perform in order to successfully and safely return to duty.”

McCulloch also has received funding as an Oak Ridge Institute for Science and Education (ORISE) fellow through the Rehabilitation and Reintegration Division (R2D) of the Army Office of the Surgeon General.



Karen McCulloch, PT, PhD, NCS

Segal Appointed Co-Director of Rehab Engineering Center

UNC PT Division Director and Professor Rick Segal has been named Co-Interim Director of the newly formed Rehabilitation Engineering Center (REC) of the Joint Department of Biomedical Engineering, co-located at UNC Chapel Hill and NC State University. Segal will work with Co-Interim Director Rick Wusk, PhD, from NCSU.



Rick Segal PT, PhD, FAPTA

An initiative of the College of Engineering at NCSU and the School of Medicine at UNC Chapel Hill, the REC is a state technical assistance, education, and research center that evaluates, designs, innovates, and promotes improved care and function for individuals with short- and long-term rehabilitation needs.

Segal will be responsible for establishing the infrastructure of the center; funding seed grants for collaboration, establishing a seminar series, and beginning a yearly symposium.

NCTraCS Funding Fuels Faculty Research

Three Physical Therapy faculty members have received funding from the North Carolina Translational and Clinical Sciences Institute (NCTraCS) to help further their research.

Mike Lewek, PT, PhD, is conducting a study titled *Motor Learning Strategies for the Production of Symmetric Gait*, which will determine how error-based learning can generate adaptations in spatiotemporal asymmetry during walking for individuals with and without chronic stroke.

Following stroke, the paretic, or weaker leg, may be unable to move in the same way as the non-paretic leg. This difference in movements causes an asymmetrical gait. To address problems related to spatiotemporal (e.g., stance time, step length) asymmetries, Lewek and his collaborators have designed a novel ‘closed loop’ system for the Human Movement Science Laboratory’s dual-belt treadmill. The treadmill measures spatiotemporal asymmetry in real time and can update each belt independently to either augment or minimize the asymmetry. Lewek will test individuals with chronic stroke and unimpaired control subjects to understand the short term response to these opposing motor learning theories.



Michael D. Lewek, PT, PhD

Karen McCulloch PT, PhD, NCS, used her NCTraCS funding for a project titled *Inertial Sensor Measurement of Military Multi-Task Function: A Pilot Study*. Data from the project helped further McCulloch’s work on developing a new assessment for soldiers who have suffered from mild traumatic brain injuries. McCulloch and her team recently received a new grant from the United States Army Institute of Environmental Medicine to continue the research (see related story above).

PT Professor and Director Rick Segal and Co-Principal Investigator Heather Walker, MD, UNC-CH Department of Physical Medicine and Rehabilitation, received funding for a study titled *Operant Conditioning of Tibialis Anterior H-reflexes in Patients Post-stroke*. Problems walking after stroke are common and often include foot drop, which occurs when the Tibialis Anterior (TA) muscle becomes weak or its antagonist muscles (e.g. Soleus) become hyperactive. The mechanisms underlying foot drop vary but it consistently causes stroke victims to use compensatory walking behavior. One of the most common treatments for foot drop is the use of light weight braces that do not encourage the use of TA during walking and will not produce increased strength in TA. Segal and Walker are gathering preliminary data on the feasibility of using operant conditioning of TA H-reflexes to make them larger in patients post-stroke with foot drop.



Kathleen Ollendick, PT, DPT, PCS, and Kimberly Morgan, PT, DPT

New Pediatric PT Collaboration

The University of North Carolina Institute for Developmental Disabilities (CIDD) LEND fellowship and the Duke Department of Physical Therapy and Occupational Therapy Pediatric residency have joined together to create a unique opportunity for the pediatric PT community. The goal of this collaborative effort is to offer a comprehensive, interdisciplinary experience in clinical management and leadership throughout the PT continuum in the specialty area of pediatrics and developmental disabilities. Kimberly Morgan, PT, DPT, has accepted the position as the 2011-12 UNC Chapel Hill CIDD Physical Therapy LEND Fellow and the Duke Pediatric Physical Therapy Resident. She will be mentored at UNC Chapel Hill by Angela Rosenberg, PT, DPH, and Kathleen Ollendick, PT, PCS, UNC DPT '10.

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MARGARET MOORE 90TH BIRTHDAY CELEBRATION

The UNC Chapel Hill Division of Physical Therapy hosted a 90th Birthday Celebration for Margaret Lee Moore, founder of the UNC PT program, on July 8, 2011, at the Carolina Inn in Chapel Hill. Friends and colleagues gathered for tea, sandwiches, and champagne toasts in honor of Margaret and her contributions to the physical therapy profession.



Top photo, UNC PT faculty members Mike Gross, Laurie Ray, and Jon Hacke with Margaret Moore. Right, Janet O'Neal ('74) offers one of many toasts made at the celebration in honor of Margaret.



Above, Ruth Mitchell, Carol Parr, Margaret Moore, and Billie Nelsen.

Student Community Service

UNC Physical Therapy students are engaged in a variety of service projects that help communities near and far. Visit www.med.unc.edu/ahs/physical/news for more information.

Right, PT students map out accessible, safe walking trails during a service-learning trip to Tyrell County, N.C.



DPT APPLICANT MENTOR PROGRAM

To help promote a more diverse student body, the Division of Physical Therapy is developing a mentoring program to help under-represented applicants submit their strongest applications. Please contact Laurie Ray (laurie_ray@med.unc.edu or 919-636-1827) if you are willing and able to become a UNC PT Alumni Mentor. Mentor and applicant will decide how to structure the mentorship, but at a minimum, the expectation is that dyads would meet or talk at least once each semester and work together for at least a year.

CONGRATULATIONS CLASS OF 2011

The UNC Chapel Hill Division of Physical Therapy hosted its 54th annual commencement ceremony on August 6, 2011. Twenty-five Doctor of Physical Therapy degree recipients and seven Transitional Doctor of Physical Therapy (tDPT) degree recipients were recognized during the ceremony.

2011 TRANSITIONAL DOCTOR OF PHYSICAL THERAPY GRADUATES

Erin Degrauw
Elizabeth Meacham
Diane Page
Miranda Jennings-Sterrett

Carissa Reed
Linda Stipo
Adam White



Above, tDPT graduate Adam White receives his hood from UNC PT Division Director Rick Segal and Associate Professor Lisa Johnston.

2011 DOCTOR OF PHYSICAL THERAPY GRADUATES

Mary Arfmann	Bevin Mraw	John Sizemore
Darcy Little	Kasey Gore	Lindsey Kenny
Emilee Billeau	Monica Murrell	Kelly Thomas
Courtney Madden	Danielle Hazelbaker	Megan Kimsey
Laura Brown	Sapna Patel	Jennifer Tilley
Stacy Mallard	Jeb Helms	Jessica King
Kyle Cooper	Elizabeth Randall	Estelle Tsalik
Julie Montgomery	James Hoffman	Laura Helen Whitlow
Crystal Copeland		

2011 tDPT GRADUATES



2011 DPT GRADUATES

