DEPARTMENT OF REHABILITATION MEDICINE
UNIVERSITY of WASHINGTON

Newsletter

Winter 2014 Volume VI, Issue 4

Letter From the Chairman

As we bid farewell to 2013 and ring in the New Year, I would like to take the time to recognize and thank our faculty, staff, students, trainees, volunteers, and friends of UW Rehabilitation Medicine for another wonderful year. Your hard work and commitment to our clinical, teaching, and research mission are truly appreciated.

In 2014, our Department will continue our local and global outreach efforts. This past winter UW Rehabilitation Medicine students participated in service learning projects, which promoted inter-professional collaboration and community outreach. The Department also sent a delegation to Shanghai to evaluate their current rehabilitation services and make recommendations. For more information on these outreach efforts, please see page 3.

On the faculty front, please join me in congratulating Dr. Stanley Herring, who was named the inaugural holder of the Zackery Lystedt Sports Concussion Endowed Professorship. We also welcome Dr. Naomi Chaytor, a rehabilitation neuropsychologist. For more information about the Lystedt Professorship and Dr. Chaytor see page 4.

Thank you for your continued interest and support of the Department. Contact us at rehab@uw.edu if you have any questions, comments, or contributions.

Peter Esselman, MD, MPT
Professor and Chairman

Spotlight: Dr. Molton's new RRTC

Dr. Ivan Molton was recently awarded a new Rehabilitation Research & Training Center (RRTC) for Promoting Healthy Aging of People with Long-term Physical Disabilities or "Healthy Aging RRTC" for short. The Healthy Aging RRTC, funded by the National Institute on Disability and Rehabilitation Research (NIDRR), is a continuation of Mark Jensen's RRTC on Aging with a Physical Disability: http://agerrtc.washington.edu . The new Healthy Aging RRTC, led by Dr. Molton, managed by Aimee Verrall, MPH, and coordinated by Amanda Smith, BS, will continue to work with people aging with multiple sclerosis (MS), muscular dystrophy (MD), post-polio syndrome (PPS), and spinal cord injury (SCI).

Spotlight continued on page 2

CALENDAR:

- **Annual Review Course**
  March 16-22, 2014
- **Lehmann Symposium**
  May 29, 2014

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The "R" in RRTC is for Research and we will conduct four studies over the five year grant:
1) "A Longitudinal Survey" will be led by Mark Jensen, PhD and carried out at the University of Washington's Center for Outcomes Research in Rehabilitation in collaboration with Dagmar Amtmann, PhD and her team of research staff who contribute their measurement expertise. We will examine the prevalence and trajectories of secondary health conditions, such as pain or fatigue, with age in people with MS, MD, PPS, and SCI. In addition, we will investigate environmental and individual barriers to general health care as well as rehabilitation care.

2) "Adapting Project EnhanceWellness" will be led by Ivan Molton, PhD is an evidence-based, participant-centered motivational intervention for older adults. EnhanceWellness involves a team of two professionals, typically a nurse and social worker, who work with individuals to improve their health and wellness. In older adults, research has shown that participants in EnhanceWellness can decrease the length of hospital stays, lower their use of psychoactive drugs, alleviate symptoms of mood disorders, and develop a sense of greater self-efficacy. Our study will adapt EnhanceWellness to our population of people aging with a long-term physical disability. We will embark on this study collaboratively and in the community with our partners at Senior Services of King County. Of note, EnhanceWellness was originally developed at the University of Washington at the Health Promotion Research Center.

3) "Developing a Resilience Intervention for middle-aged people with MS" will be led by Dawn Ehde, PhD and Kevin Alschuler, PhD. We will use mixed-methods (both qualitative and quantitative) and pilot test the new intervention in the community working with the Greater Northwest Chapter of the National MS Society as well as UW Medicine's MS Center.

4) "Survey of Managed Care"; we will partner with the University of Illinois at Chicago (UIC) and Tamar Heller, PhD, who heads UIC's Department of Disability and Human Development and is well known for her work in disability and health policy. This study will look at the impact of managed care programs in people aging with a long-term physical disability utilizing an existing longitudinal survey with both retrospective and prospective data collection.

The "T" in RRTC is all about Training and we will continue to translate what we learn through our research into meaningful products for individuals with MS, MD, PPS, SCI, as well as their friends and family, stakeholders, and policy makers both in the world of disability and in aging. Kurt Johnson, PhD and Kathy Yorkston, PhD will co-lead the Healthy Aging RRTC's knowledge translation efforts and we will work on developing a webinar series to educate aging agencies on disability and rehabilitation for people aging with a long-term physical disability. We will continue to write plain language summaries and fact sheets of our published articles and disseminate our findings through our website's blog, quarterly e-Newsletter, and our social media sites (Facebook and Twitter). If you haven't already, we invite you to join our e-Newsletter list by emailing us at agerrtc@uw.edu !

Award goes to member of the Childers Lab

Xuan Guan, MD, PhD candidate in the laboratory of Dr. Martin Childers, has been awarded the predoctoral fellowship from the American Heart Association for his work entitled "Studying Duchenne Cardiomyopathy" with patient-specific iPS cells. This study aims to elucidate the effect of dystrophin deficiency on human cardiomyocytes, which are non-invasively derived from urine samples. Assays developed from this project will be translated into a high throughput drug screening platform for DMD patients.

Service-Learning Kick-Off: LHF and GROW

UW Rehabilitation Medicine PT, OT, and P&O students are participating in service learning projects to help the local and global community. The following experiences were presented at the 2013 Health Sciences Service Learning Kick-off and are great opportunities for inter-professional collaboration and community outreach.

For the past 5 years, UW PT and OT students have participated in the Latina Health Fair which provides free health screenings to Latino families in the greater Seattle area. The students have collaborated to offer infant and child development screenings under the supervision of faculty members. Students gain valuable hands on experience providing families with important feedback and resources about their child's development and health related fitness.

GROW, the Global Rehabilitation Organization at Washington, is a newly-formed UW registered student organization that aims to organize and support local and global interdisciplinary service opportunities for rehabilitation students. Through service projects, the organization fosters cultural competency among the public and healthcare providers, support health initiatives in places of need, and develop sustainable, egalitarian relationships with communities worldwide. Since its inception last winter GROW has gained significant backing and momentum and is now functioning as the central hub for listing local service opportunities along with setting up international service opportunities for its members.

Students from each service group presented their work at the American Physical Therapy Association Combined Sections Meeting in February.

For a list of upcoming local service opportunities or information on how to get involved in GROW, visit their website at: http://globalrehab.wordpress.com/.

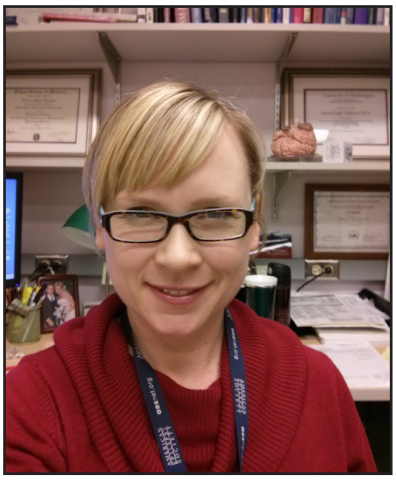
Rehabilitation Medicine around the world

A delegation from the Department of Rehabilitation Medicine and Division of Geriatric Medicine visited Shanghai in November. Drs. Kathleen Bell, Valerie Kelly, Wayne McCormick, and Ms. Melinda Glass were invited to evaluate the current state of rehabilitation services in Shanghai and to make recommendations for possible educational and program innovations.

The group visited Huashan Hospital, a 1,200 bed academic medical center and 2 rehabilitation hospitals, meeting with hospital officials and Dr. Wu Wiaotong, Chief Physician for Rehabilitation Medicine and Shanghai's No. 1 Rehabilitation Hospital. The group also spoke to physical therapy students, residents, physiatrists, neurologists, and geriatricians at Huashan Hospital and Kaijian Rehabilitation Center.

Faculty News, Awards & Honors:

Welcome Dr. Chaytor!



The Department would like to formally welcome Dr. Naomi Chaytor, who has been hired as a rehabilitation neuropsychologist at the University of Washington Medical Center. She is board-certified in neuropsychology and will be doing both outpatient neuropsychological assessments and psychotherapy. Her research focuses on cognitive and emotional functioning in patients with chronic medical and neurological disease. She is currently involved in research projects related to type 1 diabetes, neurosyphilis, and epilepsy self-management. She hopes to expand her research in cognitive predictors of chronic disease self-management.

Dr. Chaytor has a doctorate degree in clinical psychology from Washington State University and completed an internship in neuropsychology at Baylor College of Medicine. She then returned to Washington for her post-doctoral fellowship in rehabilitation medicine at Harborview Medical Center. After fellowship, she worked as a neuropsychologist at the UW Regional Epilepsy Center at HMC for several years before returning to rehab medicine this fall. She is excited about the opportunity to apply her research, clinical and teaching skills to rehabilitation populations.

Dr. Stanley Herring Named to Endowed Professorship

This fall, the UW Board of Regents named faculty member, Stanley A. Herring, M.D., as the inaugural holder of the Zackery Lystedt Sports Concussion Endowed Professorship. The Lystedt Professorship honors Zackery Lystedt, a student athlete who sustained a concussion at the age of 13 during a middle-school football game. Following an official injury time out and the ensuing half-time, Zackery Lystedt was returned to the game without proper medical clearance. He collapsed at the end of the game from a catastrophic brain injury. Life-saving medical treatment was provided at Harborview Medical Center.

The Lystedt Professorship will help Dr. Herring and his colleagues in the Seattle Sports Concussion Program continue their work to educate coaches, school administrators, parents, student athletes, and healthcare providers in order to help understand and recognize traumatic brain injuries (including concussions and other serious sports-related head injuries) and prevent the long-term physical, cognitive, and behavioral impairments and death that can result from these traumatic brain injuries. Because of the work of Dr. Herring and his colleagues, there are now Zackery Lystedt laws in 48 states and the District of Columbia. Lystedt laws require medical clearance of youth athletes suspected of sustaining a concussion before resuming play, as well as requiring better education for coaches, youth athletes and parents about the nature and risk of concussion, including the dangers of returning to practice or competition after a concussion or head injury.

The Zackery Lystedt Sports Concussion Endowed Professorship was created with generous donations from Richard and Donna Adler, Scott Blair, Aaron Engle, Fred Langer, Mike Nelson, Jim and Gaye Pigott, Andrea Selig and Joel Erlitz, Dorothy Simpson, Jan and Bob Whitsitt, and many others.

Gene therapy leads to robust improvements in animal model of fatal muscle disease

Kim Blakeley UW Medicine

Preclinical studies show that gene therapy can improve muscle strength in small- and large-animal models of a fatal congenital childhood disease known as X-linked myotubular myopathy. The findings, appearing as the cover story in the January 22, 2014 issue of Science Translational Medicine, also demonstrate the feasibility of future clinical trials of gene therapy for this devastating disease.

Researchers at the University of Washington, Généthon in France, Boston Children's Hospital, and Virginia Polytechnic Institute and State University in Blacksburg, Va., conducted the study. The study was based on seminal work on local and systemic administration in a mouse model of the disease performed by Anna Buj-Bello, at Généthon since 2009. The UW's Martin K. Childers, working with Buj-Bello and Beggs groups, tested gene therapy using an engineered adenovirus vector, created by Généthon. The vector carries a replacement MTM1 gene.

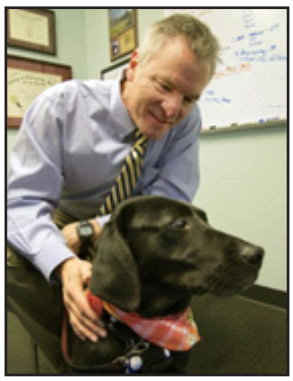


Photo by Clare McLean

Gene therapy researcher Martin K. Childers with his family dog, Bella, who carries the gene for the disorder he studies.

They used two animal models: mice with an engineered MTM1 mutation and dogs carrying a naturally occurring MTM1 gene mutation. These mutant animals appear very weak with shortened lifespans, similar to patients with myotubular myopathy. The scientists found that both mice and dogs responded to a single intravascular injection of an adenovirus vector engineered for gene replacement therapy, produced at Généthon. The treated animals had robust improvement in muscle strength, corrected muscle structure at the microscopic level, and prolonged life. No toxic or immune response was observed in the dogs. These results demonstrate the efficacy of gene replacement therapy for myotubular myopathy in animal models and pave the way to a clinical trial in patients.

Children born with X-linked myotubular myopathy, which affects about 1 in 50,000 male births, have very weak skeletal muscles, causing them to appear floppy. They also have severe respiratory difficulties. Survival beyond birth requires intensive support, often including tube feeding and mechanical ventilation, but effective therapy is not available for patients, and most die in childhood.

Alan H. Beggs of Boston Children's Hospital, co-senior author on the paper, has studied the mutated gene, known as MTM1, for many years and previously showed that replacing missing myotubularin protein effectively improved MTM muscle ability to contract. "The implications of the pre-clinical findings are extraordinary for inherited muscular diseases," said Childers, co-senior author on the paper, and co-principal investigator of the study with Buj-Bello and Beggs. "Two of our dogs treated with AAV gene therapy appear almost normal with little, if any, evidence, even microscopically, of disease caused by XLMTM." Childers is a UW professor of rehabilitation medicine and a regenerative medicine researcher. "These results are the culmination of four years of research and show how gene therapy is effective for this genetic muscle disease," said Buj-Bello. "We finally can envision a clinical trial in patients. These are very promising results for future trials in humans."

Photo by Clare McLean

Childers displays a dog family tree showing those affected and unaffected by an inherited muscle disorder similar to X-linked myotubular myopathy in people.

Robert W. Grange, Virginia Tech associate professor of human nutrition, foods and exercise, and Virginia Tech graduate student Jon Doering provided expertise to demonstrate the dramatic rescue of muscle function in the treated dogs. "The functional improvement was truly remarkable," said Grange. "It is both incredibly exciting and humbling to contribute to such a meaningful project – a true highlight of our careers."

The study was funded by the Association Francaise contre les Myopathies, the Muscular Dystrophy Association, Myotubular Trust, Genopole d'Evry, INSERM, Region d'Alsace, the Anderson Family Foundation, the Joshua Frase Foundation, Where There's a Will There's a Cure Foundation, and the Peter Khuri Fund for Myopathy Research. National Institute of Health grants P50 N5040828, R01 AR044345, R21 AR 064503, AR 0659750 and Ro1 HL115001 also funded the work.

Don't Forget!

31st Annual Review Course in Physical Medicine & Rehabilitation

March 16 - 22, 2014

Online brochure and registration info available December 2013 at http://uwcme.org

Save the Date!

Justus F. Lehmann Symposium

May 29, 2014

Poster viewing begins at 7:30AM and the first speaker will begin at 8AM. The keynote speakers are Barbara L. Kornblau and Martin Childers.

Call for Alumni Updates

We love to hear from our former students, residents, and fellows.
Please let us know what you've been up to!
Send an email to rnews@uw.edu with "Alumni Update" in the subject.
Photos are optional, but appreciated.

Did you know that UW Rehabilitation Medicine Alumni are now on Facebook?

Check out the official Facebook page: https://www.facebook.com/UWRehabAlumni

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