



2011 National Veterans Wheelchair Games to be Held in Pittsburgh

Its official! The VA Pittsburgh Healthcare System and Keystone Chapter of the Paralyzed Veterans of America will host the 2011 National Veterans Wheelchair Games (NVWG) in Pittsburgh. As a long time NVWG participant, HERL will also be closely involved in preparing for this landmark event.

The NVWG is a sports and rehabilitation program for military service veterans who use wheelchairs for sports competition. Participants have spinal cord injuries, amputations, and other physical disabilities. Attracting more than 500 athletes each year, the NVWG is the largest annual wheelchair sports event in the world.

After helping to host the 1998 NVWG in Pittsburgh, we began traveling to subsequent years' games to bring our research to the veterans. Our presence at the games helps

us interact with and serve our veterans who use wheelchairs. The event also gives us the opportunity to disseminate our research results, tell wheelchair users about our work, and recruit people who live outside of Pittsburgh to participate in our studies.



The 2011 Games will utilize facilities throughout Pittsburgh, including the David L. Lawrence Convention Center and University of Pittsburgh's Trees Hall.

We're looking forward to seeing you in 2011!

-Christine Heiner

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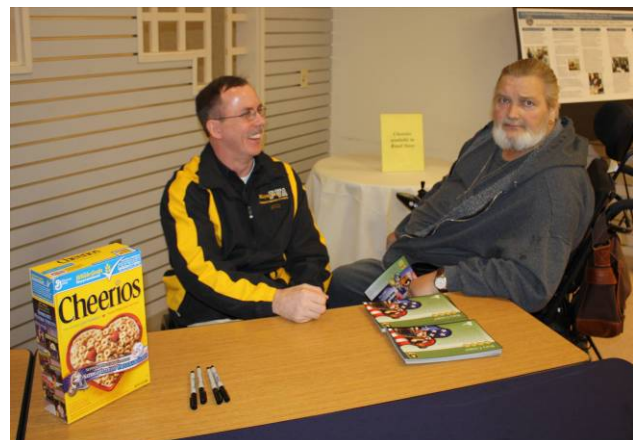
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Rory Cooper featured on Special Edition Cheerios Box

In March our director Dr. Rory Cooper was featured on a special edition Cheerios cereal box. The box featured athletes from the 28th National Veterans Wheelchair Games as part of a national campaign organized by the VA, VA Canteen Service, and General Mills. The Cheerios boxes are being sold through VA Canteen Services and Bases Exchanges, with proceeds going to the Fisher House Foundation.

The VA organized 3 Cheerios box signing events where Dr. Cooper appeared at each one of the 3 Pittsburgh VA Medical Centers to autograph cereal boxes as well as "sports hero cards" that were also released as part of the campaign. Veterans and VA employees were among the many visitors at the autograph sessions.

-Christine Heiner



Veteran Ernest Weaver visited the VA University Drive on March 5th for an autographed sports hero card and cereal box from Cheerios athlete and HERL Director Dr. Rory Cooper

CURRENT RESEARCH ABSTRACTS

Usage of Tilt-in-Space, Recline, and Elevation Seating Functions in the Natural Environment of Wheelchair Users

Dan Ding, PhD, Elizabeth Leister, MS, Rory A Cooper, PhD, Rosemarie Cooper, MPT, ATP, Annmarie Kelleher, MS, OTR/L, ATP, Shirley G Fitzgerald, PhD, Michael L Boninger, MD

Full article published in *Journal of Rehabilitation Research and Development*, pp. 973-984, Vol. 4, No. 7, 2008.

Purpose of Work. Powered seat functions such as tilt-in-space, backrest recline, and seat elevation are usually prescribed by clinicians to help posture change for seat pressure management and comfort, and/or to assist activities of daily living. This study described the usage and effectiveness of powered seating functions among a group of wheelchair users during their typical daily activities.

Subjects/Procedures. Twelve individuals who use a power wheelchair with seating functions participated in the study. They drove their own wheelchair and used the seating functions as needed in their community environment for about two weeks while the usage of such seating functions was recorded with a portable device.



A power wheelchair with tilt-in-space, recline, and elevation functions

Results. It was found that subjects occupied their wheelchair for 11.8 ± 3.4 hours per day. They consistently accessed the seating functions throughout the day and spent most of the time in tilted and/or reclined positions. Time spent in positions of different seating pressures varied among subjects. Most of them didn't reposition themselves as frequently as recommended in the clinical practice guideline.

Relevance to Wheelchair Users.

It is important for clinicians and wheelchair users to know the real world usage patterns and the effectiveness of these seating functions. This will help with wheelchair provision and clinical practice, leading to better education among wheelchair users .

- Dan Ding, PhD

Clinical Evaluation of the Guido Robotic Walker

Andrew J. Rentschler, PhD, Richard Simpson, PhD, ATP, Rory A. Cooper, PhD, Michael L. Boninger, MD

Full article published in *Journal of Rehabilitation Research and Development*, pp. 1281-1294, Vol. 45, No. 9, 2008.

Purpose of the Work: The Guido is a robotic walker that provides navigation and obstacle avoidance assistance. Previous testing found that the device met applicable design standards. The purpose of this study was to determine if the Guido met reasonable performance standards.

Subjects/Procedures: The performance of the Guido was compared to a low-tech mobility aid developed at the Atlanta VAMC, the Assistive Mobility Device (AMD), in trials involving older adults with visual impairments. Subjects traversed an obstacle course with the Guido and the AMD.

Results: Completion time, obstacle and wall contacts, and reorientations were compared for both devices. The Guido did not perform better than the AMD during the trials.

Relevance to Assistive Technology Users: The Guido as currently implemented does not provide any advantage over existing, less expensive, low-tech mobility aids. The lessons learned during the evaluation, however, may lead to the development

of new devices that do provide increased independence to older adults with visual impairments.



-Rich Simpson, PhD

CURRENT RESEARCH ABSTRACTS

Quality of Medical Care Provided to Service Members with Combat-Related Limb Amputations

Paul Pasquina, MD, Jack Tsao, MD, DPhil, Diane Collins, PhD, Brenda Chan, BA,
Alexandra Charrow, BA Amol Karmarkar, MS, Rory Cooper, PhD

Full article published in Report of Patient Satisfaction, *Journal of Rehabilitation Research and Development*, pp. 953-960, Vol. 45, No. 7, 2008.

Purpose of the work: We surveyed 158 service members who lost one or more limbs from combat in Iraq and Afghanistan to see how satisfied they were with the healthcare they received from injury until they were discharged from Walter Reed Army Medical Center.

Subjects and Procedures: Of these study members, 96% were men, 77% were White, and 89% were enlisted soldiers; most study members had leg amputations. Study members were most satisfied with their therapy, having a peer visitor, and the medical care they received.

Results: Overall, the satisfaction did not change for different age groups, races, military ranks, or kinds of amputations. However, older study members were more satisfied with the peer visits than younger study members. Also, those with upper extremity amputations were less satisfied with the support their families received while they were hospitalized.

Relevance to Healthcare Professionals and Service Members with Limb Amputations: Study findings strongly support the rehabilitation-based, integrative care approach designed by the U.S. Military to care for service members with amputation.

-Amol Karmarkar, MS

Evaluation of Titanium Ultralight Manual Wheelchairs Using ANSI/RESNA Standards

Hsin-yi Liu, BS, Rory A. Cooper, PhD, Jonathan Pearlman, PhD,
Rosemarie Cooper, MPT, ATP, Samuel Connor, BS

Full article published in *Journal of Rehabilitation Research and Development*, pp. 1251-1268, Vol. 45, No. 9, 2008.

Purpose of the Work: A series of commercially available titanium ultralight wheelchairs were tested using ANSI/RESNA testing procedures to compare their durability with previously tested aluminum ultralight and light-weight wheelchairs. Three of each of the following titanium wheelchairs were tested: Invacare-TopEnd, Invacare-A4, Quickie-Ti, and TiLite-ZRA.

Subjects and Procedures: The Quickie-Ti wheelchairs had the most forward and rearward center of gravity adjustability. All titanium wheelchairs passed the impact strength tests, but six wheelchairs failed in two of the static strength tests. Two Invacare-A4 and one Invacare-TopEnd successfully completed the double-drum test and curb-drop test, but the remaining wheelchairs failed prematurely.

Results: No significant difference was found in the number of the equivalent cycles and the value among the four models. The titanium wheelchairs had less equivalent cycles and value than the aluminum ultralight wheelchairs that were tested in a previous study. The failure modes in the static strength tests and the

fatigue tests were consistent within the model, and revealed important design issues of each model.

Relevance to Wheelchair Users: Our results suggest that manufacturers need to perform more careful analyses before commercializing new products.

-Hsin-Yi Liu, MS



Quickie-Ti on HERL's double drum testing machine

CURRENT RESEARCH ABSTRACTS

Psychosocial Impact of Participation in the National Veterans Wheelchair Games and Winter Sports Clinic

Michelle L. Sporner, BS; Shirley G. Fitzgerald, PhD; Brad E. Dicianno, MD; Diane Collins, PhD; Emily Teodorski, BS; Paul F. Pasquina, MD; Rory A. Cooper, PhD
Full article published in *Disability and Rehabilitation*, pp. 410-418, Vol. 31, No. 5, 2009.

Purpose of the work: Participation in adaptive sports has been steadily rising due to the development of better equipment and increases in opportunities for participation. Additionally, research has shown multiple benefits from participating in sports and recreational activities. The purpose of this study was to determine the effects of participation in the National Veterans Wheelchair Games and the National Veterans Winter Sports Clinic (NVWG/WSC). **Subjects and Procedures:** One hundred and thirty-two veteran athletes recruited at the NVWG or the WSC completed this descriptive study. A secondary data analysis was completed to determine how comparable individuals who attended the NVWG/WSC were to individuals who did not participate in these events.

Results: Participants felt that the NVWG/WSC increased their knowledge of sports equipment (92%), learning sports (89%), mobility skills (84%), and acceptance of disability (84%). The majority of partici-

pants stated that the NVWG/WSC improved their life. When compared to individuals with disabilities who were not competitors at the NVWG/WSC, those who participated at the NVWG/WSC tended to be more mobile, but have increased physical and cognitive limitations as measured by the CHART when compared to the non-attendees.

Relevance to People with Disabilities: Recommending veterans and individuals with disabilities to participate in recreation and sporting events such as the NVWG and WSC may provide psychosocial benefits.

-Michelle Sporner, MS, CRC



Design of a Custom Racing Hand-Cycle

Emily Zipfel, MS, Joe Olson, MS, Jeremy Puhlman, BS, Rory Cooper, PhD
Full article published in *Disability and Rehabilitation: Assistive Technology*, pp. 119-128, Vol. 4, No. 2, March 2009.

Purpose of the Work:

Hand-cycling is an efficient and enjoyable method of travelling long distances for persons with lower limb impairment. Use of hand-cycles is increasing rapidly for recreation, exercise and transportation. This paper describes the design, manufacture and evaluation of a custom hand-cycle. The state of hand-cycle design and future design directions are also examined.

Method: The design of the custom hand-cycle was based on these criteria: light weight, aerodynamics, climbing ability, ergonomic fit and the user's specific needs. The hand-cycle was evaluated over three years of use.

Results: The result is a custom built touring style recumbent hand-cycle. During three years of evalua-



Custom handcycle designed and built at HERL for this study

tion and over 5000 miles of use there were two frame failures. The first failure was repaired and after the second, the device was retired. The evaluation of this design serves as a basis for a new set of design criteria.

Relevance to Wheelchair Users: The proper design of a hand-cycle varies greatly from person-to-person. Depending on a rider's disability level, flexibility, spasticity, comfort, competitiveness and their preferred mode of propulsion they may choose any one of a variety of styles. Advances in hand-cycle technology will make for lighter, faster, stronger vehicles which better match user's needs.

-Joe Olson, MS

Awards and Accomplishments

4 HERL students won student scientific paper competition awards and 2 HERL students were design competition finalists for the 2009 Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) conference to be held in New Orleans, LA in June.

The Student paper winners were:

Hongwu Wang for “Real-time Slip Detection and Traction Control of Electrical Powered Wheelchairs”

Eric Brindle for “Hand and Shoulder Joint Kinetic Analysis of Three Types of Lateral Wheelchair Transfers”



Nahom Beyene

Nahom Beyene for “Driving Status and the Inner Drive for Community Mobility: A Survey among People with Disabilities and Senior Citizens from Support Groups in New Delhi”

Padmaja Kankipati for “Is Upper Limb Muscular Demand Different Between Wheelchair Transfers from the Preferred versus Non-Preferred Side?”

Mike Turkovich, a student in our affiliated Department of Rehab Science and Technology at the University of Pittsburgh, was also a student paper winner for “Preliminary Assessment of Wheelchair Securement Systems in a Large Accessible Transit Vehicle”



Brian Harvey (center) and his design team show off their rugby wheelchair that made them finalists in the 2009 RESNA Student Design Competition

The design competition finalists were:

Alexandra Jefferds for “An On-the-Fly Adjustable Crutch”

Brian Harvey for “Design of a Novel Rugby Wheelchair

Using Large Diameter Thin Wall Tubing”



2009 RESNA student paper competition winners: Alexandra Jefferds, Hongwu Wang, Padmaja Kankipati, and Eric Brindle

2008 undergraduate intern **Shannon Brody** and her graduate student mentor **Ana Souza** won 1st prize in the undergraduate category of the 2009 University of Pittsburgh School of Health and Rehab Sciences poster contest for “Falls Related to Assistive Technology Use in Individuals with Multiple Sclerosis”

Brigadier General Gary Cheek, who heads the Army's Warrior Care and Transition Program, came to Pittsburgh on January 9 to visit HERL and meet with faculty from Pitt's School of Health and Rehabilitation Sciences (SHRS). The Warrior Care program strives to speed the return of injured soldiers to active service, or to prepare them for rewarding careers in civilian life. Brig. Gen. Cheek came to work with our faculty to find ways to increase soldier satisfaction as they transition back into society. BG Cheek also formally recognized several HERL and SHRS faculty and staff for various work with Walter Reed Army Medical Center and other military organizations in education and outreach, research, rehabilitation counseling, publishing, and volunteer service.



BG Cheek presents the Army's Warrior Care and Transition Program coin to HERL staff Mary Goldberg, Anmarie Kelleher, and Christine Heiner. Michelle Sporer, Dr. Michael Pramuka, and Rosemarie Cooper were also recognized during his visit.

Research Participants Needed

Evaluation of Activity Monitors in People with Spinal Cord Injury

Principle Investigator: Dan Ding, PhD

You may be eligible to participate if:

- You are between 18 and 60 years of age
- You are a manual wheelchair user
- You have a Spinal Cord Injury of T1 or below
- You are at least six months post-injury

This is a research study to test activity monitors that measure energy expenditure in people with SCI.

You will be asked to complete one 4 hour visit. During the visit you will be asked to perform activities such as push your own wheelchair, hand cycling exercise and desk work.

You will be compensated \$100 for completing all portions of the study.

To verify the validity of the study contact the VA Research Office at 412-954-5394.

If you are interested in participating or learning more about the study, please contact our Clinical Coordinators: Annmarie Kelleher or Emily Teodorski at 412-954-5287.

Human Engineering Research Laboratories, VA Pittsburgh Healthcare System, 7180 Highland Drive, Building 4, 2nd Floor, East Wing 151R1-H, Pittsburgh, PA 15206

Research at the University of Pittsburgh Department of Rehabilitation Science and Technology

Participants with **spinal cord injury** are needed for a research study in which the skin blood flow over the lower back will be measured in response to cooling and light pressure. All experiments are non-invasive (i.e. there is not any puncture or cutting of the skin) and will be conducted at a research lab of the Department of Rehabilitation Science and Technology at the University of Pittsburgh.

Requirements:

- You must be 18 to 65 years old.
- **You must have complete spinal cord injury (ASIA grade A).**
- You must not have any current pressure ulcers.
- You must not have any heart, lung, blood diseases, or diabetes.
- You must not be taking any medications that affect function of your heart and blood.
- You must not be a smoker.

Compensation: \$ 150.00 upon completion of the entire study (6 hours).

For more information, please call Tzen at 412-586-6916 or drop by 2310 Jane Street, Suite 1300. All calls are confidential.

Sponsored by the University of Pittsburgh



News from the University of Pittsburgh Department of Physical Medicine and Rehabilitation

The University of Pittsburgh Department of PM&R attained top rank for National Institutes of Health (NIH) funding compared to other academic PM&R departments in the US. Using data from the NIH web site, Blue Ridge Institute for Medical Research compiled results showing the total amount of grant funding received for each PM&R department, and University of Pittsburgh PM&R receiving nearly \$3.3 million this year.

PM&R faculty and former HERL graduate student **Fabrisia Ambrosio, MPT, PhD** won *Best Junior Faculty Presentation*, at the University of Pittsburgh Institute on Aging 2008 Research Day on December 9th 2008 for "Neuromuscular Electrical Stimulations Rejuvenated Muscle Stem Cell Regenerative Potential."

Dr. Gwendolyn Sowa received the 2009 Association of Academic Physiatrists' (AAP) AAP Young Academician Award, a prestigious honor among physiatrists. Past recipients of this award in the department are: Michael Boninger, MD, Interim Chair and professor, Dept. of PM&R (1998), and Amy Wagner, MD, Associate Professor, Associate Director of Research (2005).

Human Engineering Research Laboratories Assistive Technology Registry

Are you interested in
participating in
research studies related
to assistive technology?

If you are over the age of 18 and use any type of assistive technology (e.g. wheelchair, scooter, prosthesis, etc.), we would like to invite you to join the HERL Assistive Technology Registry.



If you are interested in participating in research studies related to assistive technology, we would like to invite you to participate in the HERL Assistive Technology Registry. As a member of the HERL Registry, we will inform you of current and future research studies which you may eligible to participate in. The Registry is an informational resource and notification of a research study does not obligate you to participate. You will be contacted once a year to update your information

You may contact a Clinical Coordinator at (412) 954-5287 or herlregistry@shrs.pitt.edu for more information.

Human Engineering Research Laboratories
VA Pittsburgh Healthcare System
Building 4, 2nd Floor, 151R1-H
7180 Highland Drive
Pittsburgh, PA 15206
www.herlpitt.org

To verify the validity of this study, you can call Dr. Ali F. Sonel, Associate Chief Of Staff /R&D, at (412) 954-5394

We are seeking individuals living in Pittsburgh and the surrounding area for this study



Evaluation of the Virtual Coach for Power Seat Function Usage

You are eligible to participate if you meet the following criteria:

- *Over the age of 18*
- *Power wheelchair users whose wheelchairs are equipped with power seat functions (include tilt, recline, seat elevation, and legrest elevation) and can operate the seat function(s) independently*
- * *Using a power wheelchair with the tilt function is required for participating in this research.*
- *Clinicians who have experience in prescribing power wheelchairs equipped with power seat functions*

If you are interested, please contact:
Annmarie Kelleher or Emily Teodorski, Clinical Coordinators for the Human Engineering Research Laboratories at 412-954-5287 or akellehe@pitt.edu

This study will be conducted at the University of Pittsburgh or the Center for Assistive Technology.

Rory A. Cooper, Ph.D.
Principle Investigator

Join our research!

You are invited to participate in a research study to evaluate the features of the virtual coach for power seat function usage.

If you are interested and meet the eligibility criteria, you will be asked to review the features of the virtual coach, complete a questionnaire, and attend an interview session.

Participation time:
around 2 hrs.

You will be reimbursed **\$30** for your participation in this study.

HERL PUBLICATIONS

Pasquina P, Tsao J, Collins DM, Chan B, Charrow A, Karmarkar A, Cooper RA, Quality of Medical Care Provided to Service Members with Combat-Related Limb Amputations: Report of Patient Satisfaction, **Journal of Rehabilitation Research and Development**, pp. 953-960, Vol. 45, No. 7, 2008.

Ding D, Leister E, Cooper RA, Cooper RM, Kelleher AR, Fitzgerald SG, Boninger ML, Usage of Tilt-in-Space, Recline, and Elevation Seating Functions in the Natural Environment of Wheelchair Users, **Journal of Rehabilitation Research and Development**, pp. 973-984, Vol. 4, No. 7, 2008.

Rentschler AJ, Simpson RC, Cooper RA, Boninger ML, [Clinical Evaluation of the Guido Robotic Walker](#), **Journal of Rehabilitation Research and Development**, pp. 1281-1294, Vol. 45, No. 9, 2008.

Liu H, Cooper RA, Pearlman J, Cooper RM, Connor S, [Evaluation of Titanium Ultralight Manual Wheelchairs Using ANSI/RESNA Standards](#), **Journal of Rehabilitation Research and Development**, pp. 1251-1268, Vol. 45, No. 9, 2008.

Ambrosio F, Ferrari RJ, Fitzgerald GK, Carvell GE, Boninger ML, Huard J, Functional Overloading of Dystrophic Mice Enhances Muscle-Derived Stem Cell Contribution to Muscle Contractile Capabilities, **Archives of Physical Medicine and Rehabilitation**, pp. 66-73, Vol. 90., No. 1, January 2009.

Kwarcia AM, Sisto SA, Yarossi M, Price R, Komaroff E, Boninger ML, Redefining the Manual Wheelchair Stroke Cycle: Identification and Impact of Nonpropulsive Pushrim Contact, **Archives of Physical Medicine and Rehabilitation**, pp. 66-73, Vol. 90, No. 1, January 2009.

Ambrosio F, Kadi F, Lexell J, Fitzgerald GK, Boninger ML, Huard J, The Effect of Muscle Loading on Skeletal Muscle Regenerative Potential: An Update of Current Research Findings Relating to Aging and Neuromuscular Pathology, **American Journal of Physical Medicine and Rehabilitation**, pp. 145-155, Vol. 88, No. 2, February 2009.

Zipfel E, Olson J, Puhlman JR, Cooper RA, Design of a Custom Racing Hand-Cycle: Review and Analysis, **Dis-**

HERL IN THE NEWS

VA Prosthetic and Sensory Aids Service, VA Employee Education System, December 2008: [Forward Together \(DVD\)](#)

Pittsburgh Post Gazette, January 14, 2009: [Army general reconnoiters Pitt injury recovery program](#)

Pittsburgh Post Gazette/YouTube, February 2009: [Dr. Rory Cooper](#)

Korea Educational Broadcast System, March 2009: HERL Highlighted in Assistive Technology TV Program

New Mobility, April 2009: [Still Dreaming of an iBOT](#)

Veterans Leadership Program of Western PA web site (www.vlpwpa.org), March 2009: [VA and General Mills Honor Disabled Veterans](#)

Rehab Management, March 2009: [Handle With Care](#)

Pitt Chronicle, March 2009: [Rory Cooper Sports Cards](#)

Pittsburgh Tribune Review, March 6, 2009: [Cheerios salutes wheelchair athlete](#)

Pittsburgh Post Gazette, March 7, 2009: [Local Veteran to Appear on Special Edition Cheerios Box](#)

University Times, p. 1, March 19, 2009: [Making it Big](#)

The Parascope, March/April 2009: KPVA Presents HERL with Donation to Support Research

ability and Rehabilitation: Assistive Technology, pp. 119-128, Vol. 4, No. 2, March 2009.

Whyte J, Boninger ML, Helkowski W, Braddom-Ritzler C, The Rehabilitation Medicine Scientist Training Program: Impact and Lessons Learned, **American Journal of Physical Medicine and Rehabilitation**, pp. 169-179, Vol. 88, No. 3, March 2009.

Sporner ML, Fitzgerald SG, Dicianno BE, Collins DM, Teodorski E, Pasquina PF, Cooper RA, Psychosocial Impact of Participation in the National Veterans Wheelchair Games and Winter Sports Clinic, **Disability and Rehabilitation**, pp. 410-418, Vol. 31, No. 5, 2009.

Watch our new video on

www.herlpitt.org!

We also started a YouTube page—

[http://www.youtube.com/user/](http://www.youtube.com/user/HERLresearch)

[HERLresearch](#)

where you can watch a video about the PerMMa project and subscribe for updates about new HERL research videos as they are posted!

Upcoming Events

Paralyzed Veterans of America and U.S. Handcycling would like you to be a part of an awesome off-road clinic and race—**Muddy Mayhem –to be held in Colorado this summer, date TBA.** The event is open to all people with disabilities who are either already in the sport or want to get into it. PVA will be providing free transportation, hotel and meals for wounded OEF/OIF service members. If interested, please contact Geoff Hopkins at geoffh@pva.org or 202-416-7736.

As part of their Injured Military Initiative, The Lakeshore Foundation is proud to offer Lima Foxtrot programs. Lima Foxtrot is a comprehensive program of fitness, recreation, sport and transition support for severely injured military personnel throughout the nation. Several events are scheduled throughout the spring, summer and fall. **All weekend Lima Foxtrot programs are provided at absolutely no cost to injured servicemen and women and one guest.** Air and ground transportation, lodging, meals and activities are provided free of charge. For more information, contact: Mandy Goff, 205.313.7437, mandyg@lakeshore.org, or visit www.lakeshore.org/limafoxtrot

The **UPMC Institute for Rehabilitation Research (IRR) Day 2009** will be held on **May 28, 2009** from 11:30 am—5:00 pm at the Thomas E. Starzl Biomedical Science Tower, S100. IRR day is an opportunity for UPMC students, fellows, and residents to showcase outstanding rehabilitation research. Participants come from disciplines including bioengineering, rehabilitation science and technology, physical therapy, and neuroscience. Physicians and other health care professionals who attend IRR Day 2009 are eligible to receive continuing medical education credits. The program,



HERL Director Dr. Rory Cooper crosses the finish line 1st in the handcycling division at the 2009 Pittsburgh Marathon

including continuing-education credits, is offered at no charge to attendees. Register at www.rehabmedicine.pitt.edu by May 21, 2009.

The **18th Annual Hope Network Hoops Classic** will be held **June 13, 2009** at the Galleria at Pittsburgh Mills in Tarentum, PA. For registration details please visit www.hopenetwork-pa.org or call 412-826-2771.

The **International Symposium on Quality of Life Technology** will be held **June 30-July 1, 2009** at University Club in Oakland, Pittsburgh, PA. The symposium is aimed at research scientists, industry engineers, health care clinicians, graduate students, and other professionals interested in the service technologies and applications of human daily activities. Symposium Sessions will include plenary and poster presentations, a Future Challenges in Quality of Life Technologies Panel, and an Exhibition. Learn more and register for the conference at www.qoltconf2009.pitt.edu.

HERL in the Community

Anmarie Kelleher, Laura McClure, Ben Salatin, and Jon Pearlman, volunteered at the Healthsports Ski Classic January 26-29 at Hidden Valley Ski resort.

Mary Goldberg, Shiv Hiramath, Amol Karmarkar, and Dr. Rory Cooper joined Team NSCIA to raise funds for the National Spinal Cord Injury Association in the Pittsburgh Marathon on May 3, 2009. Dr. Cooper also finished first in the marathon's handcycling division.

Michelle Sporer joined "The Unbreakables" at the National Multiple Sclerosis Society Walk in Pittsburgh on April 26. The team raised almost \$1400 that will help fund MS research and help those living with MS live more fulfilling lives.

Research at the 2009 Winter Sports Clinic

HERL and Water Reed Army Medical Center joined again to bring research to the annual DVA/VA Winter Sports Clinic (WSC) in Snowmass, CO from March 29-April 3.

144 athletes volunteered to participate in 4 research studies:



Celebrity winter sports clinic event supporters—actress Bo Derek and singer Taylor Dayne (center) with our researchers

We organized focus groups to identify situations power wheelchair users encounter when driving and strategies they use to negotiate difficult situations. This info can be used to make driving rules that will assist new power wheelchair users in learning to drive their chairs and researchers in developing driving algorithms.

We're currently preparing for the National Veterans Wheelchair Games in Spokane, WA July 13-18 where we will collect data for 4 more research studies. *—Christine Heiner*

Incidence of Upper Extremity Nerve Entrapments in Veterans with Major Limb Amputations

Principle Investigator: Rory Cooper, PhD

We collected pilot data on the incidence of these nerve entrapments in soldiers/veterans with amputations. This data can guide the development and evaluation of prevention and treatment approaches.

Acute Mountain Sickness (AMS) in Veterans with Disabilities

Principle Investigator: Brad Dicianno, MD

We recorded the incidence of AMS in WSC research participants. Information on the likelihood of developing AMS and its symptoms in a population of Veterans with disabilities is important for counseling and safety training for military personnel, for training medical staff, and for preparing prevention and treatment strategies.

Improving Seating Interface Fit and Pressure for Adaptive Skiing

Principle Investigators: Brad Dicianno, MD & Jon Pearlman, PhD

We examined seat interface pressures in a variety of sit skis and evaluated a custom air bladder system's effectiveness at reducing interface pressure with better positioning. We also used digital scanning technology to develop adaptive ski molds to potentially suit the needs of a wide range of skiers.

Power Wheelchair Driving Strategies on Unfavorable Terrains

Principle Investigator: Ding Dan, Ph.D.

Jerry Baylor Recognized by PA Senate

Keystone Paralyzed Veterans of America Sports Director and longtime HERL research participant Jerry Baylor was recognized by the Pennsylvania State Senate for his athletic accomplishments, especially his medal winning performances at the 2008 National Veterans Wheelchair Games.

In 2008 Jerry won 4 gold medals in the discus, javelin, 200 meter track, and weightlifting events, class 1B masters division. He also won a silver medal in the shot-put event.

Jerry has been a steadfast HERL research volunteer for many years and has participated in countless research video shoots and photography sessions. In 2008 he spoke on behalf of veteran research participants at the Pittsburgh VA's research week opening ceremony.

Jerry is not only an accomplished athlete but also a talented artist, winning first place in crafts at the 2008 VA Pittsburgh Veterans Art Festival. *—Christine Heiner*



Baylor (L) with Keystone PVA President Fred Tregaskes, holding the certificate sponsored by PA State Senator Jim Ferlo



Human Engineering Research Laboratories



VA Center Of Excellence For Wheelchairs and
Associated Rehabilitation Engineering



University of Pittsburgh NIDRR Model Center
on Spinal Cord Injury



Part of
Quality of Life Technology Center
a National Science Foundation Engineering Research Center

Rory A. Cooper, Ph.D.
Director

Michael L. Boninger, M.D.
Medical Director

Jonathan Pearlman, Ph.D.
Associate Director of Engineering

Brad Dicianno, MD
Associate Medical Director

Mailing Address:
VA Pittsburgh Healthcare System
7180 Highland Drive
Building 4, 2nd Floor East Wing, 151R-1
Pittsburgh, Pa, 15206

Phone: 412-954-5287
Fax: 412-954-5340

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