

Recently published

Following is a sample of recently published scholarly works by IRR faculty researchers.

Peer-reviewed papers

Arenth PM, Corrigan JD, Schmidt LD. Exploring the use of social comparison by individuals recovering from traumatic brain injury. *Brain Inj.* 2006;20:253-62.

Collins DM, Fitzgerald SG, Sachs-Ericsson N, Scherer M, Cooper RA, Boninger ML. Psychosocial well-being and community participation of service dog partners. *Disabil Rehabil Assist Technol.* 2006;1:41-8.

Dicianno BE, Spaeth DM, Cooper RA, Fitzgerald SG, Boninger ML. Advancements in power wheelchair joystick technology: Effects of isometric joysticks and signal conditioning on driving performance. *Am J Phys Med Rehabil.* 2006;85:631-9.

DiGiovine CP, Koontz A, Boninger ML (issue editor). Advances in manual wheelchair technology. *Top Spinal Cord Inj Rehabil.* 2006;11:1-4.

Gao W-M, Chadha MS, Kline AE, Clark RSB, Kochanek PM, Dixon CE, Jenkins LW. Immunohistochemical analysis of histone H3 acetylation and methylation — evidence for altered epigenetic signaling following traumatic brain injury in immature rats. *Brain Res.* 2006;1070:31-4.

Guo S, Grindle GG, Authier EL, Cooper RA, Fitzgerald SG, Kelleher A, Cooper R. Development and qualitative assessment of the GAMECYCLE exercise system. *IEEE Trans Neural Syst Rehabil Eng.* 2006;14:83-90.

Kochanek AR, Kline AE, Gao WM, Chadha M, Lai Y, Clark RS, Dixon CE, Jenkins LW. Gel-based hippocampal proteomic analysis two weeks following traumatic brain injury to immature rats using controlled cortical impact. *Dev Neurosci.* 2006;28:410-9.

Munin MC, Begley A, Skidmore ER, Lenze EJ. Influence of rehabilitation site on hip fracture recovery in community-dwelling subjects at 6-month follow-up. *Arch Phys Med Rehabil.* 2006;87:1004-6.

Ricker JH. Clinical MR Neuroimaging: diffusion, perfusion and spectroscopy. *J Head Trauma Rehabil.* 2006;21:90-3.

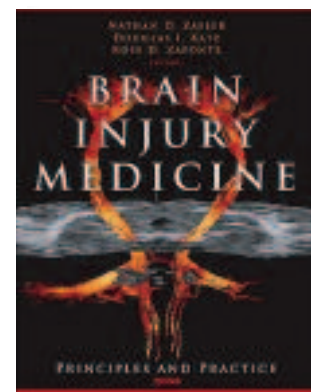
Rigg JL, Zafonte RD. Corticosteroids in traumatic brain injury: Is the story closed? *J Head Trauma Rehabil.* 2006;21:285-8.

Rogers E, Wagner AK. Gender, sex steroids, and neuroprotection following traumatic brain injury. *J Head Trauma Rehabil.* 2006;21:279-81.

Weber DJ, Stein RB, Everaert DG, Prochazka A. Decoding sensory feedback from firing rates of afferent ensembles recorded in cat dorsal root ganglia in normal locomotion. *IEEE Trans Neural Syst Rehabil Eng.* 2006;14:240-3.

IRR has key role in Principles and Practice

Several IRR faculty members have made major contributions to publishing of the latest edition of the premier textbook on rehabilitation for patients with traumatic brain injury. Ross D. Zafonte, DO, is one of three editors of *Brain Injury Medicine: Principles and Practice*, along with Nathan D. Zasler, MD, and Douglas I. Katz, MD. Joseph H. Ricker PhD, and Patricia M. Arenth, PhD, contributed the chapter on "Functional Neuroimaging in Medical Rehabilitation Populations;" C. Edward Dixon, PhD, and Anthony E. Kline, PhD, co-authored a chapter on "Advances in Innovative Therapies to Enhance Neural Recovery;" and Amy K. Wagner, MD, contributed the chapter "Conducting Research in Traumatic Brain Injury: Current Concepts and Issues." The book, which will roll off the presses this fall, is published by Demos Medical Publishers.



Published by Demos Medical Publishing, *Brain Injury Medicine* is the definitive work on comprehensive care for patients with TBI.

More book chapters

Cooper RA, Cooper R, Boninger ML. Wheelchair Design and Seating Technology. In: M. Selzer, L. Cohen, and F. Gage, (eds.), *Textbook of Neural Repair and Rehabilitation*, Cambridge University Press, 2006.

Ricker JH, Arenth PM. Traumatic Brain Injury. In: M. D'Esposito (ed.), *Functional MRI: Applications in Clinical Neurology and Psychiatry*. New York: Taylor & Francis. 2006.

Schultheis MT, Ricker JH. Quantifying Qualitative Observations in Visuospatial Organization. In: AM Poreh (ed.), *The Quantitative Process Approach*. New York: Taylor & Francis. 2006.

AFFILIATE LINKS

UPMC Institute for Rehabilitation and Research
<http://irr.upmc.com>

School of Medicine, Department of Physical Medicine and Rehabilitation
<http://www.rehabmedicine.pitt.edu/>

School of Health and Rehabilitation Sciences, Department of Rehabilitation Science & Technology
<http://www.shrs.pitt.edu/rst/index.html>

UPMC Center for Assistive Technology
[http://www.cat.pitt.edu/UPMC Health System](http://www.cat.pitt.edu/UPMC%20Health%20System)

Human Engineering Research Laboratories
<http://www.herlpitt.edu>

Rehab Neural Engineering Lab
<http://www.rnel.health.pitt.edu>

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News from the UPMC Institute for Rehabilitation and Research

FALL 2006

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New tech center to engineer improved quality of life for disabled individuals

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Mobility matters — NIDRR renews Model Systems Center grant for UPMC-SCI's mobility technology studies

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Shoot for the stars — IRR welcomes a researcher-novelist and a survivor-astronaut; young investigators earn honors at IRRDay2006

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Best in the field — Drs. Munin and Zafonte singled out for excellence

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On the road again — Faculty members cover the map in conference participation

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Island bound — IRR faculty members off to the 50th state in November

Upward bound — Michael Boninger promoted to associate dean

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Recently published — IRR faculty members produce peer-reviewed papers, textbooks

From the Chairman's Desk

Early this past summer, the University of Pittsburgh Medical Center Institute for Rehabilitation and Research (UPMC IRR) celebrated the first anniversary of the grand opening of its full-service, state-of-the-art inpatient rehabilitation facility at UPMC South Side. A large portion of our celebration highlighted the research aspect of the IRR's mission, as this issue of *Rehab Progress* clearly demonstrates.

The University of Pittsburgh School of Health and Rehabilitation Sciences Department of Rehabilitation Science and Technology joined the School of Medicine's Department of Physical Medicine and Rehabilitation to mark the IRR's first anniversary during our annual Research Day. Once a Physical Medicine and Rehabilitation Department-centered event, the conference was renamed "IRR Day" this year to recognize the more expansive nature of the IRR's activities. The article on Page 4 highlights the efforts of our young investigators in a brief report on IRRDay2006.

The feature story is our new initiative in developing innovative, intelligent-design technologies to improve the quality of life for individuals who live with disability. The National Science Foundation-funded Quality of Life Technology Engineering Research Center is a collaborative effort of researchers at the University of Pittsburgh and Carnegie Mellon University to envision, develop, and design "smart" devices to help disabled and older Americans live more independently and to improve the quality of their daily lives. Be sure to read about this imaginative new center on Page 2.

Additional news in this issue of *Rehab Progress* relates to our work in clinical rehabilitation, research, and quality of life for individuals with spinal cord injury (SCI). The University of Pittsburgh Model Center for Spinal Cord Injury (UPMC-SCI), one of only 16 such National Institute for Disability and Rehabilitation Research (NIDRR)-funded SCI centers in the U.S., has received renewed funding from the NIDRR. See Page 3 for more information on the UPMC-SCI.

This issue also highlights some of the achievements of IRR faculty members, including publications, professional recognition, and contributions, including our now-customary presentations at the Annual Assembly of the AAPMR.

Once again, I invite you to participate in *Panther Rehab Rounds*, our Department of Physical Medicine and Rehabilitation's monthly webcast grand rounds presentation. Details about upcoming presentations of *Panther Rehab Rounds*, as well as more information about our faculty, clinical centers, and research programs, are available at our website, <http://www.rehabmedicine.pitt.edu>.



Sincerely,

Ross D. Zafonte

Ross D. Zafonte, DO
Chairman
Department of Physical Medicine and Rehabilitation
University of Pittsburgh

NSF-funded center to help level the playing field for disabled

According to current estimates, approximately 60 million Americans have some form of disability. That number is expected to increase by 25 percent — to 75 million — by the year 2030, when the U.S. Census Bureau projects that one in five Americans will be at least 65 years old. The effects of disability or advanced age on the ability to live independently are costly, both in dollars and in quality of life.

To address this pressing 21st-century need, the National Science Foundation has awarded a five-year, \$15-million grant to fund a collaborative effort of researchers at the University of Pittsburgh and Carnegie Mellon University to develop technologies to help older and disabled persons live more self-sufficient, productive, and satisfying lives. The NSF award, along with a \$500,000 seed grant from the Pittsburgh Life Sciences Greenhouse, is funding creation of the Quality of Life Technology Engineering Research Center (QoL-ERC).

The individual strengths of the two research titans — next-door neighbors in Pittsburgh's high-technology, medical, and university community — combine to create an ideal setting for development of assistive technologies and intelligent systems to meet the needs of aging and disabled individuals. The University of Pittsburgh's superiority in medicine, neuroscience, bioengineering, and clinical excellence, coupled with the expertise of Carnegie Mellon in information technology and robotics, endow the new center with resources essential to developing and perfecting technologies to improve the quality of life for persons with any kind of impairment — auditory, cognitive, motor, neurological, speech, or visual.



Rory A. Cooper, PhD



Takeo Kanade, PhD

Co-directors of the QoL-ERC are Rory A. Cooper, PhD, and Takeo Kanade, PhD. Dr. Cooper is distinguished professor and Federation of Independent School Alumnae Foundation/Paralyzed Veterans of America chairman of the Department of Rehabilitation Science and Technology at the University of Pittsburgh School of Health and Rehabilitation



Dan Rossi, who has been blind from early childhood, uses "Trinetra" to identify items on the grocery store shelf. Trinetra is not a new technology, but an innovative combination of existing technologies. A UPC-reading pen uses the operator's cell phone to send codes over the Internet to the UPC database; the information sent back to the phone uses software that translates the signal into electronic speech.

Sciences; he is also both a well-published expert in wheelchair design and technology and an accomplished wheelchair athlete. Dr. Kanade is the U.A. and Helen Whitaker University Professor of Computer Science and Robotics at Carnegie Mellon University; he is widely recognized for his research in robotics and computer-vision technology.

According to Dr. Cooper, the research agenda of the QoL-ERC will be guided by the needs of both individual potential users and society at large.

"We want to make sure we're developing technologies that are accessible, effective, and user-friendly," he stated. "We will involve focus groups and prospective users in development and give them the opportunity to provide feedback on prospective products. We will consider issues of privacy, policy, aesthetics, and user acceptance as well as market readiness and health plan reimbursement."

The QoL-ERC will promote development and further refinement of intelligent systems such as:

- electronic prompts for people with failing memories; sensors to monitor health parameters and activity levels for people living alone and to call for assistance, if needed
- mobility aids and walkers that correct for changes in terrain, posture, or strength, or that warn of obstacles ahead
- scanners that translate bar codes into electronic "speech" to assist visually impaired people with shopping
- improved ergonomics that reduce injury and user fatigue

Researchers at the new center will also develop systems that address individual needs, such as controls that compensate for tremor and other movement disorders that compromise even the ability to operate a power wheelchair.

Some of the work will refine existing devices to increase their benefit to the user; some will investigate innovative applications of currently available technologies. The two universities displayed some of their innovations last December at the Center for Aging Services Technologies (CAST) exhibition in Washington, D.C. [See "Pitt and CMU display elder-assist technologies in Washington, DC," *Rehab Progress* Spring 2006, p. 7.]

The new center will use established university affiliations to address the special needs of underserved populations, including minorities, women, young people, and rural communities.

Research funding moves up the ranks

The University of Pittsburgh Department of Physical Medicine and Rehabilitation now ranks fifth in total grant funding from the National Institutes of Health among all U.S. medical schools with a department of physical medicine and rehabilitation. For NIH research grant awards, the Department ranks fourth in the nation. The rankings are based on data from 2005, the most recent year for which figures are available. In 2004, the Department ranked eighth in NIH research grants, ninth in total NIH awards.

NIDRR renews Model Systems Center on Spinal Cord Injury grant

The University of Pittsburgh Model Center on Spinal Cord Injury (UPMC-SCI) has received a \$2.25 million grant from the National Institute of Disability and Rehabilitation Research (NIDRR) for a five-year renewal supporting the center's research. The NIDRR Spinal Cord Injury Model Systems (SCIMS) program was established to study the course of recovery and outcomes in SCI patients following delivery of a coordinated system of care.

UPMC-SCI, one of only 16 NIDRR-funded model systems centers for spinal cord injury, is an ideal setting for the type of research that the NIDRR seeks to support. Access to the extensive resources available through the University of Pittsburgh Medical Center (UPMC), the University of Pittsburgh School of Medicine, and the School of Health and Rehabilitation Sciences allows UPMC-SCI to participate in virtually any trial or module. Moreover, UPMC is a Pennsylvania Trauma Foundation System-designated Level I trauma center, the largest trauma center in Pennsylvania, receiving more than 409,000 emergency department visits last year, including 4,025 trauma cases. The large patient base presents a vast potential pool for collection of relevant data.

The SCIMS program looks to support systems offering multidisciplinary rehabilitation services — including acute treatment, inpatient or outpatient post-acute care, and vocational services — to meet the special needs of individuals with SCI. An additional priority of the NIDRR is evaluation of methods and equipment used in these services, with documentation of benefit and cost effectiveness.

Spinal cord-injured patients treated at the University of Pittsburgh Medical Center (UPMC) have access to UPMC's integrated system, which provides full continuity of treatment, beginning with the response of emergency medical and rescue services at the scene of injury. Integrated care continues with comprehensive acute medical and surgical treatment — including a neurotrauma intensive care unit — to acute-stage rehabilitation, through outpatient services, assistive technology training, and vocational rehabilitation. At UPMC, acute rehabilitative care for patients with spinal cord injury takes place at the Institute for Rehabilitation and Research (IRR) at UPMC South Side. SCI patients at IRR South Side receive state-of-the-art treatment under a multidisciplinary plan of care that encourages a high level of communication among constituent services.

UPMC-SCI is studying evidence-based clinical practice guidelines (CPG) for patients who rely on assistive technology (AT), particularly wheelchairs, for mobility. Because technology potentially contributes a great deal to successful outcomes in patients with SCI and other disabilities, a major premise of the NIDRR paradigm is the use of universal design and assistive technology to mitigate disability and promote health and function. However, the value of assistive technology in SCI must be measured, in part, by the extent to which it allows individuals with SCI to sustain health and physical function, employment, and participation in family and social activities.

Despite the importance of AT, insurance coverage for mobility devices is declining. Fraud has led to policy changes that may not always protect the best interest of individuals with SCI. The impact of coverage changes, which is likely to be profound, can be measured only if it is tracked. Moreover, to lobby for their patients' best care, clinicians require the leverage that high-quality data can provide.

The UPMC-SCI's research module, Assistive Technology for Mobility (ATM), focuses on testing hypotheses and collecting data to understand and document the impact of changes in coverage, and to fully explore the issue of disparity in ATM prescription.

UPMC-SCI researchers earlier published pilot data demonstrating that SCI patients of minority or low socioeconomic status tend to receive wheelchairs of lower quality. The UPMC-SCI's ATM module continues to investigate this issue, probing the cause of the disparity so that solutions can be proposed. The pilot data collected also found that over 45 percent of wheelchair users experience equipment failure, with incidents of stranding, missed physician appointments, and injury. The UPMC-SCI group is studying the relationship of wheelchair breakdown to wheelchair quality and distance traveled.



Approximately the size of a roll of 35-mm film, the Data Logger can precisely measure wheelchair velocity, time of day, and distance traveled over a period of weeks. The Data Logger was developed and tested at UPMC-SCI.

The researchers make extensive use of the Data Logger, a novel tool that was developed and tested at UPMC-SCI. The Data Logger can precisely measure the velocity, time of day, and distance traveled by wheelchair, whether power or manual, over weeks at a time. UPMC-SCI researchers will relate these factors to wheelchair quality and user skill, as well as to measures of user participation.

The group will also complete an interventional research study on upper-limb pain in wheelchair users. Over 50 percent of individuals with SCI experience upper-limb pain in the first year

following injury. The impact of upper-limb pain in SCI patients is enormous, even affecting employment. Ineffective treatment strategies have led many to conclude that the best treatment for upper-limb pain is prevention.

In 2005, the Consortium for Spinal Cord Injury Medicine produced a clinical guideline entitled "Preservation of Upper Limb Function in Spinal Cord Injury." Michael L. Boninger, MD, director of the UPMC-SCI, led the evidence-based guideline development and the writing process. UPMC-SCI's project includes a randomized interventional study on the impact of strict application of the CPG on health and function in newly injured individuals with SCI. In this study, UPMC-SCI staff work with industry partners to assure that subjects in the intervention group receive recommended assistive technology, regardless of insurance coverage. Wheelchairs are set up according to the guidelines, and subjects receive specific training on appropriate propulsion, transfer, and exercise techniques aimed at reducing pain.

The researchers believe that this study will produce additional evidence to support CPG recommendations. More important, they believe that implementation of the CPG will prevent pain and improve health, function, participation, and employability.

IRR celebrates research

The Department of Physical Medicine and Rehabilitation at the University of Pittsburgh Medical Center (UPMC) has enjoyed meteoric growth and development during its relatively brief history. Before the arrival of department chairman Ross D. Zafonte, DO, physical rehabilitation services resided within the Division of Physical Medicine and Rehabilitation, under the umbrella of the Department of



From left, Drs. Michael Boninger, Randall Braddom, Daniel Barry, and Ross Zafonte

Orthopaedic Surgery. In 2000, as the newly seated chairman of the now full-fledged Department of Physical Medicine and Rehabilitation, Dr. Zafonte highlighted the importance of research in physical medicine by instituting an annual "Research Day."

In light of last year's consolidation of multiple clinical services, departments, and laboratories within the UPMC Institute for Rehabilitation and Research (IRR), Research Day — originally a department-centered activity — was renamed IRRDay. The new name highlights the broad scope of IRR research, through UPMC, the University of Pittsburgh departments of Physical Medicine & Rehabilitation and Rehabilitation Science & Technology, and the affiliated research centers, including the Human Engineering Research Laboratories and the Center for Assistive Technology. IRRDay includes presentations by national and international leaders in rehabilitation sciences and medicine and spotlights exemplary research through oral presentations.

The event provides an opportunity for young investigators to compete for awards by submitting abstracts of completed research for consideration by a rehabilitation science review board, consisting of Michael L. Boninger, MD, associate dean for medical student research in the University of Pittsburgh School of Medicine, and vice chairman for research, Department of Physical Medicine and Rehabilitation; and Clifford E. Brubaker, PhD, dean, School of Health and Rehabilitation Sciences; as well as Dr. Zafonte. The board conferred "Best Research" awards to young investigators in several categories at both pre- and postdoctoral levels of training.

IRRDay2006 convened on June 1 in the Thomas E. Starzl Biomedical Science Tower, University of Pittsburgh. Dr. Zafonte opened the program by welcoming more than 120 physicians, research scientists, and trainees. He then introduced the first of two special guest speakers, Daniel T. Barry, MD, PhD.

Dr. Barry is a physiatrist, a retired astronaut, and a veteran of three Space Shuttle flights, including the first mission to dock to the International Space Station. His research has involved work with biological signal processing and prosthetic design. Using his experiences — both as an astronaut and as a contestant on the CBS television series *Survivor* — as illustration, Dr. Barry spoke about the body's ability to adapt to extreme conditions.

Next to address the group was Randall Braddom, MD, MS, clinical professor, University of Medicine and Dentistry of New Jersey and Robert Wood Johnson Medical School, New Brunswick, N.J. Dr. Braddom is a renowned physician and researcher who has authored several books including the widely used text *Physical Medicine & Rehabilitation* (1st, 2nd, and 3rd Editions; WB Saunders, Philadelphia, Pa.), a handbook of physical medicine and rehabilitation, a textbook on pain management in physical medicine, and even a pair of mystery novels.

Presentation of research awards followed Dr. Braddom's lively talk on differential diagnosis of upper-extremity peripheral-nerve injuries. A total of 43 abstracts were submitted in this year's awards competition. Winners are listed in the box on Page 5.

For those who were unable to attend the event in person, IRRDay2006 was available by Internet simulcast using streaming video technology. To protect the intellectual property of visiting speakers, it was necessary to register in advance for the simulcast event, and the program was not archived on the Department's website.

Archived sessions of *Panther Rehab Rounds* — Physical Medicine and Rehabilitation Grand Rounds lectures — are always available. We invite you to participate in *Panther Rehab Rounds*, track for updates on next year's IRRDay2007 or other upcoming events, and learn more about the clinical, educational, and research programs of the University of Pittsburgh Department of Physical Medicine and Rehabilitation by visiting <http://www.rehabmedicine.pitt.edu>.



From left, residents Maria Christy Reyes-Littau, MD; Jose Ramirez-DelToro, MD; and Heather Walker, MD; and SCI fellow Jennifer Yang, MD.

If a loved one needed a physiatrist, to whom would you refer them?



IRR faculty members Ross D. Zafonte, DO, department chairman, and Michael C. Munin, MD, medical director of the UPMC Spasticity Evaluation and Treatment Center, were included in this year's list of "Best Doctors" in the Pittsburgh area. The list is compiled by Best Doctors, Inc., of Boston, a trusted and independent resource for health care information.

The current listing is the result of a survey in which more than 30,000 physicians throughout the United States were asked: "If a loved one needed a doctor in your specialty, to whom would you refer them?" Evaluations of the doctors named are weighed, scored, and filtered for bias. Only those physicians who earned the consensus support of their peers were included on the "Best Doctors" list.

IRRDay2006 Rehabilitation Research Awards

Best Rehabilitation Research by a Postdoctoral Fellow in the School of Health and Rehabilitation Sciences

A virtual-reality telerehabilitation system for analyzing accessibility of the built environment: field evaluation.

- Jongbae Kim, PhD; adviser: David M. Brienza, PhD

Best Rehabilitation Research by a Predoctoral Student in the School of Health and Rehabilitation Sciences

The impact of pain and age on physical performance measures in older adults.

- Sonali B. Shenoy, MS; advisers: Thomas E. Rudy, PhD; Jill Slaboda, MS; Susan Lieber, MS; OTR; Debra K. Weiner, MD

Honorable Mention

Jeanne Zanca
William Hula

Best Rehabilitation Research by a Postdoctoral Fellow

Chronic regional adrenergic receptor characterization in rat after controlled cortical impact

- Xiangbai Chen, MD; adviser: Amy Wagner, MD

Honorable Mention

Diane Collins, PhD

Best Rehabilitation Research by a Predoctoral Student

Muscle-based decoding of limb kinematics from ensemble firing rates of primary afferent neurons recorded in the dorsal root ganglia.

- Joost B. Wagenaar MS (Department of Bioengineering); adviser: Douglas Weber, PhD

Honorable Mention

Emily Rogers
Madani El Hariri

Best Rehabilitation Research by a Resident in Physical Medicine and Rehabilitation

Muscle loading as a key to muscle stem-cell mediated dystrophin delivery and physiological functioning: a pilot study

- Brad Kurowski, MD; advisers: Fabrisia Ambrosio, PhD, MPT; Subha Nagasubramanian, BPT; Kelley Fitzgerald, PhD, PT, OCS; Michael L. Boninger, MD; Johnny Huard, PhD

Honorable Mention

Heather Walker, MD

Recent conference participation

The IRR is visible at many national and international meetings. Following is a sample of topics of recent presentations by some of our faculty.

Talks, symposia, keynotes

Gilbert Brenes, MD, presented “Measurements of Outcomes in SCI – Gait and Ambulation, Wheelchair Circuit and Wheelchair Skill Test,” as part of the conference pre-course at the American Spinal Injury Association meeting in Boston on June 24.

Anthony E. Kline, PhD, co-chaired the session on “Cellular and Molecular Modifications of Glutamate Receptors” at the 24th Annual National Neurotrauma Society Symposium on July 8 in St. Louis.

Joseph H. Ricker, PhD, gave several invited presentations recently, including his keynote address “Neurofunctional Substrates of Cognitive Impairment, Recovery, and Rehabilitation” at the annual conference of CERNEC: le Centre de Recherche en Neuropsychologie et Cognition de l’Université de Montréal, March 31 in Montréal, Québec; a talk, “Functional Brain Imaging in Neurorehabilitation,” on June 17 at the American Academy of Clinical Neuropsychology Annual Meeting in Philadelphia; and two additional invited presentations at the 115th Annual Meeting of the American Psychological Association Aug. 10 and 11 in New Orleans.

Douglas J. Weber, PhD, gave an invited talk, Neural Interfaces for Somatosensory Feedback, at the NSF-sponsored US–China Workshop on Neural Interface Technologies and Applications, in Kunming, China, July 9. He gave another talk, “Somatosensory Information Transmission During Movement,” at the Summer Institute in Cognitive Neuroscience in Hanover, NH, on June 27; and he was quoted in a published interview in the article “Neuroprosthetics: In search of the sixth sense,” by Abbott A. *Nature* 2006 (July 13);442:125–7.

Abstracts and Proceedings

International Conference on Aging, Disability, and Independence

Feb. 2-4

St. Petersburg, Fla.

Hubbard S, Fitzgerald SG, Reker D, Boninger ML, Cooper RA, Kazis LE. Health-related quality of life and quality of wheelchair.

Association of Academic Physiatrists Annual Meeting

March 1-4

Daytona Beach, Fla.

The following abstracts can be found in *The American Journal of Physical Medicine & Rehabilitation*, vol. 85, no. 3; page numbers are indicated.

Baker KW, Boninger ML, Cowan R. Lifestyle factors of individuals who use wheelchairs; p. 281.

Dicianno BE, Spaeth DM, Cooper RA, Fitzgerald SG, Boninger ML. Advancements in power wheelchair joystick technology: Effects of isometric joysticks and signal conditioning on driving performance; p. 250.

McCann T, Boninger ML, Fullerton B, Impink BG. Correlation of ultrasound abnormalities and shoulder pain in the manual wheelchair user; pp. 248–9.

Modjoros M, Boninger ML, Fitzgerald SG. The role of marriage and children on social participation and depression in individuals with spinal cord injury; pp. 247–8.

Walker H, Boninger ML, Impink BG, Cooper RA. Correlation between ultrasonic median nerve characteristics and clinical symptoms in wheelchair users; p. 279.

International Society for the Study of the Lumbar Spine

June 13–17

Bergen, Norway

Sowa GA, Anghelina MA, Agarwal, SA. A molecular basis for the beneficial effects of motion: Mechanical signaling through the NF-κB pathway in intervertebral discs.

29th Annual RESNA Conference

June 22-26

Atlanta

The following abstracts can be found in *Proceedings of the 29th Annual RESNA Conference*.

Authier E, Fitzgerald SG, Kelleher AR, Cooper RA, Boninger ML. *The GameCYCLE exercise system phase II: training phase.*

Chaves ES, Cooper RA. Community participation assessment of individuals with spinal cord injury.

Koontz AM, Yang Y, Triolo R, Mercer JL, Fitzgerald SG, Cooper RA, Boninger ML. Surface electrical stimulation of trunk musculature during wheelchair propulsion.

Leister E, Ding D, Cooper RM, Kelleher AR, Cooper RA, Fitzgerald SG, Boninger ML. Effectiveness and use of tilt and recline power wheelchairs: preliminary data analysis.

Mercer JL, Boninger ML, Koontz AM, Cooper RA. Relationship of shoulder pathology and shoulder kinetics during wheelchair propulsion.

Souza A, Ding D, Cooper RM, Cooper RA, Kelleher AR, Fitzgerald SG, Boninger ML. Usage of pushrim activated power assist wheelchairs among people with tetraplegia.

Tolerico M, Ding D, Cooper RA, Fitzgerald SG, Cooper RM, Kelleher AR, Spaeth DM, Boninger ML. Assessing the activity levels of manual wheelchair users.

American Spinal Injury Association

June 24-26

Boston

Jennifer Yang J, Horton JA 3rd. Vasectomy as treatment for recurrent urinary tract infections in a spinal cord injured patient: A case series.

24th Annual National Neurotrauma Society Symposium

July 7-9

St. Louis

The following abstracts have been published in *The Journal of Neurotrauma* vol.23, no. 6; page numbers are indicated.

Chen X, Ren D, Wagner AK. Chronic regional adrenergic receptor characterization in rat after controlled cortical impact; p.1005.

Jenkins LW, Kochanek PM, Dixon CE, Kline AE, Clark RSB, Alexander HL. Acute protein kinase changes after TBI and therapeutic hypothermia in a murine model of CCI using high throughput immunoblotting; p.1038.

Postal BA, Chen X, Bayir H, Chuang J, Fabio A, Rogers EH, Dixon CE, Yuan Z, Wagner AK. Evaluation of F2-isoprostane, glutathione, protein sulfhydryl, and cytochrome-C levels in cerebrospinal fluid following severe traumatic brain injury; p.1041.

Rogers EH, Loucks TL, Fabio A, Corominal A, Yuan Z, Dixon CE, Berga SL, Wagner AK. CSF hormone production in patients with severe TBI: An initial characterization; p.1014.

Westergom B, Malena R, Kline AE, Clark RSB, Bayir H, Dixon CE, Jenkins LW. The effect of valproate treatment upon behavioural morbidity after moderate CCI in rats; p.1022.

IRR faculty members on their way to Hawaii

Department Chairman Ross D. Zafonte, DO, was selected by the American Academy of Physical Medicine and Rehabilitation as the recipient of this year’s Walter J. Zeiter Lectureship Award. The award honors the memory of the physician who served for 20 years as executive director of the American Academy of Physical Medicine and Rehabilitation and the American Congress of Rehabilitation Medicine. The annual lectureship acknowledges physiatrists who have made consistent contributions to the field of physical medicine and rehabilitation and who have earned the esteem of colleagues and peers for outstanding accomplishments in the specialty.

Dr. Zafonte will present the Walter J. Zeiter Lecture before the 67th Annual Assembly of the American Academy of Physical Medicine and Rehabilitation in Honolulu, on Friday, Nov. 10.

IRR researchers to give presentations

In addition to Dr. Zafonte’s lecture, several IRR faculty members will be in Honolulu this November to present research reports and to participate in panel discussions at the AAPMR Annual Assembly.

The combination of a 5-HT_{1A} receptor agonist and environmental enrichment after TBI confers greater functional benefits than either treatment alone. Peer-reviewed poster, presented by Anthony E. Kline, PhD. (Kline AE, Westergom B, Luthra P, Zafonte RD, Cheng J, Aslam H).

Early vs. delayed environmental enrichment differentially affects functional recovery after experimental traumatic brain injury. Scientific paper, presented by Anthony E. Kline, PhD (Kline AE, Malena R, Olsen A, Zafonte RD, Sozda C).

Ross D. Zafonte, DO, will be a member of an expert panel in *Neurological Rehabilitation – Neuropharmacology of Traumatic Brain Injury: Update, Case Discussion, and Ask the Experts.*

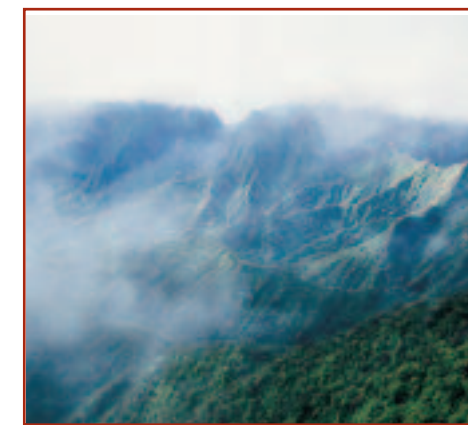
Ross D. Zafonte, DO, will be a discussant in the presentation *Neurological Rehabilitation – Clinical Pearls and Scientific Paper Presentations.*

Atomoxetine as a neurostimulant agent for the treatment of post-concussive cognitive impairment: A case report. Poster, presented by Lisa A. Lombard, MD (Lombard LA, Collins MW, Zafonte RD).

Pittsburgh Alumni & Friends to hold island soiree

Alumni of the University of Pittsburgh Department of Physical Medicine and Rehabilitation are invited to relax and enjoy a mid-assembly evening with old friends, past

mentors, and former colleagues. University of Pittsburgh Alumni and Friends will hold an alumni reception during the AAPMR Annual Assembly on Friday, Nov. 10, from 7 to 9 p.m. Meet us in South Pacific Ballroom 3, located in the Mid-Pacific Conference Center at the Assembly venue, the Hilton Hawaiian Village, Honolulu.



Dr. Boninger promoted to associate dean

Michael L. Boninger, MD, professor and vice chairman for research in the Department of Physical Medicine and Rehabilitation, has been promoted to associate dean for medical student research in the University of Pittsburgh School of Medicine. The School of Medicine has a new requirement that each medical student complete a scholarly project during the second through fourth years. This requirement is linked with specific preparatory course work during the first and second years of medical school. Dr. Boninger is responsible for this program, as well as a large summer research program run by the medical school.

Dr. Boninger was selected for this position because of his long track record of excellence in mentorship. He has served as the associate director for the Rehabilitation Medicine Scientist Training Program (RMSTP) for four years. Students and residents working under Dr. Boninger’s supervision have won more than 35 national awards.

Michael L. Boninger, MD, associate dean for medical student research

