

**Scholarly Activities**  
**Department of Physical Medicine and Rehabilitation**  
**September – November 2013**

***REGULAR FACULTY***

**James Atchison:**

Presentations: 2013 AAPM&R – Washington, DC

“Recent Studies that You Should Know About on Opioid Management of Non-Malignant Pain”

“Thoracic Manipulation in the treatment of Neck, Shoulder and Mid-back pain”

“Implementing Changes in Opioid Prescribing: Applying REMS Principles to Clinical Practice”

Atchison JW, Gagnon CM, Toelke L, Aiello SM, Gilbert SP, Nelson D, Calisoff RL, Stanos SP (October 2013). Implementing Changes in Opioid Prescribing: Applying REMS Principles to Clinical Practice. Poster presented at the Midwest Pain Society, Chicago, IL.

Presented “New Approaches and Treatment Considerations in Mild-to-Moderate Musculoskeletal Pain” AMCP-Nexus 2013 Meeting, Symposium, San Antonio, TX October 17, 2013

Lectures: Schwab Rehabilitation Hospital, October 24: Opioid Management & Rational Polypharmacy for Pain

**Patrick Barrett:**

Poster “Scapular Winging Due to Dorsal Scapular Mononeuropathy: A Case Report”, presented at the AAPM&R meeting, October 2013

**Nenad Brkic:**

Poster “Sympathotonic Orthostatic Hypotension after a Case of Herpes Simplex Encephalitis: A Case Report”, Academy of PM&R Annual Meeting, National Harbor, MD, October 3-6

Poster “Postencephalitic Parkinsonism in Acute Inpatient Rehabilitation: A Case Report”, Academy of PM&R Annual Meeting, National Harbor, MD, October 3-6

Committee Member, RIC Lab and X-Ray Committee (Chair), Medical Records, Medical Executive Committee and Medical Care Committee

**Ellen Casey:**

Manuscript accepted for publication to *Medicine & Science in Sports & Exercise*: The Muscle Stretch Reflex throughout the Menstrual Cycle. MSSE-D-13-00187R3

Presentations at the Academy of PM&R Annual Meeting, National Harbor, MD, October 3-6:

“Pilates for Physiatrists”

“The Female Athlete Triad”

“Ask the Experts: The Female Athlete Triad and Stress Fractures” - Moderator

“Best Musculoskeletal Paper Presentations” – Moderator

Poster: “Femoral Neuropathy after Patellar Dislocation”

### **Leora Cherney:**

Grants: National Institute on Disability and Rehabilitation Research (NIDRR). Time distribution of computer-based script training in aphasia. Part of the RERC on Rehabilitation Strategies, Techniques and Interventions. 10/1/2013 – 9/30/2018. (PI = **Rymer**; Project PI = **Cherney** & Van Vuuren).

Rose, M. L., Cherney, L. R., & Worrall, L. E. (2013). Intensive Comprehensive Aphasia Programs: An international survey of practice. *Topics in Stroke Rehabilitation*, 20, 379-387.

Babbitt, E. M., Worrall, L. E., & Cherney, L. R. (2013). Clinician perspectives of an Intensive Comprehensive Aphasia Program. *Topics in Stroke Rehabilitation*, 20, 398-408.

Hula, W. D., Cherney, L. R., & Worrall, L. E. (2013). Setting a research agenda to inform Intensive Comprehensive Aphasia Programs. *Topics in Stroke Rehabilitation*, 20, 409-420.

Cherney, L. R. From the clinic to the lab and back again. Invited presentation. Academy of Neurologic Communication Sciences and Disorders Annual Scientific and Business Meeting, Chicago, IL (November, 2013).

Cherney, L. R., Lee, J. B., Kaye, R. C., Hitch, R., Carpenter, J., Hurwitz, R., Ngampatipatpong, N., & van Vuuren, S. Errors, Cues, & Script-Training: Implications for Aphasia Treatment. 1-hour miniseminar presented at the Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL (November, 2013).

Cherney, L. R., Rogers, L. M., Wang, X., Gingrich, L., Hurwitz, R., & Parrish, T. Transcranial Direct Current Stimulation (tDCS) and Aphasia Treatment: State of the Science. 1-hour miniseminar presented at the Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL (November, 2013).

Oehring, A., Hitch, R. S., Cantu, R., & Cherney, L. R. Photojournaling: An Aphasia Community Group. 1-hour miniseminar presented at the Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL (November, 2013).

Carpenter, J. & Cherney, L. R. Constraint-Induced Language Therapy for Acute Fluent Aphasia on an Inpatient Rehabilitation Unit. Poster presented at the Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL (November, 2013).

Gingrich, L., Hurwitz, R., Lee, J. B., Carpenter, J., & Cherney, L. R. Quantifying Naming & Oral Reading Performance in Aphasia: The NORLA-6 Scale. Poster presented at the Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL (November, 2013).

**Deborah Gaebler:**

Received the *Pathways.org Pioneer Award*, November 18, Chicago

Madhavan S, Campbell SK, Campise-Luther R, Gaebler-Spira D, Zawacki L, Clark A, Boynewicz, K, et al: Correlation Between Fractional Anisotropy and Motor Outcomes in One-Year-Old Infants with Periventricular Brain Injury. *Journal of Magnetic Resonance Imaging*, 2013, October 17. Doi: 10.1002/jmri.24256 [Epub ahead of print]

**Courses**

New Clinical Horizons and Emerging Mobility Technologies - A Research Driven Process - American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

FACTORS THAT INFLUENCE EFFECTIVENESS OF ROBOTIC-ASSISTED THERAPIES IN CHILDREN WITH CEREBRAL PALSY - American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

THE IMPORTANCE OF BEING EARNEST ABOUT SHANK AND THIGH KINEMATICS WHEN DESIGNING, ALIGNING AND TUNING ANKLE-FOOT ORTHOSIS FOOTWEAR COMBINATIONS (AFO-FCS) - American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

HOME- AND LAB-BASED ROBOTIC PASSIVE AND ACTIVE MOVEMENT TRAINING OF ANKLE IMPAIRMENTS IN CEREBRAL PALSY- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

BACK TO BASICS - STRETCHING COMBINED WITH EXERCISING- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

THE FRAMEWORK OF MOVEMENT: UPDATING THE EVIDENCE ON ANTICIPATORY POSTURAL CONTROL IN CHILDREN WITH CEREBRAL PALSY AND IMPLICATIONS FOR PRACTICE- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

**Scientific Posters**

KNEE AND ANKLE ROBOTIC MOTOR REHABILITATION IN CHILDREN WITH CEREBRAL PALSY Annual Meeting - American Academy of Cerebral Palsy and Developmental Medicine - Milwaukee, WI - October 16-19, 2013

CHANGES IN ANKLE JOINT STIFFNESS FOLLOWING INTELLIGENT STRETCHING AND ACTIVE MOVEMENT TRAINING- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

MOTOR LEARNING IN VIRTUAL REALITY AS A MARKER FOR SPASTICITY AND DYSTONIA- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

Outcome in Children with Cerebral Palsy Undergoing Adductor Myotomy: Caregiver Responses on the RIC Care and Comfort Questionnaire- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

### **Demonstration Posters**

OUTCOME IN CHILDREN WITH CEREBRAL PALSY UNDERGOING ADDUCTOR MYOTOMY: CAREGIVER RESPONSES ON THE RIC CARE AND COMFORT QUESTIONNAIRE- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

OFF-AXIS ELLIPTICAL TRAINING TO REDUCE GAIT ABNORMALITIES IN CHILDREN WITH CEREBRAL PALSY- American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting - Milwaukee, WI - October 16-19, 2013

### **Presentation**

Technology in Communication and Play for Children With Disabilities - National Conference and Exhibition (NCE) – Orlando, FL - October 26-29, 2013  
Robots to the Rescue – Pediatric Neurorehabilitation Symposium – Hocoma – Chicago, IL – October 15, 2013

Clinical Use of the Intelligent Stretcher – American Academy of Physical Medicine & Rehabilitation Annual Meeting – National Harbor, MD - October 3-6, 2013

### **Anita Halper:**

Poster “Creating a Framework to Ensure Translation of Evidence to Clinical Practice in Speech-Language Pathology” by Doreen Kelly Izaguirre, Anita S. Halper, Julia Carpenter and Anne Marie Doyle was presented at the 2013 ASHA convention in November in Chicago. This poster has been designated as a Meritorious Poster Submission. It was among those posters that received the highest ratings from reviewers across both submission categories of professional education and research. Only 53 out of 1,634 posters (3%) were selected for this recognition.

### **Norman Harden:**

Zhang L, Rainka M, Freeman R, Harden RN, Bell CF, Chen C, Graff O, Harding K, Hunter S, Kavanagh S, Laurijsens B, Schwartzbach C, Warren S, McClung C. A Randomized, Double-

Blind, Placebo-Controlled Trial to Assess the Efficacy and Safety of Gabapentin Enacarbil in Subjects With Neuropathic Pain Associated With Postherpetic Neuralgia (PXM110748). *The Journal of Pain*. 2013;14(6):590-603

Harden, RN, Kaye AD, Kintanar T, & Argoff CE. Evidence-based Guidance for the management of Postherpetic Neuralgia in Primary Care. *Postgraduate Medicine*. 2013;125(4):191-202.

Abousaad, E.; Connolly, S.; Kirsling, A.; Kuroda, MM.; Harden, RN. Non-Pharmacological Treatment for Chro

**Allen Heinemann:**

Ryan Williams, Allen Heinemann, Charles Bombardier, Catherine Wilson, Jesse Fann, Linda Lazowski: manuscript accepted for publication - Identifying Depression Severity Risk Factors in Persons with Traumatic Spinal Cord Injury. *Rehabilitation Psychology*.

Heinemann AW, Connelly L, Ehrlich-Jones L, Fatone S. Outcome Instruments for Prosthetics Clinical Applications. *North American Clinics of Physical Medicine and Rehabilitation*, in press.

Heinemann AW, Magasi S, Hammel J, Carozzi NE, Garcia SF, Hahn EA, Lai J-S, Tulskey DS, Gray DB, Hollingsworth H, Jerousek S. Environmental Factors Item Development for Persons with Stroke, Traumatic Brain Injury and Spinal Cord Injury *Archives of Physical Medicine and Rehabilitation*, in press.

Mallinson T, Deutsch A, Bateman J, Tseng H-Y, Manheim L, Almagor O, Heinemann AW A Comparison of Discharge Functional Status after Rehabilitation in Skilled Nursing, Home Health, and Medical Rehabilitation Settings for Patients Following Hip Fracture Repair. *Archives of Physical Medicine and Rehabilitation*, 2013; 93(13): 518-22. PMID: 23850612.

Moore J, Raad J, Ehrlich-Jones L, Heinemann AW. Development and Use of a Knowledge Translation Tool: The Rehabilitation Measures Database, *Archives of Physical Medicine and Rehabilitation*, 2013, 93(13): 926. PMID: 24076083

Wong, AWK, Heinemann, AW, Miskovic, A, Semik, P, & Snyder, TM. Feasibility of computerized adaptive testing for collection of patient-reported outcomes following inpatient rehabilitation. Manuscript submitted to *Archives of Physical Medicine and Rehabilitation*. (under review)

Wong, AWK, Heinemann, AW, Wilson, CS, Neumann, H, Fann, JR, Tate, DS, Richards, JS, & Bombardier, CH. Predictors of community participation following spinal cord injury: The mediating role of depression. Manuscript submitted to *Archives of Physical Medicine and Rehabilitation*. (under review)

**Mark Huang:**

Course presentation: "Why Performance Measures and Clinical Practice Guidelines are Important to You and Your Practice", AAMP&R Annual Meeting, October 4

**Arun Jayaraman:**

Co-Investigator: NIDRR RERC M&M Quantifying Real-World Community Mobility and Social Interaction of Individuals after Stroke Using Mobile Phone Technology

Co-Investigator: NIDRR RERC M&M Effect of Mobility Training using Robotic Exoskeletons on Functional Recovery in Individuals with Severe Stroke

Co-Investigator: NIDRR-RERC-TIDI- Project D4 – Optimizing time distribution of training sessions for robotic exoskeletons use in individuals with spinal cord injury

Awarded a grant from Honda: Honda's Stride Management Assist (SMA) Device Vs. traditional impairment based physical therapy (IPT) on functional walking ability in outpatient stroke rehabilitation

Awarded a grant from the DoD: Monitoring metabolic energy expenditure via the prosthesis of lower extremity amputees

Awarded a grant from Ottobock: Impact of the Stance Control Orthosis (SCO) Vs. C-brace on functional outcomes in individuals with neurological disorders

**Christina Marciniak:**

Ny-Ying Lam, Christina M. Marciniak, Déjà vu as a Side Effect of Intrathecal Baclofen Administration: A Case Report, PM&R, Volume 5, Issue 9, Supplement, September 2013, Page S245, ISSN 1934-1482

Zack McCormick, Samuel K. Chu, Sunjay Mathur, Christina M. Marciniak, Long-term Outcomes of Intrathecal Baclofen for Spasticity, PM&R, Volume 5, Issue 9, Supplement, September 2013, Page S139, ISSN 1934-1482

Samuel K. Chu, Zack McCormick, Sunjay Mathur, Christina M. Marciniak, Does Long-term Intrathecal Baclofen Dose Impact Spasticity Pain, Sleepiness, Fatigue, and Life Satisfaction?, PM&R, Volume 5, Issue 9, Supplement, September 2013, Page S249, ISSN 1934-1482

Prin Amorapanth, Peter J. Hurh, Santiago D. Toledo, Elaine Morrissey, Christina M. Marciniak, Could Kinesiotaping Function as a Geste Antagoniste in Anterocollis? A Case Report, PM&R, Volume 5, Issue 9, Supplement, September 2013, Page S257, ISSN 1934-1482

Long-term Outcomes of Intrathecal Baclofen Therapy: Pain, Quality of Life, and Satisfaction with Treatment. Zack McCormick MD, Samuel K. Chu MD, Sunjay Mathur MD, Christina Marciniak MD. Midwest Pain Society October 2013.

**Articles**

Priya V. Mhatre, Iris Vilares, Stacy M. Stibb, Mark V. Albert, Laura Pickering, Christina M. Marciniak, Konrad Kording, Santiago Toledo, Wii Fit Balance Board Playing Improves Balance and Gait in Parkinson Disease, PM&R, Volume 5, Issue 9, September 2013, Pages 769-777, ISSN 1934-1482

Committee Service:  
Board of Directors Meeting: American Board of Electrodiagnostic Medicine  
October 2013

Examination Committee Meeting: American Board of Electrodiagnostic Medicine  
October 2013

Program Committee Meeting: American Academy of PMR  
October 2013

Editorial Board Service:  
Editorial Board Meeting: Archives of Physical Medicine and Rehabilitation  
November 2013

**Priya Mhatre:**

Mhatre PV, Vilares I, Stibb SM, et. al. "Wii Fit Balance Board Playing improves Balance and Gait in Parkinson Disease." PMR 2013 Sep; 5(9): 769-77

**Sue Mukherjee:**

Abstract accepted as a poster to AACPDM, October 2013: "Measuring Obesity in Spina Bifida: A Quality Improvement Effort"

**Joel Press:**

Committee Service:  
Exercise Committee – North American Spine Society  
Corporate Relations Committee – AAPM&R  
Section Editor – American Journal of PMR  
Reviewer – European Spine Journal, The Spine Journal

**Christopher Reger:**

"MRSA T – spine Osteomyelitis presenting as abdominal pain in a 66 year old female with a remote history of TMA. Case report " Jaymin Patel and Christopher Reger, [resented at AAPMR conference October 4, 2013.

"Lower Extremity Prosthetic Fitting in the Medically Complex Patient. NUPOC Prosthetic Course, October 31

**Gadi Revivo:**

Poster presentation – " Worldwide Clinical Program with Dysport in Spasticity and Functional Impairments in Children with Dynamic Equinus Foot Deformity due to Cerebral Palsy", American Academy of Cerebral Palsy and Developmental Medicine 67<sup>th</sup> Annual Meeting, 2013

“Pelizaeus-Merzbacher disease: Two Cases in the Outpatient Rehabilitation Setting” accepted for a *poster board* presentation at the 2014 AAP Annual Meeting in Nashville, Tennessee, February 25 - March 1, 2014.

**Monica Rho:**

Prather H, Hunt D, Rho M, Yemm T, Fong K, Brophy RH. Abnormal hip physical examination findings in asymptomatic female soccer athletes. (Accepted, *Knee Surgery, Sports Traumatology, Arthroscopy*)

Cushman D, Market M, Rho M. Performance trends in large 10 kilometer road running races in the United States. (Accepted *Journal of Strength and Conditioning Research*)

Rho M, Mautner K, Nichols J, Kennedy DJ. Image-guided diagnostic injections with anesthetic versus magnetic resonance arthrograms for the diagnosis of suspected hip pain. *PM&R*. 2013 Sept 5(9): 795-800

Rho ME, Okafor E. Nerve Injuries around the Hip. In: *Hip Arthroscopy and Hip Joint Preservation Surgery* (First Edition). Nho SJ, Leunig M, Larson C, Bedi A, Kelly BT. Springer Publishing, *submitted for publication*.

**Elliot Roth:**

Received the *Edward Lowman Award* from the American Congress of Rehabilitation Medicine, in recognition of "an energetic promotion of the spirit of interdisciplinary teamwork in rehabilitation" on November 15 at the ACRM Meeting in Orlando

**Zev Rymer:**

Participated in the Neilsen Foundation Study Section Cycle Tow, September 9-10, Philadelphia

Member, Hocoma Scientific Advisory Board, September 13-15, Zurich, Switzerland

Published "Assessment of validity of a high-yield surface electromyogram decomposition." Hu X, Rymer WZ, Suresh NL. *J Neuroeng Rehabil*. 10(1):99 [Epub ahead of print]; PMID: 24059856, September 23

Published "A pilot study on the feasibility of robot-aided leg motor training to facilitate active participation." Krishnan C, Ranganathan R, Dhaher YY, Rymer WZ. *PLoS One*. 8(10):e77370. Doi: 10.1371/journal.pone.0077370. PMID 24146986, October 11

IEEE EMBS Conference on Neural Engineering, November 6-8, San Diego

Neuroscience 2013, November 9-14, San Diego

**Gayle Spill:**

Poster Presentation at the John & Gwen Smart Symposium, the Buehler Center of Northwestern, October 21



Poster presentation: "Preparing for Paralysis – Rehabilitation for A Rare Metastatic Meningioma: A Case Report", Academy of PM&R Annual Meeting, National Harbor, MD, October 3-6

**Steven Stanos:**

***RESEARCH FACULTY***

**Eddie Babbitt:**

Babbitt, E. M., Worrall, L. E., & Cherney, L. R. (2013). Clinician perspectives of an Intensive Comprehensive Aphasia Program. Topics in Stroke Rehabilitation, 20, 398-408.

**Anne Deutsch:**

Mallinson T, Deutsch A, Bateman J, Tseng H-Y, Manheim L, Almagor O, Heinemann AW A Comparison of Discharge Functional Status after Rehabilitation in Skilled Nursing, Home Health, and Medical Rehabilitation Settings for Patients Following Hip Fracture Repair. Archives of Physical Medicine and Rehabilitation, 2013; 93(13): 518-22. PMID: 23850612.

Graham JE, Granger CV, Karmarkar AM, Deutsch A, Niewczyk P, DiVita MA, Ottenbacher KJ. "The Uniform Data System for Medical Rehabilitation: Report of Follow-up Information on Patients Discharged from Inpatient Rehabilitation Programs in 2002-2010." American J of PMR (in press).

Abstract: Deutsch A, Chen D, DeMark Neumann H. Readmissions Among Medicare Beneficiaries with a Recent Traumatic Spinal Cord injury (accepted – ACRM November, 2013)

Abstract: DeMark Neumann H, Deutsch A. Limitations of a Rehabilitation Efficiency Measure. (accepted – ACRM November, 2013)

Deutsch A, McMullen T. Development of Functional Status Quality Metrics. American Congress of Rehabilitation Medicine; (accepted – ACRM November, 2013)

Deutsch A, Connelly L. Improving Care Transitions and Reducing Readmissions. Association of Rehabilitation Nurses Webinar. September 10, 2013.

Deutsch A. Quality Measures for Post-Acute Care under the Affordable Care Act. Solutions to Emerging Challenges: Neurorehabilitation Under The Affordable Care Act, Oakland, CA. September 23, 2013.

Deutsch A, Raj V, Snyder S, Zollar C. The First Year's Experience With Quality Measures and Proposed New Measures for Inpatient Rehabilitation Facilities. American Academy of Physical Medicine and Rehabilitation Annual Assembly. National Harbor, MD. October 3, 2013.

Deutsch A. Proposed Reporting Guidelines for Research Using Large Datasets  
Rehabilitation Research Using Large Datasets: Issues and Methods. Galveston, TX.  
October 24, 2013

Chair, ACRM Award Committee

**Linda Ehrlich-Jones:**

Moore J, Raad J, Ehrlich-Jones L, Heinemann AW. Development and Use of a Knowledge Translation Tool: The Rehabilitation Measures Database, Archives of Physical Medicine and Rehabilitation, 2013, 93(13): 926. PMID: 24076083

Heinemann AW, Connelly L, Ehrlich-Jones L, Fatone S. Outcome Instruments for Prosthetics Clinical Applications. *North American Clinics of Physical Medicine and Rehabilitation*, in press.

Ehrlich-Jones, LS, Ahn, GE, Pellegrini, C, & Ramsey-Goldman, R. Barriers To Improving Physical Activity In Patients With Systemic Lupus Erythematosus: The Activity and Nutrition Trial In Lupus To Energize and Renew (ANTLER) Pilot Study. Poster presentation at Association of Rheumatology Health Professionals Annual Scientific Meeting, 10/29/13 in San Diego, CA.

Lee, J, Song, J, Chang, RW, Ehrlich-Jones, LS, Semanik, PA, Sohn, MW, & Dunlop, D. Less Time Spent In Sedentary Behavior Is Associated With Better Future Physical Function: Objective Data From The Osteoarthritis Initiative. Poster presentation at Association of Rheumatology Health Professionals Annual Scientific Meeting, 10/28/13 in San Diego, CA.

Ehrlich-Jones, L, Heinemann, A, and Raad, J. Novel Approaches to Clinical Practice Improvement. Symposia presented at the American Congress of Rehabilitation Medicine Annual Conference, 11/15/13 in Orlando, FL.

Abstract reviewer, Midwest Nursing Research Society Annual Conference

Abstract reviewer, Society of Behavioral Medicine Annual Conference

Grant reviewer, Retirement Research Foundation

Internal reviewer for Buehler Center PCORI grant

**Levi Hargrove:**

L. Hargrove, A. Simon, A. Young, R Lipschutz, S. Finucane, D. Smith, and T. Kuiken, "Robotic Leg Control with EMG Decoding by an Amputee with Nerve Transfers", *New England Journal of Medicine*, 369;13, pp 1237-1242, 2013.

J. Birdwell, L. Hargrove, T. Kuiken, and R. Weir, "Isolated Activation of the Extrinsic Thumb Muscles and Compartments of the Extrinsic Finger Muscles", *Journal of Neurophysiology*, 110:6, 1385-1392

A. Young, A. Simon, N. Fey, and L. Hargrove, "Intent Recognition in a Powered Lower Limb Prosthesis using Time History Information", *Annals of Biomedical Engineering*, DOI: 10.1007/s10439-013-0909-0

S. Wurth and L. Hargrove, "A Real Time Performance Assessment of Simultaneous Pattern Recognition Control for Multi-functional Upper Limb Prostheses" *Proceedings of the 6<sup>th</sup> International Conference of the IEEE EMBS Neural Engineering Conference*, San Diego, USA, Nov. 2013.

L. Smith and L. Hargrove, "Intramuscular EMG after Targeted Muscle Reinnervation for Pattern Recognition Control of Myoelectric Prostheses" *Proceedings of the 6<sup>th</sup> International Conference of the IEEE EMBS Neural Engineering Conference*, San Diego, USA, Nov. 2013.

R. Gajendran, D. Tkach, and L. Hargrove, "Crosspoint Switching of EMG Signals to Increase Number of Channels for Pattern Recognition Myoelectric Control" *Proceedings of the 6<sup>th</sup> International Conference of the IEEE EMBS Neural Engineering Conference*, San Diego, USA, Nov. 2013.

A. Simon, N. Fey, K. Ingraham, A. Young, and L. Hargrove, "Hargrove Powered Prosthesis Control During Walking, Sitting, Standing, and Non-Weight-Bearing Activities Using Neural and Mechanical Inputs" *Proceedings of the 6<sup>th</sup> International Conference of the IEEE EMBS Neural Engineering Conference*, San Diego, USA, Nov. 2013.

B. Young, A. Simon, N. Fey, and L. Hargrove, "Classifying the Intent of Novel Users During Human Locomotion Using Powered Lower Limb Prostheses" *Proceedings of the 6<sup>th</sup> International Conference of the IEEE EMBS Neural Engineering Conference*, San Diego, USA, Nov. 2013.

A. Adewuyi, L. Hargrove, and T. Kuiken, "Towards Improved Partial-Hand Prostheses: The Effect of Wrist Kinematics on Pattern-Recognition-Based Control" *Proceedings of the 6<sup>th</sup> International Conference of the IEEE EMBS Neural Engineering Conference*, San Diego, USA, Nov. 2013.

**Rosemarie King:**

Received the 2013 CVSN Stroke Article of the Year Award sponsored by the Council on Cardiovascular and Stroke Nursing (CVSN) and the Stroke Council of the AHA/ASA. The award will be presented during the CVSN Annual Council Dinner Nov 19 at the American Heart Association's Scientific Sessions 2013 in Dallas, Texas

Reappointed: Stroke Nursing Committee of the AHA/ASA Council on Cardiovascular & Stroke Nursing 2013-2015

**Renee Theiss:**

NIH R15 Research Grant (P.I.), "Neural Mechanisms of Hyperexcitable Reflexes in Human Chronic Spinal Cord Injury"

Presented "Effects of therapeutic muscle stretching intervention on upper extremity hyperexcitable deep tendon reflexes in human chronic spinal cord injury", 2013 Society for Neuroscience, November 11, San Diego

***ADJUNCT / OTHER FACULTY***

**William Armstrong:**

Received certification as a Master Trainer for the World Health Organization's (WHO) Wheelchair Service Training Package (WSTP). This training program was developed by the WHO with support from the USAID and is based on the WHO's 2008 *Guidelines on the provision of manual wheelchairs in less resourced settings* (<http://www.who.int/disabilities/publications/technology/wheelchairguidelines/en/>). Mr. Armstrong was a primary author on these guidelines and in the coming months he will conduct 5-day train-the-trainer programs in both El Salvador and Peru.

Mr. Armstrong also serves on a MSH work group which is developing an assessment tool which will be utilized to ensure that personnel involved in wheelchair service delivery have the essential minimum skills and knowledge. Both the training events and the work group activities are conducted with support from the USAID.

**Kristi Kirschner:**

Kirschner KL, Eickmeyer S, Gamble G, Spill GR, Silver JK. When teams fumble: Cancer Rehabilitation and the problem of the "handoff." *PM&R* 2013; 5(7): 622-628.

Kirschner KL, Vox F, Capron AM, Kraus MF, Alexander GC. Balancing burdens and benefits: Ethical Issues of Off -label Prescription Pharmaceutical Use. *PM&R* 2013; 5(10): 882-889.

"Prescription opioids in spine care: The current ethical dilemma." North American Spine Society 28th Annual Meeting, New Orleans, LA. October 10, 2013.

"Developing and testing models of care delivery for ventilator-assisted individuals in a community setting," in session on Transition from Hospital to Home: setting Up the Home-Based Ventilation Patient for Success. CHEST 2013 meeting, Chicago IL. October 27, 2013.

"Medical ethics of disability in the cerebral palsy patient's pediatric to adult transition," in session on Respiratory Care in Cerebral Palsy. CHEST 2013 meeting, Chicago IL. October 27, 2013.

**Lee Miller:**

Zaaimi B, Ruiz-Torres R, Solla SA, Miller, LE (2013) Multi-electrode stimulation in somatosensory cortex increases probability of detection. *Journal of Neural Engineering*, October 2013.

Cherian A, Fernandes H, Miller LE (2013) Primary motor cortical discharge during force field adaptation reflects muscle-like dynamics. *Journal of Neurophysiology*, May 2013.

London BM, Miller LE (2013) Responses of somatosensory area 2 neurons to actively and passively generated limb movements. *Journal of Neurophysiology* 109 (6): 1505-1513.

Corbett EA, Ethier C, Oby ER, Kording K, Perreault EJ, Miller LE (in press) Advanced User Interfaces for Upper Limb FES. In: *Introduction to Neural Engineering for Motor Rehabilitation* (Farina, Jensen, Akay, eds): IEEE/Wiley Press.

Presentation, 5th International Brain Computer Interface meeting, workshop chair, "Causing a sensation: Development of a somatosensory afferent interface for BCI users", Asilomar, CA, June 6, 2013

Presentation, International Neural Modulation Society, Berlin, Germany, June 8, 2013

Presentation, Neuroscience Program Seminar, Dominican University, River Forest, IL, October 3, 2013

Invited symposium talk, 6<sup>th</sup> International Neural Engineering Conference, San Diego, CA, November 7, 2013.

**Citlali Lopez-Ortiz:**

Poster presentation: "Motor Learning in Virtual reality as a Marker for Spasticity and Dystonia", 67<sup>th</sup> Annual Meeting of the AACPD, Milwaukee October 16-19

**Diane Rowles:**

Presentations – Advanced Physical Assessment for Pain Practice, American Asso. Of Nurse Anesthetists, October 11:

“Strength and Reflex Testing”

“Facet and Axial Spine Pain”

“Radicular Spine Pain”

“Spine Pain ... Putting It all Together”

Presented “Managing and Teaching Sexuality and Fertility for People with SCI”  
FSM PM&R Residents, October 25

Presented “Sexuality and Physical Disabilities”, CRRN Review Course, November 1

Presented “Spinal Cord Injury in the NSICU”, Rush University NSICU Staff Inservice, October 1

**Teresa Savage:**

Roscigno, C. I., Grant, G., Savage, T. A., & Philipsen, G. (2013). Parent perceptions of early prognostic encounters following children's severe traumatic brain injury: 'Locked up in this cage of absolute horror'. *Brain Injury*, Published online October, 1, 2013, 1-13 doi: 10.3109/02699052.2013.831122

Roscigno, C. I., Savage, T. A., Grant, G., & Philipsen, G. (2013). How healthcare provider talk with parents of children following severe traumatic brain injury is perceived in early acute care. *Social Science & Medicine*, 90, 32-39. DOI: dx.doi.org/10.1016/j.socscimed.2013.04.017

**Matthew Sorenson:**

Associate Editor, Journal of Spinal Cord Medicine

***NU/PM&R PROSTHETICS AND ORTHOTICS CENTER***

Publications:

Gottipati P, Fatone S, Koski T, Sugrue P, Ganju A (2013) Crouch gait in persons with positive sagittal spine alignment resolves with surgery. *Gait and Posture*. PMID: 24011797.

Heckathorne, C. (2013) Prostheses in Physically Demanding Work. *The O&P Edge*, October 2013, p. 96.

Major MJ, Stine R, Gard SA (2013) The effects of walking speed and prosthetic ankle adapters on upper extremity dynamics and stability-related parameters in bilateral Transtibial amputee gait. *Gait and Posture*. PMID: 23680427.

Major MJ, Fatone S, Roth EJ (2013) Validity and reliability of the berg balance scale for community-dwelling persons with lower-limb amputation. *Archives of Physical Medicine and Rehabilitation*. PMID: 23856150.

Prenton S, Kenney LP, Cooper G, Major MJ (2013) A sock for foot-drop: A preliminary study on two chronic stroke patients. *Prosthetics and Orthotics International*. PMID: 24107635.

Major MJ, Twiste M, Kenney LPJ, Howard D (in press) The effects of prosthetic ankle stiffness on ankle and knee kinematics, prosthetic limb loading, and net metabolic cost of trans-tibial amputee gait. *Clinical Biomechanics*.

Presentations:

Boutwell, E., and Gard, S.A. "Effect of Prosthetic Stiffness on Impact Forces During Walking and Sudden Limb Loading." Abstract presented at the 3rd Annual NU MRS Training Day Conference, August 27, 2013.

- Gottipati, P., Major, M., and Gard, S.A. "Dynamic Stability of Individuals with Transfemoral Amputations Walking with Varying prosthetic Knee Alignment." Abstract presented at the 3rd Annual NU MRS Training Day Conference, August 27, 2013.
- Major, M., Stine, R., and Gard, S.A. "Lateral Trunk Flexion During Bilateral Transtibial Amputee Gait." Abstract presented at the 3rd Annual NU MRS Training Day Conference, August 27, 2013.
- Robillard, B., Komolafe, O., Caldwell, R., and Fatone, S. "Fabricating Prosthetic Sockets with Rapid Prototyping Technology." Abstract presented at the 3rd Annual NU MRS Training Day Conference, August 27, 2013.
- Major M, Kluger D, Fatone S, Gard S (2013) The effect of trunk flexion on lower limb kinetics of able-bodied gait. 37<sup>th</sup> Annual Meeting of the American Society of Biomechanics, September 4-7, Omaha, Nebraska.
- Gottipati P, Fatone S, Stine R, Ganju A (2013) Reduction in Shock Absorption Capacity of the Spine during Gait after Spinal Reconstruction Surgery. Northwestern University Postdoctoral Forum (NUPF), September 12, Evanston, Illinois.
- Major M, Stine R, Hodgson M, Gard SA (2013) Upper Body Kinematics of Bilateral Transtibial Prosthesis Users During Gait. Northwestern University Postdoctoral Forum (NUPF), September 12, Evanston, Illinois. *Dr. Major won 3rd prize and a cash award for his poster.*
- Dillon M, Fatone S (2013) Deliberations about the functional benefits and complications of partial foot amputation. Invited Presentation, 21st Annual Scientific Meeting of the Australasian Faculty of Rehabilitation Medicine, September 17-20, Sydney, Australia.
- Wu Y, Conner L and Robinson C. "Humanitarian Care in Orthotics and Prosthetics"- Evolution of the Dilatancy Plaster-less P&O Technologies: Our 15-Year R&D and Knowledge Translation Experience. AOPA 2013 O&P World Congress, Orlando, FL. September 18-21. 2013.
- Wu Y, Robinson C, Conner L, Casanova H, Michael J and Gard S. "Technical Education Laboratory: Presentation and Hands-on Demonstration"- Evolution of the Dilatancy Plaster-less P&O Technologies. AOPA 2013 O&P World Congress, Orlando, FL. September 18-21. 2013.
- Conner L, Robinson C and Wu Y "Dilatancy-based Impression Technique for Foot Orthoses." AOPA 2013 O&P World Congress, Orlando, FL. September 18-21, 2013.
- Choi H, Bjornson K, Fatone S, and Steele KM (2013) Changes in musculotendon length with AFO tuning after stroke: a musculoskeletal modeling case study. Biomedical Engineering Society (BMES) Annual Meeting, September 25-28, 2013 in Seattle, Washington.

Robillard B, Komolafe O, Caldwell R, Fatone S (2013) Fabricating prosthetic sockets with rapid prototyping technology (poster). Biomedical Engineering Society (BMES) Annual Meeting, September 25-28, 2013 in Seattle, Washington.

Twiste M, Major MJ, Howard D, Jones R, Kenney LPJ (2013). Changes in prosthetic foot deflection and lever arm due to changes in external rotation angle. Institute of Physics and Engineering in Medicine meeting on Capability After Limb Loss: The challenges of measuring and mastering movement with an artificial limb, September 26, 2013 in Birmingham, UK.

Owen E, Gaebler-Spira D, McGovern D, Fatone S (2013) The importance of being earnest about shank and thigh kinematics when designing, aligning and tuning ankle-foot orthosis footwear combinations. Instructional Course, American Academy of Cerebral Palsy and Developmental Medicine, October 16-19, Milwaukee, Wisconsin.

Major M, Heckathorne C, Stine R, Fatone S, Gard S (2013) Assessing the effects of myoelectric prosthetic hand use on upper body dynamics: A preliminary study. Virginia Orthotic & Prosthetic Association Annual Meeting, October 5, Fairfax, VA.

Major MJ, Stine R, Gard SA (2013) The effects of walking speed and prosthetic ankle adapters on upper extremity dynamics and stability-related parameters in bilateral Transtibial amputee gait. Virginia Orthotic & Prosthetic Association Annual Meeting, October 5, Fairfax, VA.

Fatone S, Stine, R. McGovern D, Makovitch S, Pavone L (2013) Effect of ankle-foot orthosis footwear combinations (AFO-FCs) on Gait Biomechanics and Function in Children with Cerebral Palsy. RIC Motion Analysis Center Visiting Professor Day, Chicago, IL.

#### Invited Presentations:

Stefania Fatone, PhD, BPO(Hons), was invited to present at the ISPO UK Member Society Annual Scientific Meeting held in Blackpool, UK. Dr. Fatone presented the OETT lecture, sponsored annually by the Orthotic Education and Training Trust (See <http://www.oett.org.uk/>). Dr. Fatone spoke on "Use of Orthoses in Stroke Rehabilitation – Current Research."

Stefania Fatone, PhD, BPO(Hons), was invited to present at the International Society of Prosthetics & Orthotics (ISPO) Norway Member Society Seminar on Lower Limb Socket Design and Rehabilitation held in Oslo, Norway. Dr. Fatone gave two lectures based on US Department of Defense (DOD) funded research: "Development of Subischial Sockets for Persons with Transfemoral Amputation" and "Evaluation of Subischial Sockets for Persons with Transfemoral Amputation."

#### Grant Submissions:

Kristie Bjornson, PhD, and Stefania Fatone, PhD, "Orthotic Management of Gait in Cerebral Palsy: Effect of Footwear Modifications" submitted to NIH, November 11, 2013.



Gard, S. "Effect of Prosthesis Stiffness on Impact Force During *In Vivo* Step Loads and Gait." Submitted to the Department of Veterans Affairs, September 10, 2013.

Letter of Intent Submissions:

Gard, S. "Development and Evaluation of the GroundControl Shoe." Submitted to Department of Veterans Affairs, Rehabilitation Research & Development Service, November, 2013.

Gard, S. and Heckathorne, C. "Force Feedback to Improve Performance of Transradial Prosthesis Users." Submitted to Department of Veterans Affairs, Rehabilitation Research & Development Service, November, 2013.

Gard, S. and Heckathorne, C. "Pressure-based Design of a Frame-type Transradial Socket." Submitted to Department of Veterans Affairs, Rehabilitation Research & Development Service, November, 2013.

Major, M. "Sensory-Motor Mechanisms Underlying Fall Risk in Transtibial Amputees." Career Development Award (CDA-2) Application submitted to Department of Veterans Affairs, Rehabilitation Research & Development Service, November 2013.