

Scholarly Activities
Department of Physical Medicine and Rehabilitation
Quarter September-November 2015

REGULAR FACULTY

Brenna Argall

Grant Award: NSF/CPS-1544797
CPS: Synergy: Collaborative Research: Learning Control Sharing
Strategies for Assistive Cyber-Physical Systems

Publication / Oral Presentation: S. Jain, K. Barsness and **B. Argall**. Automated and Objective Assessment of Surgical Training: Detection of Procedural Steps on Videotaped Performances. In Proceedings of the International Conference on Digital Image Computing: Techniques and Applications (DICTA), Adelaide, Australia, November 2015.

James Atchison

Presentations, 2015 AAPM&R Academy Meeting:
A round table discussion of the American Pain Strategy Report and its potential effect on rehabilitation physicians and providers;
Manual Treatment of Sacroiliac and Pelvis Dysfunction; An audience participation style review of cases to determine ethical and/or safe management of patients; Management Dilemmas and Pathways in the Treatment of Complex Regional Pain Syndrome; A Workshop for Active Trials of Desensitization, Graded Motor Imagery, and Mirror Therapy in Persons with CRPS and Other Upper Limb Sensitization Patterns; Thoracic Manipulation for Neck, Shoulder, and Thoracic Pain

Preseted "The many faces of the widespread pain", Midwest Pain Society Annual Meeting, October 16.

Leora Cherney

Publications.

Cherney, L. R. Epidural Cortical Stimulation as Adjunctive Treatment for Nonfluent Aphasia: Phase 1 Clinical Trial Follow-Up Findings. Neurorehabilitation and Neural Repair. Accepted for publication.

Invited presentations.

Cherney, L. R. Aphasia rehabilitation: More is not enough. Invited presentation, Canadian Stroke Conference, Toronto, Canada (September, 2015).

Cherney, L. R. Aphasia treatment across the modalities. Invited workshop. Speech-Language and Audiology Canada, London, Ontario (September, 2015).

Cherney, L. R., Nicholas, M., & Connor, L. Hot Topics in Stroke Rehabilitation. Invited presentation, American Congress of Rehabilitation Medicine Annual Meeting, Dallas, TX (October, 2015).

Peer Reviewed Conference Presentations.

Cherney, L. R. & van Vuuren, S. Modulating treatment variables to optimize learning in aphasia. Miniseminar presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Bernstein-Ellis, E., Mahendra, N., **Cherney, L. R.** et al. Hear us roar: Aphasia advocacy and awareness across different stages and settings. Miniseminar presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Ruzicka, R., Doyle, A. M., Pitts, L., & **Cherney, L. R.** Dysphagia therapy: Are there guidelines in prescribing exercise-based treatments? Miniseminar presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Lee, J., Sohlberg, M., & **Cherney, L. R.** Evaluation of Attention Process training – 3 for reading comprehension in aphasia. Technical session presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Babbitt, E., Worrall, L., & **Cherney, L. R.** Intensive comprehensive aphasia programs: The experience of persons with aphasia and their family members. Miniseminar presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Coles, H., Johnston S., Atwood, W., Miskell, B., Edwards, J., Lee, J., van Vuuren, S., & **Cherney, L. R.** Integrating script training for aphasia into university clinics: Optimizing benefits for students, supervisors, & clients. Poster presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Meulenbroek, P. & **Cherney, L. R.** Association between the FAVRES measures and skilled employment after moderate-to-sever traumatic brain injury. Poster presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Oehring A., Whipple, K., Rosen, M., & **Cherney, L. R.** Shakespeare: An aphasia community group. Poster presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Pitts, L. Rathinasamy, M., Oswald, M., Blouch, V., Ruzicka, R., Poe, E., Neely, G., & **Cherney, L. R.** Lingual dysfunction in advancing Parkinson's disease predicts swallowing quality-of-life. Poster presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Pitts, L., Wang, X., Rogers, L. Rathinasamy, M., & **Cherney, L. R.** Neuromodulation following lingual training with cortical stimulation in acute stroke. Poster presented at the annual meeting of the American Speech Language Hearing Association, Denver, Colorado (November, 2015).

Andy Domenighetti

Grant Proposals: NIH R03 Title: Investigation of skeletal muscles aging in mice with Tangerin/EHBP1L1-deficient satellite cells)
NIH R03 Title: Investigation of skeletal muscles aging in mice with Tangerin/EHBP1L1-deficient satellite cells)

Manuscript accepted in the journal Development (<http://dev.biologists.org/>): MS ID#: DEVELOP/2015/129171 - MS TITLE: Tropomodulin1 directly controls thin filament length in both wild-type and tropomodulin4-deficient skeletal muscle - AUTHORS: David S Gokhin, Julien Ochala, Andrea A Domenighetti, and Velia M Fowler

Presentations:

9/11/15: presented a poster entitled "Impaired muscle satellite cells maturation and differentiation in children with cerebral palsy" at the 3rd AMC (Alternative Muscle Club) meeting in Tucson AZ (<http://cmm.arizona.edu/AMCM-home>). Received "Best Poster Presentation Award".

10/16/15: invited to present a RIC Research Seminar, entitled "Impaired Muscle Fiber Formation in Children with Cerebral Palsy".

10/24/15: oral presentation at the 69th annual AACPDM meeting in Austin TX (<https://www.aacpdm.org/meetings/2015>), entitled "Impaired muscle satellite cells maturation in children with cerebral palsy (CP)"

10/28/15: invited to give an oral presentation at the RIC Leadership Team meeting, entitled "Investigating New Muscle Stem Cell-Based Therapies for Cerebral Palsy (CP) and Stroke"

Deborah Gaebler

Posters

Sukal-Moulton T, Gaebler-Spira D, Krosschell K. Reliability of the Test of Arm Selective Control (TASC). AACPDM 69th Annual Meeting – Austin, TX - October 21 to 24, 2015

Rojas A, Gaebler-Spira D. - Passive and active movement rehabilitation of children with acute traumatic brain injury. AACPDM 69th Annual Meeting – Austin, TX - October 21 to 24, 2015

Rojas A, Gaebler-Spira D. It Takes a Collaborative Village: The Integration of Early Mobility Experiences in a Community-Based Early Intervention Center. AACPDM 69th Annual Meeting – Austin, TX - October 21 to 24, 2015

Lopez-Ortiz, Citlali, Gaebler-Spira D. Gait and Posture: Aging, Injury, and Disease. Neuroscience 2015 Conference – October 20, 2015 – Chicago, IL

Presentations:

Clinical validity of a 0-10 Numeric Rating Scale measure of spasticity in children with cerebral palsy - AACPDM 69th Annual Meeting – Austin, TX - October 21 to 24, 2015

Speaker - CP Registers: Past, Present, and Future - 2015 Pediatric Rehabilitation Conference Day - Spaulding Rehabilitation Hospital: Division of Pediatric Rehabilitation, Charlestown, MA
September 30, 2015

Courses:

Transforming the Healthcare of Women with Disabilities. AACPDM 69th Annual Meeting – Austin, TX - October 21 to 24, 2015

Safe Territory for Both Patients and Providers. AACPDM 69th Annual Meeting – Austin, TX - October 21 to 24, 2015

Refereed Journal Articles

Hurley D, Sukal-Moulton T, Gaebler-Spira D, Krossschell K, Pavone L, Mutlu A, Dewald J, Msall M. Systematic Review of Cerebral Palsy Registries/Surveillance Groups: Relationships between Registry Characteristics and Knowledge Dissemination. *Int J Phys Med Rehabil* 2015, 3:2

Levi Hargrove

Papers published

- Smith L., Kuiken TA., and **Hargrove L.**, “Evaluation of linear regression simultaneous myoelectric control using intramuscular EMG”. *IEEE Trans Biomed Eng*, August 2015 (Epub ahead of print.) DOI:10.1109/TBME.2015.2469741
- Whitmore M., **Hargrove L.**, and Perreault E., “Gait Characteristics When Walking on Different Slippery Walkways”, *IEEE Transactions on Biomedical Engineering*, accepted October, 2015.

Papers submitted

- Earley EJ., **Hargrove LJ.**, Kuiken TA., “Dual Window Pattern Recognition Classifier for Improved Partial-Hand Prosthesis Control,” *Frontiers of Neuroscience*, section **Neural Technology**, Special Topic: Current challenges and new avenues in neural interfacing: from nanomaterials and microfabrication state-of-the-art, to advanced control-theoretical and signal-processing principles.

Grant Proposals Submitted

- Department of Defense, Congressionally Directed Medical Research Programs—Clinical Trial Award: “*A Pilot Trial to Assess Implantable MyoNodes to Improve Prosthetic Function for Transhumeral Amputees after Targeted Muscle Reinnervation*”. (Co-I)
- Department of Defense—Congressionally Directed Medical Research Programs, Peer Reviewed Medical Research Program; Technology/Therapeutic Development Award: *Development of a Deep Tissue and Full Spectrum Wirelessly Powered Electromyographic (EMG) Signal Recording Device*. (P-I)
- Department of Defense—Congressionally Directed Medical Research Programs, Peer Reviewed Medical Research Program; Technology/Therapeutic Development Award: *Towards Commercialization of a Pattern Recognition Controlled 2-Degree of Freedom Prosthetic Wrist*. (P-I)

Awards:

Adenike Adewuyi, an MD/PhD (MSTP) student working under the mentorship of **Levi Hargrove, PhD**, won the poster competition at a Summer School in Neuro-Rehabilitation (SSNR), September 13-18, Valencia, Spain with her poster on “*Pattern Recognition-Based Myoelectric Control of Partial Hand Prostheses*” and will be provided with free to the 2016 International Conference on Neurorehabilitation.

Allen Heinemann

Peer reviewed publications

Mallinson T, Fitzgerald CM, Neville CE et al. Impact of urinary incontinence on medical rehabilitation inpatients. *Neurourology and Urodynamics*. 2015.

Lavela S, Locatelli SM, Etingen B, **Heinemann AW**, Miskovic A, Chen D. Relational Empathy and Holistic Care in Persons with Spinal Cord Injuries *The Journal of Spinal Cord Medicine*. *J Spinal Cord Medicine*, in press.

Presentations

Heinemann AW. Chair of a symposium: Progress and Report of the ACRM Outcome Measurement Networking Group (OMNG) Applied Cognition Task Force. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Chan L, **Heinemann AW**, Hoenig H. Meet the Archives’ Editors: Authorship, Reporting Guidelines, and Reviewing in Medical Rehabilitation. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 30, 2015.

Heinemann AW. Presentation during the symposium: Training Assistive Technology: New Research and Best Practices. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 29, 2015.

Heinemann AW, Chair and organizer of the symposium: International Activities to Promote Implementation of Standardized Measures in Medical Rehabilitation Practice. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Heinemann AW. Presenter during the symposium: Training Assistive Technology: New Research and Best Practices. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 29, 2015.

Heinemann AW. Presenter during the symposium: Preventing Wheelchair Breakdowns: Is DIY Maintenance the Solution? What's Important and How to Teach It. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 30, 2015.

Heinemann AW. Presenter during the symposium: Quality Measures for Inpatient Rehabilitation Facilities. Symposium presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Wong A, Baum C, Magasi S, Tulsy D, Hammel J, Miskovic A, **Heinemann AW**. Associations between Participation of Adults with Neurological Disorders and their Environments: Cross-Sectional Multicenter Study. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Chang CH, Sliwa J, Moore J, **Heinemann AW**, Deutsch A. A Novel Clinical Outcomes Assessment System for Precision Medicine in Rehabilitation. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Raad J, Ehrlich-Jones L, **Heinemann AW**. Implementing Training Resources Across Educational Contexts and Domains: A Pilot Study. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Kozlowski A, Victorson D, Miskovic A, Harvey R, Cella D, **Heinemann AW**. Agreement between community-dwelling persons with stroke and their proxy responders on the Neuro-QoL Instruments. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Bogner J, Whiteneck G, **Heinemann AW**. Participation Assessment with Recombined Tools-Objective (PART-O) and Mental Health Outcomes After TBI. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Holdnack J, Cohen M, Tulsy D, Kisala P, **Heinemann AW**. Anger Issues in Individuals with TBI: Prevalence and Cognitive Risk Factors. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Raad J, **Heinemann AW**. Development of a Brief Measure of Organizational Readiness for the Implementation of Measurement Protocols. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Raad J, Nitsch K, **Heinemann AW**. The Development of Common Data Elements for Spinal Stenosis. Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Raad J, Nitsch K, **Heinemann AW**. Identifying Measurement Priorities using the International Classification of Functioning, Disability, and Health (ICF). Poster presented at the American Congress of Rehabilitation Medicine Annual Conference. Dallas, TX, October 28, 2015.

Grant submitted

DoD: Enhancing Quality of Orthotic Services with Process and Outcome Information

Professional Service

Expert Panel Member, American Physical Therapy Association's Clinical Practice Guideline Panel: Core Set of Outcome Measures for Patients with Neurologic Conditions. May, 2014-December, 2016.

Member, Institute of Medicine Standing Committee on Medical Experts to Assist Social Security on Disability Issues, 2014- present

Mark Huang

Sliwa JA, Shahpar S, **Huang ME**, Spill G, Semik P. Cancer Rehabilitation: Do Functional Gains Relate to 60 Percent Rule Classification or to the Presence of Metastasis? *PM&R*. 2015, S1934-1482, Epub ahead of print

Lectures/Courses at Conferences:

Course 309. Why Performance Measures and Clinical Practice Guidelines Are Important to You and Your Wallet. AAPM&R 2014 Annual Assembly, San Diego, Nov 14th 2014.

Implementation of Meaningful Use. Speaker Product Theater Show Case. AAPM&R 2014 Annual Assembly, San Diego, Nov 14th 2014.

Poster Presentations:

Cara J, **Huang M**. Effective Acute Inpatient Rehabilitation for Antisynthetase Syndrome: A Case Report, AAPM&R 2015 Annual Assembly Boston, 2015

Todd Kuiken

Papers published

- Shirota C., Simon A., **Kuiken T.**, "Transfemoral amputee recovery strategies following trips to their sound and prosthesis sides throughout swing phase". *J NeuroEng Rehabil* 12:79 (2015); DOI: 10.1186/s12984-015-0067-8; URL: <http://www.jneuroengrehab.com/content/12/1/79>

- Smith L., **Kuiken TA.**, and Hargrove L., “Evaluation of linear regression simultaneous myoelectric control using intramuscular EMG”. *IEEE Trans Biomed Eng*, August 2015 (Epub ahead of print.) DOI:10.1109/TBME.2015.2469741
- Smith L., **Kuiken T.**, and Hargrove L., “Use of probabilistic weights to enhance linear regression myoelectric control”, *Journal of Neural Engineering*, Accepted Oct 2015

Papers submitted

- Earley EJ., Hargrove LJ., **Kuiken TA.**, “Dual Window Pattern Recognition Classifier for Improved Partial-Hand Prosthesis Control,” *Frontiers of Neuroscience, Neural Technology* section, special topic: “Current challenges and new avenues in neural interfacing: from nanomaterials and microfabrication state-of-the-art, to advanced control-theoretical and signal-processing principles.”

Grant Proposals Submitted

- Department of Defense, Congressionally Directed Medical Research Programs—Clinical Trial Award: *A Pilot Trial to Assess Implantable MyoNodes to Improve Prosthetic Function for Transhumeral Amputees after Targeted Muscle Reinnervation* (PI)
- Department of Defense—Congressionally Directed Medical Research Programs, Peer Reviewed Medical Research Program; Technology/Therapeutic Development Award: *Development of a Deep Tissue and Full Spectrum Wirelessly Powered Electromyographic (EMG) Signal Recording Device* (Co-I)
- Department of Defense—Congressionally Directed Medical Research Programs, Peer Reviewed Medical Research Program; Technology/Therapeutic Development Award: *Towards Commercialization of a Pattern Recognition Controlled 2-Degree of Freedom Prosthetic Wrist*. (Co-I)

Richard Lieber

Grant Award: “Functional Comparison Between Nerve and Tendon Transfer after SCI”, Craig F. Neilsen Foundation, September 2015 – August 2018

Presentation: David Kilmer Memorial Lecture, University of California, Davis, September 2015.

Publications:

Alperin, M., D.M. Lawley, M.C. Esparza, and R.L. Lieber. (2015). Pregnancy-induced adaptations in the intrinsic structure of rat pelvic floor muscles. *Am. J. Obs. Gyn.* (in press). PMID: 25979618.

Young, K.W., S. Dayanidhi, and R.L. Lieber, (2015). Polarization gating enables sarcomere length measurements by laser diffraction in fibrotic muscle. *J. Biomed. Opt.* (in press). PMID: 25422904.

Christina Marciniak

PUBLICATIONS:

Gracies JM, Brashear A, Jech R, McAllister P, Banach M, Valkovic P, Walker H, **Marciniak C**, Deltombe T, Skoromets A, Khatkova S, Edgley S, Gul F, Catus F, De Fer BB, Vilain C, Picaut P; International AbobotulinumtoxinA Adult Upper Limb Spasticity Study Group.

Lancet Neurology. 2015 Oct;14(10):992-1001.

PMID: 26318836

Marciniak CM, Lee J, Jesselson M, Gaebler-Spira D. A Cross-Sectional Study of Bowel Symptoms in Adults with Cerebral Palsy: Prevalence and Impact on Quality of Life. *Arch Phys Med Rehabil*. 2015 Aug 21. pii: S0003-9993(15)01077-1. doi: 10.1016/j.apmr.2015.08.411. [Epub ahead of print]

PMID: 26301386

ABSTRACTS:

Marciniak C, Brashear A, McAllister P, Rubin B, Hedera P, Isaacson S, Picaut P, Gracies J-M. Efficacy and safety of abobotulinumtoxinA (Dysport®) in adult hemiparetic patients with upper limb spasticity previously treated with Botulinum Toxins *PM&R*, Volume 7, Issue 9, Supplement, September 2015, Pages S100-S101

Binler D, McCormick Z, Chu SK, Neudorf D, Lee JW, Mathur S, **Marciniak CM**. Intrathecal Versus Oral Baclofen; a Comparative Matched Cohort Study of Long-term Spasticity, Pain, Sleep, Fatigue and Quality of Life. *PM&R*, Volume 7, Issue 9, Supplement, September 2015, Pages S102-S103

Elovic E, Munin MC, Kanovsky P, Hanschmann A, Hiersemenzel R, **Marciniak CM**. Efficacy and Safety of Repeated IncobotulinumtoxinA Injections for Upper-Limb Post-Stroke Spasticity. *PM&R*, Volume 7, Issue 9, Supplement, September 2015, Page S109.

POSTER PRESENTATIONS:

Marciniak C, Brashear A, McAllister P, Rubin B, Hedera P, Isaacson S, Picaut P, Gracies J-M. Efficacy and safety of abobotulinumtoxinA (Dysport®) in adult hemiparetic patients with upper limb spasticity previously treated with Botulinum Toxins. APMR Annual Meeting Boston MA Oct. 2, 2015.

Joel Press

Gregory E. Lutz, MD Visiting Professor for Physiatry, Hospital for Special Surgery, New York, "The Past, Present and Future of Musculoskeletal Care", September 18, 2015

Christopher Reger

Poster presentations, AAPM&R Academy 2015:

The teaching habits and perspectives of physical medicine and rehabilitation residents; Unique challenges in rehabilitation of primary autonomic failure: a case report.

Lecture “A comprehensive review of lower extremity prosthetics, current and future trends. Prosthetic Fitting in the Medically Complex lower extremity amputee.

Monica Rho

Received the NU FSM Best Teachers of Feinberg Award, October 2015;
Named Head Team Physician for the U.S. Men’s Paralympic Soccer Team by U.S. Soccer;
Presentations, 2015 AAPM&R Academy Meeting:
Current Updates on the Use of Musculoskeletal Ultrasound in Rehabilitation Population and the Utilization of an Inpatient Musculoskeletal Ultrasound Consult Service *Course Director*;
Preventing Musculoskeletal Complications in Peripartum Patients: A Physiatric Approach;
Shoulder: Normal Anatomy and Pathology as Seen with Ultrasound
Hard Core: Pilates for Physiatrists;
Abstract/Poster Presentation: Sundar B, **Rho M**. Case of thoracic disc with anterior chest and left arm pain mimicking cardiac disease. *American Academy of Physical Medicine and Rehabilitation Annual Meeting. San Diego. October 2015*

Elliot Rouse

Grant Proposal: Google Faculty Award “Development of a lightweight robotic ankle prosthesis by leveraging a novel catapult mechanism”, October 15

Paul Scholten

McCormick ZL, Cushman D, Lee D, **Scholten P**, Chu SK, Babu AN, Caldwell M, Ziegler C, Ashraf H, Sundar B, Clark R, Gross C, Cara J, McCormick K, Ross B, Press J, Smuck M, Walega D. Is There a Relationship Between Body Mass Index and Fluoroscopy Time During Sacroiliac Joint Injection? *Pain Medicine*, 2015. (accepted for publication)

Scholten P, Harden NH. Assessing and Treating Patients with Neuropathic Pain. *PM R, Pain Supplement*, 2015. (accepted for publication)

Diane Dudas Sheehan

Teaching: Fall 2015 **NU** - Small group tutor for Foundations of Clinical Ethics Class – M1 medical students

Presentations:

October 13 2015 “Neuromuscular Scoliosis Evaluation and Management” PM&R residents on Pediatric rotation at the Rehabilitation Institute of Chicago.

October 20 2015 “Comprehensive Evaluation and Practical Treatment of Children with Wounds” - PM&R residents on Pediatric rotation at the Rehabilitation Institute of Chicago

Gayle Spill

Published “Perceived Quality of Life with Spinal Cord Injury: A comparison between Emergency Medicine and PM&R Physicians”, PM&R, September 2015

Published “The Team Physician: Ethical and Legal Issues” Guest Editor, PM&R, October 2015

Vineeta Swaroop

Publication:

-Mednick RE, Eller EB, Swaroop VT, Dias L. Outcomes of Tibial Derotational Osteotomies Performed in Patients With Myelodysplasia. J Pediatr Orthop. 2015 Oct-Nov;35(7):721-4. PMID: 25494030

Instructional Course Lecture:

-Swaroop VT, Thompson R, Dias L. Instructional Course Lecture: Controversies in Orthopaedic Management of Patients with Myelomeningocele. 2015 Annual Meeting of the American Academy of Cerebral Palsy and Developmental Medicine in Austin, TX (October 24, 2015)

Poster:

-Marquez-Lara A, Swaroop VT, Dias L. Functional and radiographic outcomes of adductor myotomy in patients with spastic cerebral palsy. 2015 Annual Meeting of the American Academy of Cerebral Palsy and Developmental Medicine in Austin, TX (October 22-24, 2015)

Preya Tarsney

Presented “Ethics of Social Media and Traumatic Brain Injury”, Brain Injury Association Annual Conference

Li-Qun Zhang

Zhao, H., Ren, Y., Roth, E. J., Harvey, R., and **Zhang, L.-Q.**, 2015. Concurrent Biomechanical Changes of Soleus and Gastrocnemius Muscle Fascicles and Achilles Tendon Post Stroke. J Appl Physiol. 118, 863–871.

Tsai, L.-C., Lee, S. J., Yang, A., Ren, Y., Press, J. M., and **Zhang, L.-Q.**, 2015a. Effects of off-axis elliptical training on reducing pain and improving knee function in individuals with patellofemoral pain. Clin J Sports Med. 25, 487-493.

Presentations:

Jin, D., Ren, Y., Chen, K., Harvey, R. L., Roth, E. J., Prabhakaran, S., and **Zhang, L.-Q.** (2015) Mobility rehabilitation in acute stroke using a wearable ankle robot.

Neuroscience, Chicago.

Zhang, L.-Q., Xu, D., Ren, Y., Park, H. S., Kang, S. H., Lee, Y., Harvey, R., and Lin, Y.-S. (2015) Multi-joint proprioception deficits at the shoulder, elbow and wrist post stroke. Neuroscience, Chicago.

Lee, Y., Xu, D., Ren, Y., Chen, K., Gaebler-Spira, D., and **Zhang, L.-Q.** (2015) Changes in ankle joint proprioception resulting from robotic training of ankle mobility rehabilitation in cerebral palsy children. Neuroscience, Chicago.

RESEARCH FACULTY

Anne Deutsch

Presentations

Deutsch A. Quality Measures for Inpatient Rehabilitation Facilities (Symposium Director) and Presenter/

Ongoing service

Participant in the Association of Occupational Therapy Association's Visioning Summit. National Harbor, MD; October 22 and 23, 2015

Member, Brain Injury Association of America TBI Rehabilitation Guidelines Dissemination Advisory Board. Dallas, TX; October 27, 2015.

Award:

Fellow of the American Congress of Rehabilitation Medicine (FACRM); October 29, 2015.

Policy:

Under several CMS contracts and an ASPE contract, Anne led the development of 4 quality measures that are now endorsed by NQF (July 23, 2015):

- Inpatient Rehabilitation Facility (IRF) Functional Outcome Measure: Change in Self-Care Score for Medical Rehabilitation Patients; *STEWARDS*: Centers for Medicare & Medicaid Services (CMS) - <http://www.qualityforum.org/QPS/2633>
- Inpatient Rehabilitation Facility (IRF) *Functional* Outcome Measure: Change in Mobility Score for Medical Rehabilitation Patients; *STEWARDS*: Centers for Medicare & Medicaid Services (CMS) - <http://www.qualityforum.org/QPS/2634>

Linda Ehrlich-Jones

Pellegrini, C.A., Song, J., Chang, R.W., Semanik, P., Lee, J., **Ehrlich-Jones, L.**, Pinto, D., Dunlop, D. Change in physical activity and sedentary time associated with 2-year weight loss in obese adults with osteoarthritis. *Journal of Physical Activity and Health* (in press).

Presentations

Gilbert AL, Song J, Chang RW, Pellegrini CA, **Ehrlich-Jones LS**, Lee J, Pinto D, Semanik PA, Sharma L, Kwoh CK, Jackson RD, & Dunlop DD. Influence of increasing physical activity on longitudinal changes in disability status among inactive older adults, presented, 11/9/15, at American College of Rheumatology Annual Scientific Meeting, San Francisco, CA.

Ehrlich-Jones, L. Motivational interviewing: Helping patients change their behavior, presented 11/13/15, at Advanced Practice in the New Era of Health Care, NMH, Chicago, IL.

Ehrlich-Jones L, Heiman H, Kushner R, & Bierman J. Assessment of motivational interviewing skills of 3rd year medical students, presented 11/18/15, at Learning, Teaching, Assessment Forum, Northwestern University, Evanston, IL.

Grants funded

NIDILRR Field Initiated Project: Motivational Interviewing and Physical Activity Change in Parkinson's disease (Ehrlich-Jones, PI) 9/30/15-9/29/18, \$599,730.

Grants in development

NIH/NIAMS U01Ehrlich-Jones/Ramsey-Goldman (Principal Investigators)
Activity and Nutrition Trial in Lupus to Energize and Renew (ANTLER)

Ongoing service

Chair WFO, Northwestern University
Rheumatology Research Foundation, member, Board of Directors
Illinois Society of Advanced Practice Nurses Program Committee, member
NIH Rehabilitation Scientific Planning Committee, member
Osteoarthritis Action Alliance, member, Community engagement (group 2)
American College of Rheumatology Quality Measures Subcommittee, member

Anne Simon

Shirota C., **Simon A.**, Kuiken TA. "Transfemoral amputee recovery strategies following trips to their sound and prosthesis sides throughout swing phase". *J NeuroEng Rehabil* 12:79 (2015); DOI: 10.1186/s12984-015-0067-8; URL: <http://www.jneuroengrehab.com/content/12/1/79>.

NU PROSTHETICS AND ORTHOTICS CENTER

Publications:

Major MJ, Johnson WB, Gard SA. (2015) Inter-rater Reliability of Mechanical Tests for Functional Classification of Transtibial Prosthesis Components Distal to the Socket. *Journal of Rehabilitation Research & Development*, 52(4):467-476, <http://www.rehab.research.va.gov/jour/2015/524/pdf/jrrd-2014-12-0300.pdf>

Fatone S, Stine R, Gottipati P, Dillon M (in press) Pelvic and Spinal Motion during Walking in Persons with Transfemoral Amputation with and without Low Back Pain. *American Journal of Physical Medicine and Rehabilitation*.

An article recently published in the *Journal of Prosthetics and Orthotics* by **Major M, Caldwell R, Fatone S** on "Comparative effectiveness of electric vacuum pumps for creating suspension in transfemoral sockets" was highlighted by *The O&P Edge*, "Study Examines Comparative Effectiveness of Electric Vacuum Suspension Pumps" (September 20, 2015). http://www.oandp.com/articles/NEWS_2015-09-20_02.asp

Presentations:

Owen E, Bjornson K, **Fatone S** (2015) From Stable Standing to Rock and Roll Walking. A Segmental Kinematics Approach to Rehabilitation. American Academy of Cerebral Palsy and Developmental Medicine, October 21-24, Austin, Texas.

Robinson, C. "Pre-Test - Fundamentals of Gait" Presented at the American Academy of Orthotists & Prosthetists One-Day Seminar Certificate Program on Clinical Application of Gait Assessment, Chicago, IL, November 13, 2015.

Gard, S.A. "Contemporary Models of Gait." Presented at the American Academy of Orthotists & Prosthetists One-Day Seminar Certificate Program on Clinical Application of Gait Assessment, Chicago, IL, November 13, 2015.

Gard, S.A. "Features of Gait – The Gait Lab Perspective." Presented at the American Academy of Orthotists & Prosthetists One-Day Seminar Certificate Program on Clinical Application of Gait Assessment, Chicago, IL, November 13, 2015.

Brinkmann, J. "Clinical Considerations: Orthotic Gait." Presented at the American Academy of Orthotists & Prosthetists One-Day Seminar Certificate Program on Clinical Application of Gait Assessment, Chicago, IL, November 13, 2015.

Ramstrand N, **Fatone S**, Dillon M, Hafner B (2015) Applications of best available evidence in O&P: What can we learn from systematic reviews? Online Webinar recorded for the American Academy of Orthotists and Prosthetists Paul E Leimkuhler Online Learning Center.

Awards:

Chris Robinson, CPO, MBA, MS, ATC, FAAOP, was named one of the 2015 Best Teachers of Feinberg by Northwestern University's Feinberg School of Medicine. This award

recognizes FSM faculty members who are exceptional role models, innovators and teachers. Mr. Robinson's work in service to MPO students and FSM are identified as outstanding. He was formally recognized during Medical Education Day on Friday, September 25, 2015.

NUPOC faculty **Stefania Fatone, PhD, BPO(Hons), Steven A. Gard, PhD, John Michael, MEd, CPO, FAAOP, Christopher Robinson, MS, MBA, CPO, ATC, FAAOP, and John Brinkmann, MA, CPO/L, FAAOP**, were named members of an elite group of 175 leading innovators in the field of orthotics and prosthetics by O&P News (published by SLACK Inc.). The "O&P News 175 Innovators in O&P" recognizes individuals for their positive impact on prosthetics and orthotics through innovation, pursuit of knowledge, and commitment to improving patients' lives.

Meetings:

Dr Stefania Fatone, PhD, attended the Archives of Physical Medicine and Rehabilitation Editorial Board Meeting held in conjunction with the American Congress of Rehabilitation Medicine annual meeting in Dallas, Texas on November 27, 2015.

Laboratory Visits/Events:

Northwestern University Prosthetics-Orthotics Center (NUPOC) and MPO 2016 students presented an informative panel discussion, "American P&O Training, Perspectives and Experiences" to 28 Pedorthics specialists who visited NUPOC from Lycée d'Alembert (Paris, France) on October 8, 2015. R. J. Garrick, PhD, developed and moderated this program in support of STEM (Science Technology Engineering & Mathematics) education initiatives.

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted an educational tour for students from Crystal Lake South High School (Crystal Lake, IL) on November 12, 2015. R. J. Garrick, PhD, developed this program in support of STEM (Science Technology Engineering & Mathematics) education initiatives.

The **Northwestern University Prosthetics-Orthotics Center (NUPOC)** held the third of a series of three hands-on continuing education courses for Certified Prosthetists on the "NU-FlexSIV Socket" (September 11 and 12, 2015). These courses were supported by a grant from the Department of Defense (**PI: Stefania Fatone, PhD**) and were taught by **Stefania Fatone, PhD**, and **Ryan Caldwell, CP**. This course was featured in the Northwestern Research News, "Researchers Showcase Prosthetic Socket Design." (September, 2015; 8(1):11).

Collaboration between Drs John Rogers, PhD, and **Stefania Fatone, PhD**, was mentioned in the NBC5 Chicago news story "Human Body Merges with Technology in 'Biohacking' Trend" which aired on September 22, 2015. <http://www.nbcchicago.com/investigations/Biohackers-Use-Electronic-Tattoos-to-Create-Sixth-Sense-328557551.html>

Grant Awards:

Stefania Fatone, PhD, is sub-contract PI on a Defense Health Program SBIR Phase II application titled "iGRAB: Innovative Glove for Rehabilitation and Assistance using

Biomimicry” with Anjal Sharma (PI) from Lynntech Inc. that has been selected for funding.

Steven Gard, PhD, was notified that his proposal entitled, “Optimization of Prosthetic Foot and Ankle Stiffness for Standing and Walking” will be funded by the Department of Veterans Affairs, Rehabilitation Research & Development Service

Grant Submissions:

Stefania Fatone, PhD, was co-investigator on an NIH R21 application titled “Ankle Foot Orthoses – Footwear Combinations: Biomechanics and Walk” with Kristie Bjornson (PI) from University of Washington submitted on October 16, 2015.

Stefania Fatone, PhD, was invited to submit an application titled “Longitudinal Observation of Myoelectric Upper Limb Orthosis Use among Veterans with Upper Limb Impairment” to the Department of Defense on November 16, 2015, in response to the FY15 Orthotics and Prosthetics Outcomes Research Program (OPORP) Orthotics Outcomes Research Award (OORA).

Stefania Fatone, PhD, was co-investigator on an application titled “Enhancing Quality of Orthotic Services with Process and Outcome Information” (PI: Allen Heinemann, PhD) submitted to the Department of Defense on November 16, 2015, in response to the FY15 Orthotics and Prosthetics Outcomes Research Program (OPORP) Orthotics Outcomes Research Award (OORA).

Steven Gard, PhD, Pranitha Gottipati, PhD, Matthew Major, PhD, and Stefania Fatone, PhD, submitted an NIH R03 application titled “Estimating post-stroke hemiplegic gait stability using nonlinear dynamic analysis” on November 16, 2015.

Steven Gard, PhD, submitted an application entitled “Design of a Smart Prosthetic Liner Controlled by Muscle Activation Feedback” to the Department of Veterans Affairs on September 10, 2015 as a Small Projects in Rehabilitation Effectiveness project.

Steven Gard, PhD, was invited to submit an application entitled “Development and Evaluation of the GroundControl Shoe” to the Department of Defense on November 16, 2015, in response to the FY15 Orthotics and Prosthetics Outcomes Research Program (OPORP) Prosthetics Outcomes Research Award (PORA).

Steven Gard, PhD, and **Yeongchi Wu, MD**, were invited to submit an application entitled “Comparison of Dilatancy, Plaster and CAD-CAM Approaches for Transtibial Socket Fabrication” to the Department of Defense on November 16, 2015, in response to the FY15 Orthotics and Prosthetics Outcomes Research Program (OPORP) Prosthetics Outcomes Research Award (PORA).

Steven Gard, PhD, was a co-investigator on an application entitled, “Improving Physical Activity Levels Through Prescription of Elevated Vacuum Suspension” that was submitted by Noah Rosenblatt, PhD (PI) to the Department of Defense on November 16, 2015 in response to the FY15 Orthotics and Prosthetics Outcomes Research Program (OPORP) Prosthetics Outcomes Research Award (PORA).

Matthew Major, PhD, was submitted an application titled “Rugged, Low-Cost, Purely Mechanical Prosthetic Knees Optimized to Replicate Physiological Gait for a Variety of Terrains and Cadences” to the Department of Defense on August 17, 2015 in response to the FY15 CDMRP Clinical Rehabilitative Medicine Research Program (CRM RP) Neuromusculoskeletal Injuries Research Award.

Matthew Major, PhD, submitted an application titled “Design of a Low-Cost Prosthetic Foot with Physiological Roll-Over and Push-Off” to the Department of Veterans Affairs on September 10, 2015 as a Small Projects in Rehabilitation Effectiveness project.

Letters of Intent:

Stefania Fatone, PhD, submitted an LOI on August 31, 2015 to the Department of Defense titled “Longitudinal Observation of Myoelectric Upper Limb Orthosis Use among Veterans with Upper Limb Impairment.”

Allen Heinemann, PhD, and **Stefania Fatone, PhD**, submitted an LOI on August 31, 2015 to the Department of Defense titled “Enhancing Quality of Orthotic Services with Process and Outcome Information.”

OTHER FACULTY

Ross Arena

Grant Awards:

VA Merit Award (Forman): “Exercise Therapy to Reduce Heart Failure Symptoms: Sorting Mechanisms of Benefit”, Co-Investigator

NHI RO1: “Facilitating Functional Independence in Patients Requiring Prolonged Mechanical Ventilation”, Co-Investigator

Publications:

Canada JM, Fronk DT, Freeman L, Carbone S, Erdle CO, Abouzaki NA, Melchior RD, Thomas CS, Christopher S, Turlington JS, Trankle CR, Thurber CJ, Evans RK, Dixon DL, Van Tassell BW, **Arena R**, Abbate A. Usefulness of C-reactive protein plasma levels to predict exercise intolerance in patients with chronic systolic heart failure. *American Journal of Cardiology*. (Accepted 10/12/15).

Arena R, Lavie CJ, Hivert MF, Williams MA, Briggs PD, Guazzi M. Who will deliver comprehensive healthy lifestyle interventions to combat non-communicable disease? Introducing the Healthy Lifestyle Practitioner. *Expert Review of Cardiovascular Therapy*. (Accepted 10/7/15).

Lavie CJ, **Arena R**, Franklin BA. Cardiac rehabilitation and healthy lifestyle interventions: Rectifying program deficiencies to improve patient outcomes. *Journal of the American College of Cardiology*. (Accepted 10/5/5).

Arena R, Lavie CJ, Cahalin LP, Briggs PD, Guizilini S, Daugherty J, Chan W, Borghi-Silva A. Transforming cardiac rehabilitation into broad-based healthy lifestyle programs to combat non-communicable disease. *Expert Review of Cardiovascular Therapy*. (Accepted 9/18/15).

Bolzan DW, Trimer R, Begot I, Nasralla M, Forestieri P, Mendez V, **Arena R**, Gomes WJ, Guizilini S. Open lung ventilation improves clinical outcomes in off-pump coronary bypass surgery: A randomized controlled trial. *Journal of Cardiothoracic and Vascular Anesthesia*. (Accepted 8/30/15).

Thommazo L, Carvalho LP, Luporini R, Trimer R, Pantoni BF, Catai A, **Arena R**, Borghi-Silva A. Are cardiovascular and metabolic responses to field walking tests interchangeable and obesity-dependent? *Disability and Rehabilitation*. (Accepted 8/20/15).

Bien U, Souza G, Campos R, Santoro I, Costa A, **Arena R**, Sampaio L. Maximum inspiratory pressure and rapid shallow breathing index as predictors of successful ventilator weaning. *Journal of Physical Therapy Science*. (Accepted 8/20/15).

Lacerda D, Costa D, Reis M, Gomes E, Costa I, Borghi-Silva A, Marsico A, Roberto Stirbulov R, **Arena R**, Sampaio L. Influence of bilevel positive airway pressure on autonomic tone in hospitalized patients with decompensated heart failure. *The Journal of Physical Therapy Science*. (Accepted 8/12/15).

Hivert MF, **Arena R**, Forman DE, Kohl H, Kris-Etherton PM, McBride PE, Pate RR, Reid M, Spring B, Trilk J, Van Horn LV, Kraus WE. Medical training to achieve competency in lifestyle counseling: An essential foundation for prevention and treatment of cardiovascular diseases and other chronic medical conditions: A scientific statement from the American Heart Association. *Circulation*. (Accepted 12/15/14).

Bassi D, Arakelian V, Mendes R, Caruso FC, Bonjorno Jr JC, Zangando KTL, Oliveira CR, Haus J, **Arena R**, Borghi-Silva A. Poor glycemic control negatively impacts linear and non-linear dynamics of heart rate in Type 2 Diabetes. *Brazilian Journal of Sports Medicine*. (In press).

Da Silva VZ, Gurney B, **Arena R**, Noronha M, Durigan JL, Cipriano G. Current evidence demonstrate similar effects of Kilohertz-frequency and low-frequency current on quadriceps evoked torque and discomfort in healthy individuals: A systematic review with meta-analysis. *Physiotherapy Theory and Practice*. (Epub ahead of print).

Kaminsky L, **Arena R**, Myers J. Reference Standards for Cardiorespiratory Fitness Measured with Cardiopulmonary Exercise Testing: Data from the Fitness Registry and the Importance of Exercise National Database (FRIEND Registry). *Mayo Clinic Proceedings*. (Epub ahead of print).

Pantoni C B F, Tommazo L, Mendes RG, Simoes RP, Caruso, FC, **Arena R**, Catai AM, Borghi-Silva A . Continuous positive airway pressure application during exercise improves walking time in patients undergoing inpatient cardiac rehabilitation following coronary artery bypass graft surgery: an open-label randomized controlled trial. *Journal of Cardiopulmonary Rehabilitation and Prevention*. (Epub ahead of print).

Campos FV, Neves LM, Silva VZ, Chiappa GR, Cahalin L, **Arena R**, Cipriano GF, Cipriano Jr G. Hemodynamic effects induced by transcutaneous electrical nerve stimulation in apparently healthy subjects: a systematic review and meta-analysis. *Archives of Physical Medicine and Rehabilitation*. (Epub ahead of print).

Lavie CJ, Lee D, Sui X, **Arena R**, O'Keefe JH, Church TS, Milani RV, Blair SN. Effects of running on chronic diseases, cardiovascular and all-cause mortality. *Mayo Clinic Proceedings*. (Epub ahead of print).

Parto P, Lavie CJ, **Arena R**, Venture H. Preventing heart failure with exercise training. *Current Cardiovascular Risk Reports*. (Epub ahead of print).

Guazzi M, **Arena R**, Pellegrino M, Bandera F, Generati G, Labate V, Alfonzetti E, Villani S, Gaeta MM, Halle M, Haslbauer R, Phillips SA, Cahalin L. Prevalence and characteristics of exercise oscillatory ventilation in apparently healthy individuals at variable risk for cardiovascular disease: a subanalysis of the EURO-EX trial. *European Journal of Preventive Cardiology*. (Epub ahead of print).

Guazzi M, Gomberg-Maitland M, **Arena R**. Pulmonary hypertension in heart failure with preserved ejection fraction. *Journal of Heart and Lung Transplantation*. (Epub ahead of print).

Guazzi M, Phillips SA, **Arena R**, Lavie CJ. Endothelial dysfunction and lung capillary injury in cardiovascular diseases. *Progress in Cardiovascular Disease*. (Epub ahead of print).

Ramadi A, Haennel RG, Stone JA, **Arena R**, Threlfall TG, Hitt E, Aggarwal SG, Haykowsky M, Martin BJ. The sustainability of exercise capacity changes in home versus center-based cardiac rehabilitation. *Journal of Cardiopulmonary Rehabilitation and Prevention*. (Epub ahead of print).

Sperling MPR, Caruso FC, Mendes R, Dutra DB, Arakelian V, Bonjorno JC, Catai AM, **Arena R**, Borghi-Silva A. Relationship between noninvasive hemodynamic responses and cardiopulmonary exercise testing in patients with coronary artery disease. *Clinical Physiology and Functional Imaging*. (Epub ahead of print).

Arena R, Guazzi M, Lavie CJ. Cardiopulse: The urgent need for the healthy lifestyle healthcare system. *European Heart Journal*. 2015;36:2023-2024.

Presentations

Making the most of your physical therapy education: taking advantage of the opportunities around you. 13th Annual UC Davis Pre-Medical and Pre-Health Professions National Conference. Sacramento, CA, October 2015.

Addressing the NCD Crisis in China. International Research Advisory Committee Meeting, Guangdong Work Injury Rehabilitation Center, Guangzhou, China, September 2015.

Transforming Cardiac Rehabilitation into Broad-Based Healthy Lifestyle Programs to Combat Non-Communicable Disease. UIC College of Medicine, Division of Cardiology Fellows Conference, September 2015.

Assessing Cardiopulmonary Fitness in Chronic Disease Populations. 9th International Conference on Diet and Activity Methods, Brisbane, Australia, September 2015.

Emerging Assessments of Cardiopulmonary Fitness: Respiratory Muscle Performance. 9th International Conference on Diet and Activity Methods, Brisbane, Australia, September 2015.

Honors/Awards

Personality of the Year Award, Department of Physical Therapy of the Sao Paulo State Society of Cardiology, Sao Paulo, Brazil

Teresa Savage

Savage, T. A. & Gill, C. J. (2015). The essentials of disability for ethic consultants/committees. *17th Annual Meeting of the American Society for Bioethics and Humanities*, Houston, Texas, October 21-25, 2015

Savage, T. A. (2015). Oral history from the first modern nurse ethicists. *32nd Annual American Association of the History of Nursing, Nursing & Health Care History Conference*, Dublin, Ireland, Sept 17-20, 2015