

Scholarly Activities
Department of Physical Medicine and Rehabilitation
March 2015 – May 2015

REGULAR FACULTY

Brenna Argall:

Lectures:

Invited talk at the Harvard Medical School IDEAS Workshop on Engineering and Surgery.
March 2015.

Oral presentation by **Siddarth Jain** at the IPEG Annual Congress for Endosurgery in Children.
The title was: "TOWARDS VALIDATED SURGICAL SKILLS ASSESSMENT: AUTOMATED
MONITORING OF TRACHEOESOPHAGEAL FISTULA REPAIR" April 2015.

Invited speaker at the University of Chicago's conference on Technology and Society. May 2-
3, 2015.

James Atchison:

Conference Presentation:

Structural & Functional Examination of the Cervical & Thoracic Spine, March 19-22nd – AAPM
31st Annual Meeting- Washington, DC

The Most Common Complaints of Knee Pain That Presents in the Office, March 19-22nd –
AAPM 31st Annual Meeting- Washington, DC

9th Annual Spring CME- Treatment & Prevention of Automobile Injuries Course
(Chicago College of Osteopathic Medicine & Illinois Osteopathic Medical Society)
Title: Medications & Interdisciplinary Issues for Treating Chronic Pain, May 02, 2015.

Lectures:

3/10 Outcomes for CRPM/ WC/ CRPS- Fellow Lecture (RIC)

4/7 Opioids I Lecture- PGY3's & PHY4's (RIC)

4/28 Opioids II Lecture- PGY3's & PGY4's (RIC)

5/4 Pathophysiology of Pain Lecture- PGY2's (RIC)

5/12 Worker's Comp Lecture- PGY3's & PGY4's (RIC)

Karina Bouffard:

Publication:

Zack McCormic, MD, **Karina J. Bouffard, MD, MPH**, Daniel Neudorf, MS, Ellen Casey, MD, A
mediastinal Mass presenting with unilateral periscapular and arm pain. PMR Journal,
published June 2014

M. Caldwell DO, Z. McCormick MD, **K. Bouffard MD MPH**. *Improvement in pain, function and reduction of opioid use with a non-surgical multi-modal approach to atlanto-axial subluxation in an inpatient with osteogenesis imperfecta and rheumatoid arthritis. A case report*. Rehabilitation Institute of Chicago. Journal of Pain Medicine. Published abstract, March 2015.

Poster Presentation:

M. Caldwell DO, Z. McCormick MD, **K. Bouffard MD MPH**. *Improvement in pain, function and reduction of opioid use with a non-surgical multi-modal approach to atlanto-axial subluxation in an inpatient with osteogenesis imperfecta and rheumatoid arthritis. A case report*. Rehabilitation Institute of Chicago. Poster Presented at AAPM, Washington, DC. March 2015.

Ongoing Service:

Elected as part of the Board of Directors for the Midwest Pain Society in April 2014

Co-editor of the Newsletter for the Midwest Pain Society April 2014

Rebecca Brashler:

Presentation:

Presentation at International Conference on Clinical Ethics & Consultation at Icahn School of Medicine/Mt Sinai NYC. "Non-Verbal Patients: Discovery Capacity" with Debjani Mukherjee, PhD & Lynne Brady Wagner MA, CCC-SLP 05/21/2015

Chih-Hung Chang:

Presentations:

Instructional Course accepted for ACRM 2015 "*Applications of Item Response Theory Modeling for Enhancing Clinical Outcomes Assessment in Medical Rehabilitation*". Dallas, TX October 2015. Accepted on March 27, 2015.

Deborah Gaebler:

Presentations:

"Comprehensive Care of Patients with Cerebral Palsy - the New Millennium" Symposium to be held on May 23-24, 2015 in Taiwan by the Lien I –Nan Foundation.

Pediatric Hemiplegia Symposium on 04/26/2015 "Management of Spasticity" at Northwestern University's Department of Physical Therapy and Human Movement Sciences, Chicago, IL

"Aging and Cerebral " - Palsy Schwab lecture series, May 14, 2015

CP early detection Northwestern neuroscience lecture, Northwestern Interdepartmental Neuroscience PhD program entitled, "Issues in Movement and Rehabilitation Sciences"

Publication:

Donna S Hurley^{1*}, Theresa Sukal-Moulton², **Deborah Gaebler-Spira³**, Kristin J Krosschell¹, Larissa Pavone⁴, Akmer Mutlu⁵, Julius PA Dewald¹ and Michael E Msall⁶. "Systematic Review of Cerebral Palsy Registries/Surveillance Groups: Relationships between Registry Characteristics and Knowledge Dissemination". Hurley DS, et al., Int J Phys Med Rehabil 2015, 3:2 <http://dx.doi.org/10.4172/2329-9096.1000266>

Allen Heinemann:

Publication:

David S. Tulskey, PhD; Pamela A. Kisala, MA; David Victorson, PhD; Noelle Carlozzi, PhD; Tamara Bushnik, PhD; Mark Sherer, PhD; Seung W. Choi, PhD; **Allen W. Heinemann, PhD**; Nancy Chiaravalloti, PhD; Angelle M. Sander, PhD; Jeffrey Englander, MD; Robin Hanks, PhD; Stephanie Kolakowsky-Hayner, PhD; Elliot Roth, MD; Richard Gershon, PhD; Mitchell Rosenthal, PhD; David Cella, PhD. "TBI-QOL: Development and Calibration of Item Banks to Measure Patient Reported Outcomes Following Traumatic Brain Injury" J Head Trauma Rehabil. DOI: 10.1097/HTR.000000000000131

Peer Reviewed Publication:

Jarl G, **Heinemann, AW**, Lindner H, Hermansson LN, Cross-cultural validity and differential item functioning of the Orthotics and Prosthetics Users' Survey with Swedish and American users of lower limb prosthesis. Archives of Physical Medicine and Rehabilitation, in press. DOI: <http://dx.doi.org/10.1016/j.apmr.2015.03.003>.

Plow MA, Finlayson M, Gunzler D, **Heinemann AW**. Correlates of participation in meaningful activities among people with multiple sclerosis. J Rehabil Med, 2015, doi: 10.2340/16501977-1948.

Tulskey DS, Kisala PA, Victorson D, Tate DG, **Heinemann AW**, Charlifue S, Kirshblum SC, Fyffe D, Gershon R, Spungen, AM, Bombardier, CH, Dyson-Hudson, TA, Amtmann, D, Kalpakjian, C, Choi, S, Jette, A, Forchheimer, M, & Cella DF. Overview of the Spinal Cord Injury – Quality of Life (SCI-QOL) Measurement System. Journal of Spinal Cord Medicine, in press.

Heinemann AW, Kisala P, Hahn EA, Tulskey DS. Development and Psychometric Characteristics of the SCI-QOL Ability to Participate and Satisfaction with Social Roles and Activities Item Banks and Short Forms, Journal of Spinal Cord Medicine, in press.

Tulskey DS, Kisala P, Victorson D, Choi S, Gershon R, **Heinemann AW**. SCI-QOL: Methodology and Calibration of Item Banks to Measure Patient Reported Outcomes Following Spinal Cord Injury The Journal of Spinal Cord Medicine, in press.

Presentations:

Heinemann AW, Raad J, Segal N. Developing Outcomes Data Management and Reporting Capacity for Musculoskeletal Rehabilitation Programs. Poster presentation at the 2015 Association of Academic Physiatrists Annual Meeting, San Antonio, Texas, March 10, 2015.

Heinemann AW. Patient-Reported and Clinician-Rated Functional Status Measures: Applications in Rehabilitation Research. Paper presented at the 13th Congress of European Forum for Research in Rehabilitation, May 7, 2015, Helsinki, Finland.

Heinemann AW. Self-report measures to monitor rehabilitation. Plenary speaker at the 13th Congress of European Forum for Research in Rehabilitation, May 8, 2015, Helsinki, Finland.

Tulsky D, Jette A, Kisala P, Tate D, **Heinemann AW**, Charlifue S. Using The Spinal Cord Injury Quality Of Life (SCI-QOL) Item Banks To Detect Change In Research And Clinical Practice. Symposium presented at the International Spinal Cord Society annual meeting, Montreal, PQ, May 14, 2015.

Tate DM, Charlifue S, Post M, Tulsky DS, Jette A, **Heinemann AW.** The Use Of Quality Of Life Measures In Spinal Cord Injury Clinical Trials. Symposium presented at the International Spinal Cord Society annual meeting, Montreal, PQ, May 14, 2015.

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

Grants in Development:

Craig H. Neilsen Foundation, TITLE NIDILRR, RRTC on Home and Community Based Services

Eric B. Larson:

Presentations:

Starr, C. R., **Larson, E.**, & Zurbriggen, E. L. (2015, March). The Enemy Within: The role of sexual assault and PTSD among female US veterans. Poster to be presented at 40th Annual Conference of The Association for Women in Psychology, San Francisco, California.

Richard Lieber:

Publications:

Mukund, K., M. Mathewson, V. Minamoto, S.R. Ward, S. Subramaniam, and **R.L. Lieber.** (2014). Systems analysis of transcriptional data provides insights into muscle's biological response to botulinum toxin. Muscle & Nerve 50:744-758. PMID: 24536034.

Alperin, M., L.J. Tuttle, B.R. Conner, D.M. Dixon, M.A. Mathewson, S.R. Ward, and **R.L. Lieber.** (2014). Comparison of pelvic muscle architecture between humans and commonly used laboratory species. Int Urogynecol J. 25:1507-1515. PMID: 24915840.

Young, K.W., S. Radic, E. Myslivets, and **R.L. Lieber.** (2014). Resonant reflection spectroscopy of biomolecular arrays in muscle. Biophys. J. 107:2352-2360. PMID: 25418304.

Gillies, A.R., E.A. Bushong, T.J. Deerinck, M.H. Ellisman, and **R.L. Lieber.** (2014). Three-dimensional reconstruction of skeletal muscle extracellular matrix ultrastructure. Microsc. Microanal. 20:1835-1840. PMID: 25275291.

Chapman, M.A., J. Zhang, I. Banerjee, L.T. Guo, Z. Zhang, G.D. Shelton, K. Ouyang, **R.L. Lieber** and J. Chen. (2014). Disruption of both nesprin 1 and desmin results in nuclear anchorage defects and fibrosis in skeletal muscle. Hum. Mol. Gen. 23:5879-5892. PMID: 24943590

Mathewson, M.A., H.G. Chambers and **R.L. Lieber**. (2014) Stiff muscle fibres in calf muscles of patients with cerebral palsy lead to high passive muscle stiffness. J. Orthop. Res 32:1667-1674. PMID: 25138654.

Fridén, J., T.F. Tirrell, O.I. Franko, S. Bhola, E.R. Hentzen, R.A. Abrams, and **R.L. Lieber**. (2015). Mechanical strength of the side-to-side tendon attachment for mismatched tendon sizes and shapes. J. Hand Surg. Eur. 40E:239–245. PMID: 24413573.

Chapman, M.A., R. Richika, and **R.L. Lieber**. (2015). Collagen crosslinking does not dictate stiffness in a transgenic model of skeletal muscle fibrosis. J. Biomech. 48:375-378. PMID: 25529136

Palmisano, M.G., S.N. Bremner, S. Huang, A.A. Domenighetti, T. Hornberger, S.B. Shah, M. Kellermeyer, A.F. Ryan, and **R.L. Lieber**. (2015). Skeletal muscle intermediate filaments act as a stress-transmitting and stress-transducing signaling network. J. Cell Sci. 128:219-224. PMID: 25413344.

Minamoto, V.B., K. Suzuki, S. Bremner, **R.L. Lieber** and S.R. Ward. (2015). Dramatic changes in muscle contractile and structural properties after two botulinum toxin injections. Muscle & Nerve (in press). PMID: 25598004

Mathewson, M.A., S.R. Ward, H.G. Chambers and **R.L. Lieber**. (2015). High resolution muscle measurements provide insight into equinus contracture in patients with cerebral palsy. J. Orthop Res. 33:33-39. PMID: 25242618.

Muzykewicz, D.A., U. Arnet, J. Fridén, and **R.L. Lieber**. (2015). The effect of intrinsic loading and reconstruction upon grip capacity and finger extension kinematics. J. Hand. Surg. (Am.) 40:96-101. PMID: 25459382.

Silldorff, M.D., A.D. Choo, T. Choi, E. Lin, J.A. Carr, **R.L. Lieber**, J.G. Lane and S.R. Ward. (2015). Effect of supraspinatus tendon injury on upraspinatus and infraspinatus muscle passive tension and associated biochemistry. Bone Joint Surg. (in press). PMID: 25320205.

Grant Submissions:

Functional Comparison Between Nerve and Tendon Transfer after SCI, 11 Jan 2015, Neilsen

Preserving aging neuromuscular junction structure and function, 29 Jan 2015, NIH RO1

Muscle metabolism and mechanical efficiency in cerebral palsy, 17 Feb 2015, NIH RO3

Light Modulation and Interrogation of Neural Activities and Tissue Status, 25 Feb 2015, DARPA

National Center for Dynamic Functional Assessment, 25 March 2015, NIH P2C

Supercontinuum laser quantification of tissue inflammation, 14 April 2015, NIH U18

Christina Marciniak:

Accepted for Publication:

Marciniak CM, Li X, Zhou P. An Examination of Motor Unit Number Index in Adults with Cerebral Palsy. *J of Electromyography and Kinesiology*. *Accepted for publication* 2015

Abstracts:

McCormick Z, Cushman D, Caldwell M, Marshall B, Ghannad L, Eng C, Patel J, Makovitch S, Chu S, Walega D **Marciniak C**, Press J, Babu AN, Kennedy DM and Plataras C. Does Electrodiagnostic Confirmation of Acute or Chronic Cervical or Lumbosacral Radiculopathy Predict Pain Reduction after Transforaminal Epidural Steroid Injection? A Multicenter Longitudinal Study. *Am J PMR* Volume 94 Supplement March, 2015.

Elovic, E, Munin M, Kaňovský P, Hanschmann A, Hiersemenzel R, and **Marciniak C**. " Results from a randomized, placebo-controlled, phase 3 study investigating the safety and efficacy of Xeomin in treating poststroke spasticity of the upper limb." *Toxicon* 93 (2015): S23.

Brashear A, **Marciniak C**, Edgley S, Gul F, Hedera P, McAllister P, O'Dell M, et al. "A Phase III randomized, double-blind, placebo-controlled study to assess the efficacy and safety of abobotulinumtoxinA (Dysport(R)) in adults with upper limb spasticity (S28. 001)." *Neurology* 84, no. 14 Supplement (2015): S28-001.

Sethi K Elovic E, Munin M, **Marciniak C**, Hiersemenzel R, and Hanschmann A. "Topline results from a randomized, placebo-controlled, Phase III study investigating the safety and efficacy of incobotulinumtoxinA in treating post-stroke spasticity of the upper limb (S28. 002)." *Neurology* 84, no. 14 Supplement (2015): S28-002.

Shana Margolis:

Publications:

McCormick Z, Kennedy DJ, Garvan C, Rivers E, Temme K, **Margolis S**, Zander E, Rohr A, Smith MC, Plataras C. "[Comparison of Pain Score Reduction Using Triamcinolone vs. Betamethasone in Transforaminal Epidural Steroid Injections for Lumbosacral Radicular Pain.](#)" *Am J Phys Med Rehabil*. 2015 Apr 16. [Epub ahead of print] PMID: 25888660

McCormick Z, **Margolis S**, Temme K, Rivers E, Cameron SA, Smith MC, Rohr A, Zander E, Garvan C, Kennedy DJ, Plataras C. "[Concordant pain provocation during transforaminal epidural steroid injection for lumbosacral radiculopathy: effect on pain outcome and predictive factors.](#)" *Pain Physician*. 2015 Jan-Feb;18(1):E19-26. PMID: 25675066

Debjani Mukherjee:

Publications:

Spill, G., Cushman, D., Thomas, K., **Mukherjee, D**. "Perceived quality of life with spinal cord injury: a comparison between Emergency Medicine and Physical Medicine and Rehabilitation physicians" *PMR Journal*: March 2015

Miller, JE, Camacho-Soto, A, Odonkor, CA, Ferker, S. & **Mukherjee, D.** "Ethical Concerns Identified by Physical Medicine and Rehabilitation Residents." PM&R: The journal of injury, function and rehabilitation, 7.4 (2015): 428-434. [Ethics Legal Column Feature Editor]**Mukherjee, D.** "Discharge Decisions and the Dignity of Risk." Hastings Center Report. 45.3 (2015): 7-8.

Presentation:

Brashler, R., **Mukherjee, D.** & Brady-Wagner, L. "Non-verbal Patients: Discovering Capacity." Panel presentation at the 11th Annual International Conference on Clinical Ethics Consultation, New York, NY, May 2015.

Monica Rho:

Peer Reviewed Publications:

Cushman DM, **Rho M.** Case report of conservative treatment of subacute proximal hamstring tendinopathy with a novel eccentric exercise. *JOSPT*. (Accepted)

Peer Reviewed Book Chapters:

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, 2015.

Rho ME, Shah F, Okafor E. Hip Disorders in Pregnancy. In: Musculoskeletal Health in Pregnancy and Postpartum: A Guide for Clinicians (First Edition). Segal N, Fitzgerald C. Springer Publishing, 2015

Peer Reviewed Abstracts:

Patel J, **Rho M.** Ultrasound evaluation of ulnar neuritis in a complicated case of dystonic cerebral palsy with cervical myelopathy. *Annual meeting of the Academic Association of Physiatrists. San Antonio, TX. March 2015.*

Chu SK, Makovitch S, Reese M, Gagnon C, **Rho ME.** The Effect of musculoskeletal ultrasound course on the accuracy of joint palpation in physical medicine and rehabilitation residents. *Annual meeting of the Academic Association of Physiatrists. San Antonio, TX. March 2015.*

Chu SK, Gagnon C, **Rho ME.** The Effectiveness of musculoskeletal ultrasound for teaching joint palpation to medical students. *Annual meeting of the Academic Association of Physiatrists. San Antonio, TX. March 2015*

Cushman D, Liu D, Markert M, **Rho M.** Demographic Trends in Large 5-Km Road Running Races in the United States. *Poster and oral presentation at the American Medical Society for Sports Medicine's 24th Annual Meeting, Hollywood, FL. April 14-19, 2015,*

Woznica DN, **Rho M.** Recalcitrant wrist pain in patient using an aromatase inhibitor: a case report. *American Medical Society for Sports Medicine's 24th Annual Meeting, Hollywood, FL. April 14-19, 2015,*

Peer Reviewed Oral Presentations:

Loveless M, **Rho ME**. Buttock pain and weakness - Runner. *Selected for oral presentation at the American College of Sports Medicine Annual Meeting, San Diego, CA. May 29, 2015*

Ziegler C, **Rho M**, Press J. Groin pain – Marathon running. *Selected for oral presentation at the American College of Sports Medicine Annual Meeting, San Diego, CA. May 29, 2015*

Dubon M, **Rho M**. Back pain – Adolescent runner. *Selected for oral presentation at the American College of Sports Medicine Annual Meeting, San Diego, CA. May 29, 2015*

Poster Presentation:

Best Poster Presentation at Annual Meeting **Rho M**, Nigl F, Hurh P, Dhaher Y.

Altered side-to-side muscle activity of the lower extremities during double leg squat in femoroacetabular impingement. *Selected for Poster Grand Rounds Presentation at the annual meeting of the Academic Association of Physiatrists. San Antonio, TX. March 2015.*

Invited Lecturer:

Sociedad Occidental Colegio Médico de Rehabilitación de Jalisco (The Mexican Western Society of PM&R) International Invited Lectureship for the 5th National Congress **Exercise in Pregnancy Common Myths about Hip Pain Musculoskeletal Ultrasound in a Rehabilitation Population Introduction to Musculoskeletal Ultrasound Workshop**, May 2015

Ongoing Service:

Selected Oral Board Examiner American Board of Physical Medicine and Rehabilitation
2015 – 2018

Elliot Roth:

Publications:

Meaghan M. Lynch, MD,1 Zachary McCormick, MD,1 Brian Liem, MD,2 Geneva Jacobs, MD,3 Peter Hwang, MD,4 Thomas George Hornby, PhD, PT,1 Leslie Rydberg, MD,1 and **Elliot J. Roth, MD1** “Energy Cost of Lower Body Dressing, Pop-Over Transfers, and Manual Wheelchair Propulsion in People with Paraplegia Due to Motor-Complete Spinal Cord Injury”. *Top Spinal Cord Inj Rehabil* 2015;21(2):140–148.

David S. Tulskey, PhD; Pamela A. Kisala, MA; David Victorson, PhD; Noelle Carlozzi, PhD; Tamara Bushnik, PhD; Mark Sherer, PhD; Seung W. Choi, PhD; Allen W. Heinemann, PhD; Nancy Chiaravalloti, PhD; Angelle M. Sander, PhD; Jeffrey Englander, MD; Robin Hanks, PhD; Stephanie Kolakowsky-Hayner, PhD; **Elliot Roth**, MD; Richard Gershon, PhD; Mitchell Rosenthal, PhD; David Cella, PhD. “TBI-QOL: Development and Calibration of Item Banks to Measure Patient Reported Outcomes Following Traumatic Brain Injury” *J Head Trauma Rehabil*. DOI: 10.1097/HTR.000000000000131

Leslie Rydberg:

Publications:

Meaghan M. Lynch, MD,1 Zachary McCormick, MD,1 Brian Liem, MD,2 Geneva Jacobs, MD,3 Peter Hwang, MD,4 Thomas George Hornby, PhD, PT,1 **Leslie Rydberg, MD,1** and Elliot J. Roth, MD1 “Energy Cost of Lower Body Dressing, Pop-Over Transfers, and Manual Wheelchair Propulsion in People with Paraplegia Due to Motor-Complete Spinal Cord Injury”. *Top Spinal Cord Inj Rehabil* 2015;21(2):140–148.

Zev Rymer:

Publications:

Roh J, **Rymer WZ**, Beer RF. (2015) Upper extremity muscle synergies vary with motor impairment level in chronic stroke survivors. *Frontiers in Human Neuroscience*, doi: 10.3389/fnhum.2015.00006.

Lee SS, Spear S, **Rymer WZ**. "Quantifying changes in material properties of stroke-impaired muscle." *Clin Biomech* (Bristol, Avon). 30(3):269-75. PMID 25638688 March 2015.

Liu J, Ying D, **Rymer WZ**. "EMG burst presence probability: a joint time-frequency representation of muscle activity and its application to onset detection." *J Biomech*. 48(6):1193-7. PMID 25748222 April 13, 2015.

McManus L, Hu X, **Rymer WZ**, Lowery MM, Suresh NL. "Changes in motor unit behavior following isometric fatigue of the first dorsal interosseous muscle." *J Neurophysiol*. 113(9):3186-96. PMID 25761952 May 2015.

Thomas Schnitzer:

Publication:

Losina E, Ranstam J, Collins JE, **Schnitzer TJ**, Katz JN. OARSI Clinical Trials Recommendations: Key analytic considerations in design, analysis, and reporting of randomized controlled trials in osteoarthritis. *Osteoarthritis Cartilage*. 2015 May;23(5):677-685. doi: 10.1016/j.joca.2015.03.011. Review. PMID: 25952341 Related citations Select item 25656743

Edwards WB, Simonian N, Troy KL, **Schnitzer TJ**. Reduction in Torsional Stiffness and Strength at the Proximal Tibia as a Function of Time Since Spinal Cord Injury. *J Bone Miner Res*. 2015 Feb 6. doi: 10.1002/jbmr.2474. [Epub ahead of print] PMID: 25656743

Diane Dudas Sheehan:

Lectures:

RIC Residents during their Pediatric Rotation Normal Growth and Development on 4/7/15

Neuromuscular Scoliosis Evaluation and Management on 4/21/15

Gayle Spill:

Publications:

Spill, G., Cushman, D., Thomas, K., Mukherjee, D. "Perceived quality of life with spinal cord injury: a comparison between Emergency Medicine and Physical Medicine and Rehabilitation physicians" *PMR Journal*: March 2015

Paper accepted for publication and available on-line 3/2015 : "Perceived Quality of Life with Spinal Cord Injury: A Comparison Between Emergency Medicine and Physical medicine and Rehabilitation Physicians"

Poster Presentation:

Poster presented at AAP 3/2015: "Early Onset Radiation-Induced Lumbosacral Plexopathy: Diagnosis and Rehabilitation"

Poster accepted to AAPM&R: "Soft Tissue sarcoma Affecting the Right Shoulder of a Man with Paraplegia from a Remote Traumatic Spinal Cord Injury: A case Report"

RESEARCH FACULTY

Assaf Dvorkin:

Presentations:

Giving the brain a (virtual) hand: Visuo-motor function following brain injury. Moss Rehabilitation Research Institute, Philadelphia, PA, March 17, 2015

Accepted for Conference Paper:

Dvorkin A.Y. & Larson E.B. Visuo-haptic environments for assessment of recovery from mild TBI: A case study. IEEE International Conference on Virtual Rehabilitation (ICVR) 2015, (*Accepted*)

Marylou Guihan:

Publication:

Ramanathan S, Hill JN, Cameron KA, Safdar N, **Guihan M**, Evans CT. Relationship between knowledge and attitudes of methicillin-resistant Staphylococcus aureus and hand hygiene behavior in Veterans with spinal cord injury and disorder. Am J Infect Control. 2015 May 1;43(5):537-9.

Grant Proposals:

"Improving skin health in SCI outpatients by implementing a checklist," **my role: PI** (to be submitted June 4).

"Combating Antimicrobial Resistance through Rapid Implementation of Available Guidelines and Evidence (CARRIAGE)"; Corresponding PI: Michael Rubin, PIs: Mike Rubin (Salt Lake City), Eli Perencevich (Iowa City), Charlesnika Evans (Hines). This project is a program grant (with multiple grants underneath it). It is a 4 year grant and I will be a **co-investigator** on the project with Dr. Evans (to be submitted June 4).

"Management of Osteoporotic Fractures in Veterans with Spinal Cord Injury (SCI)," Co-PIs: Laura Carbone and Frances Weaver, my role: co-investigator.

"Spinal Cord Injury Program for Evaluation of Best Practices (SCIPE-BP)" (Dr. Evans, PI), my role: co-investigator, this was already submitted.

Linda Ehrlich-Jones:

Peer reviewed publications:

Lee J, Chang RW, **Ehrlich-Jones L**, Kwok CK, Nevitt M, Semanik PA, Sharma L, Sohn M-W, Song J, & Dunlop D. Sedentary behavior and physical function: Objective evidence from the Osteoarthritis Initiative. *Arthritis Care & Research*. 2015;67(3): 366-373. PubMed PMID: 25155652.

Semanik PA, Lee J, Song J, Chang RW, Sohn M-W, **Ehrlich-Jones LS**, Ainsworth BE, Nevitt MM, Kwok CK, & Dunlop DD. Accelerometer-monitored sedentary behavior and observed physical function loss. *American Journal of Public Health*. 2015;105(3): 560-566. PubMed PMID: 25602883.

Grant Submission:

NIDILRR DRRP Community Living & Participation Ehrlich-Jones (Principal Investigator)
Improving Community Living and Participation for People with Acquired Mobility Limitations
Using an Adapted Evidence-Based Physical Activity Program

Grant in Development:

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

Ongoing Service:

Co-Chair WFO, Northwestern University

Rheumatology Research Foundation, Member, Board of Directors

NIH/NINR R21 Ehrlich-Jones (Principal Investigator)

Nina Suresh:

Publication Submitted:

Journal of Neural Engineering: "Assessing Altered Motor Unit Recruitment Patterns in Paretic Muscles of Stroke Survivors Using Surface Electromyography" by Hu, Xiaogang; Suresh, Aneesha; Rymer, William; **Suresh, Nina L.** May 2015

Conference Paper Accepted:

Journal of Neurophysiology: "Changes in motor unit behavior following isometric fatigue of the first dorsal interosseous muscle" by Lara McManus, Xiaogang Hu, William Z. Rymer, Madeleine M. Lowery, **Nina L. Suresh.** March, 2015

IEEE EMBS conference on Neural Engineering (Conference paper) : "Fatigue-Related Alterations to Intra-Muscular Coherence" Lara M. McManus*, Student Member, IEEE, Xiaogang Hu, William Z. Rymer, **Nina L. Suresh** and Madeleine M. Lowery, Member, IEEE March 2015.

Grants:

For Jourdan Ewoldt, Undergraduate, Department of Bioengineering, Johns Hopkins University. Midwest Affiliate Winter 2015 Undergraduate Student Research Program. "Quantification of the Spastic Response to the Modified Ashworth Test in Acute Stroke Subjects." Start date: June, 2015

ADJUNCT / OTHER FACULTY

Ross Arena:

Publications:

Fonarow GC, Calitz C, **Arena R**, Baase C, Isaac FW, Lloyd-Jones D, Peterson ED, Pronk N, Sanchez E, Terry PE, Volpp KG, Antman EM. Workplace Wellness Recognition for Optimizing Workplace Health: A Presidential Advisory From the American Heart Association. *Circulation*. 2015 Apr 13. pii: CIR.0000000000000206. [Epub ahead of print] PubMed PMID: 25869199.

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 LP. Prevalence and characterization of exercise oscillatory ventilation in apparently healthy individuals at variable risk for cardiovascular disease: A subanalysis of the EURO-EX trial. *Eur J Prev Cardiol*. 2015 Apr 13. pii: 2047487315580445. [Epub ahead of print] PubMed PMID: 25868603.

Jurgens CY, Goodlin S, Dolansky M, Ahmed A, Fonarow GC, Boxer R, **Arena R**, Blank L, Buck HG, Cranmer K, Fleg JL, Lampert RJ, Lennie TA, Lindenfeld J, Piña IL, Semla TP, Trebbien P, Rich MW; American Heart Association Council on Quality of Care and Outcomes Research and the Heart Failure Society of America. Heart failure management in skilled nursing facilities: a scientific statement from the american heart association and the heart failure society of america. *J Card Fail*. 2015 Apr;21(4):263-99. doi: 10.1016/j.cardfail.2015.02.007. PubMed PMID: 25863664.

Jurgens CY, Goodlin S, Dolansky M, Ahmed A, Fonarow GC, Boxer R, **Arena R**, Blank L, Buck HG, Cranmer K, Fleg JL, Lampert RJ, Lennie TA, Lindenfeld J, Piña IL, Semla TP, Trebbien P, Rich MW. Heart Failure Management in Skilled Nursing Facilities: A Scientific Statement From the American Heart Association and the Heart Failure Society of America. *Circ Heart Fail*. 2015 Apr 8. pii: HHF.0000000000000005. [Epub ahead of print] PubMed PMID: 25855686.

Arena R, Cahalin LP, Borghi-Silva A, Myers J. The effect of exercise training on the pulmonary arterial system in patients with pulmonary hypertension. *Prog Cardiovasc Dis*. 2015 Mar-Apr;57(5):480-8. doi: 10.1016/j.pcad.2014.03.008. Epub 2014 Mar 27. PubMed PMID: 25782656.

Arena R, Lavie CJ. The Healthy Lifestyle Team is Central to the Success of Accountable Care Organizations. *Mayo Clin Proc*. 2015 Mar 11. pii: S0025-6196(15)00104-4. doi: 10.1016/j.mayocp.2015.01.017. [Epub ahead of print] PubMed PMID: 25772533.

Babu AS, Raman VG, **Arena R**, Lavie CJ. Time to focus on preventing coronary artery disease through exercise training in normoglycemic individuals. *Mayo Clin Proc*. 2015 Mar;90(3):418. doi: 10.1016/j.mayocp.2014.12.022. PubMed PMID: 25744124.

Armstrong MJ, Sigal RJ, **Arena R**, Hauer TL, Austford LD, Aggarwal S, Stone JA, Martin BJ. Cardiac rehabilitation completion is associated with reduced mortality in patients with diabetes and coronary artery disease. *Diabetologia*. 2015Apr;58(4):691-8. doi: 10.1007/s00125-015-3491-1. Epub 2015 Jan 26. PubMed PMID:25742772.

Begot I, Peixoto TC, Gonzaga LR, Bolzan DW, Papa V, Carvalho AC, **Arena R**, Gomes WJ, Guizilini S. A home-based walking program improves erectile dysfunction in men with an acute myocardial infarction. *Am J Cardiol*. 2015 Mar 1;115(5):571-5. doi: 10.1016/j.amjcard.2014.12.007. Epub 2014 Dec 18. PubMed PMID: 25727080.

Invited Speaker Presentations:

Cardiac Rehabilitation: State of Evidence, Current Practice Patterns and the Future. Internal Medicine Grand Rounds. John Ochsner Heart and Vascular Institute, New Orleans, LA, April 2015.

Cardiopulmonary Exercise Testing in Heart Failure and Pulmonary Hypertension: Reinventing Clinical and Research Applications. Cardiology Grand Rounds. John Ochsner Heart and Vascular Institute, New Orleans, LA, April 2015.

William Armstrong:

Ongoing Service:

Was in Cambodia during the month of February, 2015 to make preparations and provide logistical support for the presentation of the World Health Organization's Wheelchair Service Training Program - Intermediate Level (<http://www.who.int/disabilities/technology/en/>), a 10 day training program, at Veterans International - Cambodia (<http://www.ic-vic.org/>) in Phnom Penh. This program was attended by physical therapists, technicians and physicians from Phnom Penh and many other areas in Cambodia. These activities were supported by United States Aid for International Development (USAID).

Primary contributor in the development of an online, pre-learning training-of-trainers program relative to the WHO wheelchair training programs. The online program will prepare potential candidates for their in-person attendance at a training-of-trainers course. This work is conducted in collaboration with Management Sciences for Health (MSH) (<http://www.msh.org/>) and UCP (<http://www.ucpla.org/programsservices/>). These activities are also supported by United States Aid for International Development (USAID).

Was in Cambodia from January 31st through February 26th. Purpose to conduct the World Health Organization's Wheelchair Service Training Program – Intermediate Level (<http://www.who.int/disabilities/technology/en/>), a 10 day training program, at Veterans International – Cambodia (<http://www.ic-vic.org/>) in Phnom Penh. This program was attended by physical therapists, technicians and physicians from Phnom Penh and many other areas in Cambodia. These activities are supported by United States Aid for International Development (USAID).

Randal Beer:

Publications:

Roh J, Rymer WZ, **Beer RF**. (2015) Upper extremity muscle synergies vary with motor impairment level in chronic stroke survivors. *Frontiers in Human Neuroscience*, doi: 10.3389/fnhum.2015.00006.

Thomas G. Hornby:

Publications:

Meaghan M. Lynch, MD,1 Zachary McCormick, MD,1 Brian Liem, MD,2 Geneva Jacobs, MD,3 Peter Hwang, MD,4 **Thomas George Hornby, PhD, PT,1** Leslie Rydberg, MD,1 and Elliot J. Roth, MD1 "Energy Cost of Lower Body Dressing, Pop-Over Transfers, and Manual Wheelchair Propulsion in People with Paraplegia Due to Motor-Complete Spinal Cord Injury". *Top Spinal Cord Inj Rehabil* 2015;21(2):140–148.

Maria Knikou:

Publications:

Knikou M, Smith AC, Mummidisetty CK (2015) Locomotor training improves reciprocal and non-reciprocal inhibitory control of soleus motoneurons in human spinal cord injury. *Journal of Neurophysiology* April; 113: 2447-2460, doi: 10.1152/jn.00872.2014.

Submitted for Review:

Uttaro D, McDonough MP, Krivis LI, Mackey AS, **Knikou M**. Convergence of flexor reflex and corticospinal inputs on tibialis anterior network in humans. *Clinical Neurophysiology-under revisions*

Under Development:

Knikou M, Dixon L, Santora D, Ibrahim MM. Targeted Neuroplasticity by Transpinal Stimulation. *To be submitted May 2015*

Grants Awarded:

Description: The goal of this project is to establish the effects of transcutaneous stimulation of the thoracolumbar region with constant and direct current on corticospinal-spinal excitability in healthy people and people with spinal cord injury.

Title: Transpinal stimulation to increase neuroplasticity and recovery after SCI

Source: Craig H. Neilsen Foundation, Grant No: 339705

Period: 09/30/2015-08/30/2017 Role: Principal Investigator

Awards/Appointed:

Appointed to the Editorial Boards of the *Journal of Neurophysiology* (American Physiological Society) and *Clinical Neurophysiology* (International Federation of Clinical Neurophysiology) peer-reviewed journals. April 2015

Bryan Malas:

Grants:

Title: Utilization of 3-D printing technology for the development and application of a lower limb simulation model as a training tool for residents and students Awarded Innovations Pilot Grant from Northwestern University Simulation Lab PI: **Bryan Malas**; Co-Investigator: Niki Pirouz

Lee Miller:

Publication:

Ethier, C. and **L. E. Miller** (2014). "Brain-controlled muscle stimulation for the restoration of motor function." *Neurobiology of Disease* 33(0): 95-102.

Ethier, C., J. A. Gallego and **L. E. Miller** (2015). "Brain-controlled neuromuscular stimulation to drive neural plasticity and functional recovery." *Current Opinion in Neurobiology* 33(0): 95-102.

Grants:

Neilsen Senior Research Grant 14 Project Title: Development of an FES neuroprosthesis for rehabilitation following SCI Co-investigators Matt Tresch and Vicki Tysseling

Ongoing Service:

Elected as President of the Society for the Neural Control of Movement effective April, 2015

James Patton:

Publications:

Wright MacKinnon Carlson **Patton** (2015) "Degraded expression of learned feedforward control in movements released by startle" In Press, *Experimental Brain Research*, EXBR-D-14-00234R1

Parmar, P N, Huang, F, **Patton JL**, (2015) "Evidence of Multiple Coordinate Representations during Generalization of Motor Learning" *Experimental Brain Research*. DOI 10.1007/s00221-014-4034-6 (13 pages).

Presentations:

Patton, JL. "Neuro-adaptive training" Keynote Neuro-Rehabilitation Project Symposium, March 5-7, 2015, held at Kartause Ittingen (close to Zurich) on Switzerland.

Grand rounds talk, "Leveraging neuroplasticity with haptic technology for neurorehabilitation", at UIC Neurology & rehabilitation 5/2015

Jinsook Roh:

Publication:

Roh J, Rymer WZ, Beer RF. (2015) Upper extremity muscle synergies vary with motor impairment level in chronic stroke survivors. *Frontiers in Human Neuroscience*, doi: 10.3389/fnhum.2015.00006.

Grants:

CPH Research Seed Grant (an internal grant from the College of Public Health at Temple University). The title is "Intermuscular discoordination as a novel clinical target for stroke neurorehabilitation". The award will be activated between July 2015-June 2016.

Pamela Semanik:

Publication:

Song J, Lindquist LA, Chang RW, **Semanik PA**, Ehrlich-Jones LS, Lee J, Sohn MW, Dunlop DD. Sedentary Behavior as a Risk Factor for Physical Frailty Independent of Moderate Activity: Results From the Osteoarthritis Initiative. *American journal of public health*. 2015:e1-e7. doi: 10.2105/AJPH.2014.302540. PubMed PMID: 25973826.

Semanik PA, Lee J, Song J, Chang RW, Sohn MW, Ehrlich-Jones LS, Ainsworth BE, Nevitt MM, Kwok CK, Dunlop DD. Accelerometer-monitored sedentary behavior and observed physical function loss. *American journal of public health*. 2015;105(3):560-6. doi: 10.2105/AJPH.2014.302270. PubMed PMID: 25602883; PMCID: 4330824. **Cited in NY Times piece on sedentary behavior 2 weeks ago**

Lee J, Chang RW, Ehrlich-Jones L, Kwok CK, Nevitt M, **Semanik PA**, Sharma L, Sohn MW, Song J, Dunlop DD. Sedentary behavior and physical function: objective evidence from the Osteoarthritis Initiative. *Arthritis care & research*. 2015;67(3):366-73. doi: 10.1002/acr.22432. PubMed PMID: 25155652; PMCID: 4336845.

Dunlop DD, Song J, Arnston EK, **Semanik PA**, Lee J, Chang RW, Hootman JM. Sedentary time in US older adults associated with disability in activities of daily living independent of physical activity. *Journal of physical activity & health*. 2015;12(1):93-101. doi: 10.1123/jpah.2013-0311. PubMed PMID: 24510000; PMCID: 4153790.

Ahn GE, Chmiel JS, Dunlop DD, Helenowski IB, **Semanik PA**, Song J, Ainsworth B, Chang RW, Ramsey-Goldman R. Self-reported and objectively measured physical activity in adults with systemic lupus erythematosus. *Arthritis care & research*. 2015;67(5):701-7. doi: 10.1002/acr.22480. PubMed PMID: 25251755; PMCID: 4370811.

Renee Theiss:

Abstract Publication:

Theiss, R.D., Facilitating OT and PT Graduate Student Laboratory Participation, Preparedness, and Professionalism in a Compressed, Intensive Gross Anatomy Dissection Course Series *FASEB J April 2015 29:551.11*

Grants Awarded:

"Neurological Pathways in stroke survivors before and after a physical intervention program" Governors State University, University Research Grant Award, **PI: Renee Theiss**

"Building readiness for interprofessional learning, collaboration, and team skills using a simulated environment." Council of Academic Programs in Communication Sciences and Disorders (CAPCSD) Current & Alternative Educational Outcomes Grant Program award, PI: Jessica Bonner; **Co-I: Renee Theiss**

Grant Submitted:

"GUIDE (GSU-UICC-Disparities-Education) Training and Research Program" NIH P20 proposal, PI's: Catherine Balthazar and Rupert Evans Role: Internal Advisory Committee member

Conference Presentation:

Theiss, R.D.. Facilitating OT and PT Graduate Student Laboratory Participation, Preparedness, and Professionalism in a Compressed, Intensive Gross Anatomy Dissection Course Series *FASEB J April 2015 29:551.11* (Presented at American Association of Anatomists conference at the Experimental Biology Meeting, March 2015)

Ongoing Service:

Appointed co-Chair of Governors State University Institutional Animal Care and Use Committee (IACUC) (term start Aug 2015)

Elected co-Chair of Governors State University Institutional Review Board (IRB) (term start Aug 2015)

NORTHWESTERN UNIVERSITY PROSTHETIC - ORTHOTIC CENTER

Publications:

Sletto, L., Robinson, C., Wu, Y. (2015) Dilatancy-based Impression and Fabrication Technique for Custom Foot Orthoses. *Prosthetics and Orthotics International*, March 11, 2015:1-5.

Major MJ, Raghavan P, Gard SA. (2015) Assessing a low-cost accelerometer-based technique to estimate spatial gait parameters of lower-limb prosthesis users. *Prosthetics and Orthotics International*, available online March 2nd, 2015.

Major MJ. (2015) Editor's Comments. *Journal of Prosthetics and Orthotics* (in press).

Major MJ, Caldwell R, Fatone S. (2015) Evaluation of a prototype hybrid vacuum pump to provide vacuum-assisted suspension for above-knee prostheses. *Journal of Medical Devices* (in press).

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* (in press).

Presentations:

Wu, Y., Sletto, L. Robinson, C., Casanova, H., Michael, J., Gard, S.A. (2015) Innovative Dilatancy Prosthetic-Orthotic Technologies for Low-Income Countries. 11th Annual Lewis Landsberg Research Day, Northwestern University, April 2, Chicago, IL.

Orendurff M., **Stine R., Fatone S., Major M.**, Corson K., Kobayashi T., Bjornson K. (2015) Reliability of kinematic gait data when learning a new marker placement model at a new location. Accepted for presentation, the 2015 Annual Meeting of the Gait and Clinical Movement Analysis Society, Portland, OR, March 18-21, 2015.

Boutwell E., Stine R., Gard S. (2015) "The Effect of Prosthetic Stiffness on Shock Absorption during Transtibial Gait." 2015 Annual Meeting of the Gait and Clinical Movement Analysis Society, Portland, OR, March 18-21, 2015.

Boutwell E., Gard S. (2015) "Effect of Prosthetic Stiffness on Impact Forces during Walking and Sudden Limb Loading." (Poster). BME Research Day, Northwestern University, Chicago, IL, April 30, 2015.

Lipschutz, R.D., and Rotter, D.B. (2015). "Childhood to Adolescence: A Review of Emerging Technologies." Association of Children's Prosthetic-Orthotic Clinics (ACPOC) Annual Meeting, May 13 – 16, 2015.

Lipschutz, R.D., Hesidenz, V., Rivera, S., and Mangan, N. (2015). "Intervention to Provide Weight Bearing for a Young Child with Multiple Congenital Anomalies: A Challenging Case." Association of Children's Prosthetic-Orthotic Clinics (ACPOC) Annual Meeting, May 13 – 16, 2015.

Fatone S, Caldwell R (2015) An Introduction to Sub Ischial Sockets with Vacuum Assisted Suspension. Midwest Chapter, American Academy of Orthotists and Prosthetists Annual Meeting and Scientific Session, May 27-29, Rosemont, IL.

Tran L, Fatone S, Caldwell R (2015) Stakeholder Input on Development of a Residual Limb Health Monitoring System. Midwest Chapter, American Academy of Orthotists and Prosthetists Annual Meeting and Scientific Session, May 27-29, Rosemont, IL.

Sherwood A, **Fatone S, Brinkmann, J.** (2015) Using Good Patient/Practitioner Communication: Benefits to Health Care Practitioners. Midwest Chapter, American Academy of Orthotists and Prosthetists Annual Meeting and Scientific Session, May 27-29, Rosemont, IL.

Stefania Fatone's presentation at the American Academy of Orthotists and Prosthetists annual meeting in February 2015 was highlighted in the March issue of *Lower Extremity Review*: Foster JB (2015) More restrictive orthotic devices boost balance over time in children with CP. *Lower Extremity Review*, 7(2):13.

Larissa Sletto, Yeongchi Wu, Chris Robinson, John Michael, Steven Gard (2015): Dilatancy-based Impression and Fabrication Technique for Custom Foot Orthoses. Midwest Chapter AAOP, Annual Meeting and Scientific Session, May 27-29, , Rosemont, IL.

Yeongchi Wu, Larissa Sletto, Chris Robinson, John Michael, Steven Gard (2015): Dilatancy System for Fabricating Ankle-Foot Orthoses & TLSO's, Midwest Chapter AAOP, Annual Meeting and Scientific Session, May 27-29, 2015, Rosemont, IL.

Meetings:

Stefania Fatone, PhD, BPO (Hons), was invited to participate in the foundational Department of Defense (DoD) FY2014 Clinical and Rehabilitative Medicine Research Program (CRM RP) - Orthotics and Prosthetics Outcomes Research Program (OPORP) Peer Review Panel Meeting held in Reston, VA. March 16, 2015.

Stefania Fatone, PhD, BPO (Hons), was the Keynote Speaker for the 10th Annual Research Symposium, Mercy College of Health Sciences, April 13, 2015, in Des Moines, IA. Dr. Fatone presented “50 Years of Prosthetics and Orthotics Education and Research in the USA”.

Matthew Major, PhD, and **Stefania Fatone, PhD, BPO (Hons)**, participated in reviewing small grants and fellowships for the Orthotic and Prosthetic Education and Research Foundation for their 2015 award cycle.

Matthew Major, PhD, and **Stefania Fatone, PhD, BPO (Hons)**, participated in the Special Emphasis Panel/Scientific Review Group 2015/08 RRDS R meeting reviewing Small Projects (SPiREs) for the VA Office of Research and Development’s Rehabilitation Research and Development Service (RR&D).

Stefania Fatone, PhD, BPO (Hons), is currently chairing review of applications for the 2015 International Society for Prosthetics and Orthotics Australian National Member Society Research Grant.

Recognition/Awards:

Matthew Major, PhD, received recognition from the Archives of Physical Medicine and Rehabilitation for his contributions as an Elite Reviewer for 2014. This designation reflects the number, timeliness, and quality of reviews provided for the Archives in 2014 as judged by the editors and was bestowed on only 1% of all 2014 reviewers.

Laboratory Visits/Events:

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted an onsite educational program about prosthetics, orthotics and biomechanics for 30 students, their mentors and science teachers on March 28, 2015. NUPOC presented this event in support of STEM education and in association with the Big Shoulders/Exelon Explorers STEM Program.

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted a site visit by STEM students from Viterbo University (La Crosse, WI) on March 30, 2015.

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted an interactive STEM educational program and tour for 55 science students, their science teachers, and the Principal of Manchester South High School (Manchester, MO) on April 9, 2015.

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted an interactive STEM educational program and tour for 25 Advanced Placement science students and their teachers from Crystal Lake South High School (IL) on April 21, 2015.

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted an informative tour for 24 faculty and undergraduates on April 24, 2015. NUPOC hosted this tour in support of minority participants’ Introduction to Graduate Education at Northwestern Days (IGEN), one of The Graduate School initiatives to increase recruitment of under-represented minority students.

Grant Submissions:

Stefania Fatone, PhD, and Michael Dillon, PhD, submitted an application titled “Evaluating outcomes of dysvascular partial foot and Transtibial amputation: a systematic review and development of shared decision making resources” to the American Orthotic and Prosthetic Association on April 1, 2015.

Gard, S. and **Roth, E.** “RERC on Individual Mobility and Manipulation— Rehabilitation Engineering, Science & Technology: Outcomes, Research & Education (RESTORE)” Submitted to NIDILRR, on April 20, 2015.

Gard, S. “Design of a Smart Prosthetic Liner Controlled by Muscle Activation Feedback.” Submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on March 10, 2015.

Major, M. “Design of a Low-Cost Prosthetic Foot with Physiological Roll-Over and Push-Off.” Submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, March 15, 2015.

Grant Awards:

Stefania Fatone, PhD, received Recommendation for Funding from the Department of Defense (DoD) office of Congressionally Directed Medical Research Programs for her application “Functional Performance Evaluation of the Northwestern University Flexible Subischial Vacuum (NU-FlexSIV) Socket for Persons with Transfemoral Amputation.”

Matthew Major, PhD, and Keith Gordon, PhD, received pilot funding from the Northwestern University Clinical and Translational Sciences Institute for their application “Frontal-Plane Stability of Below-Knee Prosthesis Users.”

Letters of Intent:

Stefania Fatone, PhD, and **John Michael, CPO, MEd**, submitted an internal LOI on April 1 2015 to the Northwestern University Office of Research Development for a limited submission funding opportunity “Health Careers Opportunity Program (HCOP)” from Health Resources and Services Administration.

Gard, S. “Optimization of Prosthetic Foot and Ankle Stiffness for Standing and Walking.” Submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on May 1, 2015.

Gard, S. and **Wu, Y.** “Refinement and Evaluation of Improved Method for Transfemoral Socket Fabrication.” Submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on May 1, 2015.

Gard, S. “Justifying Vacuum Suspension: Effects on Proprioception, Energy and Locomotion.” Submitted to the Department of Veterans Affairs, Rehabilitation Research & Development Service, on May 1, 2015.