Scholarly Activities  
Department of Physical Medicine and Rehabilitation  
March – June 2014  

**REGULAR FACULTY**

**Brenna Argall:**

Presented at the 2nd USC Symposium on the Future of Robotics, April

**James Atchison:**
2013 Clinical and Rehabilitative Medicine Research Program (CRMRP-PM1), Peer Review Meeting- April 2-3, 2014. Panel Member/ Scientific Reviewer. (Government Project)

March 2014 AAPM Meeting- Phoenix, AZ -  
3/7/14- Session: Management of Knee Osteoarthritis: What is Missing From the Treatment Guidelines. Presentation Title: Applying Interdisciplinary Principles of Pain Management to Persons with Knee OA.  

**Karina Bouffard:**
Lecture on Cancer Pain, RIC Residents, April 16

Appointed Board Member, Midwest Pain Society, April 2014

Appointed Co-editor, Midwest Pain Society Newsletter, April 2014

**Nenad Brkic:**
Lectures:  
PM&R Residents – Agitation management after TBI  
NMH Medical Students – Overview of TBI (3 presentations December – March)
L. R. Cherney

Publications:


Presentations:


Meulenbroek, P., & Turkstra, L. Communication deficits associated with separation of competitive work in persons with TBI. Presented at the Ninth World Congress on Brain Injury, San Francisco, CA (March, 2014).


Deborah Gaebler:


Eulah J, Gaebler-Spira D. Homogeneity Of Solid Ankle Foot Orthosis Design Among A Heterogenous Group Of Children With Cerebral Palsy - Anaheim, CA - March 5-8, 2014

Ghannad L, Pavone L, Gaebler-Spira D. Prevalence of Vitamin D Deficiency in Children and Young Adults with Disability. Academic Academy of Physiatry – Nashville, TN, February 27, 2014

Katherina K.Y. Hauner:

Co-presented lecture with Dr. Jordan Grafman at the Annual Interdisciplinary Stroke Course at RIC on April 11, 2014. Title of lecture: Neuropsychological Consequences of Stroke

Grants:
Julius N. Frankel Foundation (Co-I Hauner) 03/01/14 – 02/28/18
Effects of Prefrontal Transcranial Direct Current Stimulation on Cognitive Control
The major goal of this grant is to use transcranial direct current stimulation (tDCS) to target and enhance activity in the prefrontal cortex, in order to determine if increased neuronal excitability in this region of the brain will lead to reductions in impulsive behavior.

Allen Heinemann:


Grant Submitted: PCORI, Evaluating the Clinical Feasibility and Validity of PROMIS Item Banks following Stroke (Principal Investigator)

Keynote Speaker, University of Wisconsin, Milwaukee College of Health Sciences Research Day, May 2, 2014.

Eric Larson:


Presented” PTSD and Criminal Law: Background. Invited Presentation at The Veterans Club, Northwestern University Law School, Chicago, IL.


Christina Marciniak:

Marciniak C, O'Shea SA, Lee J, Jesselson M, Dudas-Sheehan D, Beltran EJ, Gaebler-Spira DJ. Urinary Incontinence in Adults with Cerebral Palsy: Prevalence, Type and Effects on Participation. PM&R 2014, February 6(6) 110-120

Laura Miller:


Debjani Mukherjee:


Matthew Oswald:


Lecture on Rehabilitation and Disability Ethics to the Mercy Children’s Hospital Ethics Committee, Kansas City, MO. May 2014.

Eric Perreault:
Corticomotor excitability of arm muscles modulates according to static position and orientation of the upper limb
JPM Mogk, LM Rogers, WM Murray, EJ Perreault, JW Stinear
Clinical Neurophysiology
Dealing with Target Uncertainty in a Reaching Control Interface
EA Corbett, KP Körding, EJ Perreault
PLOS ONE 9 (1), e86811
Evidence for reticulospinal contributions to
CF Honeycutt, M Kharouta, EJ Perreault
J. Neurosci 34 (1), 275-281

Joel Press:


“The Past, Present, and Future of Musculoskeletal Rehabilitation” Guest Speaker, Research Day, Stanford University, Department of Physical Medicine and Rehabilitation. April 9th, 2014

David Ripley:


Zev Rymer (with other PM&R Faculty):

Motor unit firing rate patterns during voluntary muscle force generation: a simulation study
X Hu, WZ Rymer, NL Suresh
Journal of neural engineering 11 (2), 026015, 2014

Accuracy assessment of a surface electromyogram decomposition system in human first dorsal interosseus muscle
X Hu, WZ Rymer, NL Suresh
Journal of neural engineering 11 (2), 026007, 2014

Asymmetries in vestibular evoked myogenic potentials in chronic stroke survivors with spastic hypertonia: evidence for a vestibulospinal role
DM Miller, CS Klein, NL Suresh, WZ Rymer
Clinical Neurophysiology, 2014

Finger-thumb coupling contributes to exaggerated thumb flexion in stroke survivors.
DG Kamper, HC Fischer, MO Conrad, JD Towles, WZ Rymer, ...
Journal of neurophysiology, 2014

Quantifying the Deep Tendon Reflex Using Varying Tendon Indentation Depths: Applications to Spasticity
MK Chardon, WZ Rymer, NL Suresh
Neural Systems and Rehabilitation Engineering, IEEE Transactions on 22 (2 ...

Disturbances of Motor Unit Rate Modulation are Prevalent in Muscles of Spastic-Paretic Stroke Survivors.
CJ Mottram, CJ Heckman, RK Powers, WZ Rymer, NL Suresh
Journal of neurophysiology, 2014

A Clinically Applicable Approach for Detecting Spontaneous Action Potential Spikes in Amyotrophic Lateral Sclerosis With a Linear Electrode Array
F Jahanmiri-Nezhad, X Li, PE Barkhaus, WZ Rymer, P Zhou  

Anodal Transcranial Direct Current Stimulation Alters Elbow Flexor Muscle Recruitment Strategies  
C Krishnan, R Ranganathan, SS Kantak, YY Dhaher, WZ Rymer  
Brain Stimulation, 2014

Characterizations of Reflex and Nonreflex Changes in Spastic Multiple Sclerosis  
LQ Zhang, K Chen, SH Kang, L Wang, J Sliwa, BA Cohen, WZ Rymer  
Journal of neuroscience methods, 2014

Daily intermittent hypoxia enhances walking after chronic spinal cord injury A randomized trial  
HB Hayes, A Jayaraman, M Herrmann, GS Mitchell, WZ Rymer, ...  
Neurology 82 (2), 104-113, 2014

Suppression of stimulus artifact contaminating electrically evoked electromyography  
J Liu, S Li, X Li, C Klein, WZ Rymer, P Zhou  
NeuroRehabilitation, 2014

Other activities:  
- Neilsen Foundation Study Section Review, March 31-April 1, Hollywood FL  
- Bloorview Research Institute External Review, May 14-16, Toronto, Ontario  
- K12 RRCD Program, 2014 Annual Advisory Board Meeting, May 19-20, Galveston TX  
  Neural Control of Movement (NCM), April 21-24, Amsterdam, Netherlands

**Thomas Schnitzer:**  
Grant Award from the Department of Defense (SC120125): Prevention of Bone Loss after Acute SCI by Zoledronic Acid: Durability, Effect on Bone Strength and Use of Biomarkers to Guide Therapy


**Steven Stanos:**  
Lecture: 3/19: Worker’s Comp (advanced series, attended by PGY3 and PGY4;  
3/26: Opioids I (advanced series)

March 2014 AAPM Meeting – Phoenix, AZ  
Assessment and Physical Exam. Presentation Title #2: Shoulder and Hip Pain: Assessment and Physical Exam.
3/9/14- Advancing the Ethics of Pain Management

3/11/14- Grand Rounds- New Jersey, Saint Peters University Hospital
Title: How about: Improving outcomes for chronic pain: Functional restoration, an interdisciplinary approach.

Houston, TX


4/24/14 Speaker: Challenges in the Assessment & Treatment in Chronic Pain . NAMCP spring forum, Orlando, FL

Preya Tarsney:

RESEARCH FACULTY

Anne Deutsch:

Deutsch A. Quality and Safety: Key Performance Indicators. Nancye B. Holt Management Course The Leadership and Operational Tool Box for Managing in Rehabilitation. Chicago, Il; March 11, 2014.


Ongoing service
Chair, ACRM Award Committee
Rehabilitation Nurses Foundation, member
Dissertation Committee member, UTMB, Amit Kumar, OT Doctoral Student, University of Texas Medical Branch 2014-present; Comorbidities and Functional Outcomes

Assaf Dvorkin:
Presented: Giving the brain a (virtual) hand: Visuo-motor function following brain injury.
Department of PT, University of Massachusetts, April 2, 2014
Presented: Giving the brain a (virtual) hand: Use of technology for assessment and remediation of attention following brain injury. Department of OT, University of Wisconsin Madison, March 28, 2014

Linda Ehrlich-Jones:
Grants funded
U34 AR064513 Ramsey-Goldman/Ehrlich-Jones (Principal Investigators)
05/01/14 - 04/30/16 NIH/NIAMS $785,020
Planning Activity and Nutrition Trial in Lupus to Energize & Renew (ANTLER)

PVA Education Foundation- Ehrlich-Jones (Principal Investigator)
6/1/14-5/31/15 $45,000
Improving Psychosocial Outcomes following SCI/D with Measurement Resources

Ongoing service
Co-Chair WFO, Northwestern University


External Committee member for doctoral dissertation, “Benchmarking Role Acquisition and Perceptions of Role Among United States Rheumatology Nurses: A Mixed Methods Study” by Sheree Campbell Carter, Georgia Baptist College of Nursing of Mercer University, Atlanta, GA.

Levi Hargrove:

EJ Rouse, LJ Hargrove, EJ Perreault, TA Kuiken “Estimation of Human Ankle Impedance During the Stance Phase of Walking”, IEEE Transactions of Neural Systems and Rehabilitation Engineering


AJ Young, LH Smith, EJ Rouse, LJ Hargrove, “A comparison of the real-time controllability of pattern recognition to conventional myoelectric control for discrete and simultaneous movements”, Journal of NeuroEngineering and Rehabilitation
Patents:


LJ Hargrove, Association of Professional Engineering and Geoscientists of New Brunswick, Young Professional Achievement Award

Mehdi Mirbagheri:


Annie Simon:


ADJUNCT / OTHER FACULTY


Kristi Kirschner:
--FSM M1 Plenary: Musculoskeletal Clinical Correlation: Patients with Disabilities, April 28,2014 (with Judy Panko Reis)


Theresa Savage:

Lecture on Disability Ethics to philosophy students (honors course) at Loyola University, Chicago campus. March 2014


NORTHWESTERN UNIVERSITY PROSTHETIC - ORTHOTIC CENTER

Publications:


Presentations:

Yeongchi Wu, MD, was an invited presenter at the 2014 Annual Georgia Society of Orthotists and Prosthetists held in Atlanta, GA, April 3-5, 2014. Dr. Wu presented a talk, “A Priori of O&P Casting Technology”, and a 90-minute workshop on “Plasterless Casting Techniques for O&P Applications.”


Educational Tours:

NUPOC hosted the 9th group of the Initiative ‘93 Technical Orthopedics German-Speaking Travel Fellowship for a day-long symposium of scientific and technical exchange on March 3, 2014. Founded during the 1992 International Society of Prosthetics and Orthotics (ISPO) World Congress that was held in Chicago, the goals of Initiative ‘93 are to promote skills among German-speaking orthopedists; promote training in Orthopedics & Trauma Surgery; support a Chair of Technical Orthopaedics at the University of Münster; and publish articles in the Journal of Orthopaedics and Traumatology. Steven A. Gard, PhD, Stefania Fatone, PhD, William Johnson, PhD, Erin Boutwell, MS, Craig Heckathorne, MS, and Yeongchi Wu, MD, presented on their research.

Northwestern University Prosthetics-Orthotics Center (NUPOC) hosted an interactive educational program and tour for science teachers and 50 Advanced Placement science students from Parkway South High School (Manchester, MO) on April 10, 2014. R. J. Garrick, PhD, developed this program in support of STEM (Science Technology Engineering & Mathematics) education initiatives. Steven A. Gard, PhD, Chris Robinson, CPO/L, and Yeongchi Wu, MD presented didactic modules.

Laboratory Visits/Events:

Stefania Fatone, PhD, BPO (Hons), Ryan Caldwell, CP/L, FAAOP, and the research and education programs at NUPOC were featured in an article that is circulated to Scheck & Siress corporate members, their practitioners and consumers describing the many ways that

NUPOC research by Stefania Fatone, PhD, and Craig Heckathorne, MS, on the prosthetic needs of farmers and ranchers with amputation was featured in an article “When State-of-the-Art is Second Best” in NovaNEXT, March 5, 2014.


Research by Stefania Fatone, PhD, and Australian colleagues Drs. Michael Dillon and Meg Morris, on partial foot amputation was featured in an article “Uncertainty in diabetes amputations” in MJA InSight, March 17, 2014.


The NUPOC ERGO Soiree and an instructional course by Stefania Fatone, PhD, and Ryan Caldwell, CP, were featured in an article “The Academy Celebrates 40 Years” in The O&P Edge, April, 2014, as being among the most well attended at the recent meeting of the American Academy of Orthotists and Prosthetists. [http://www.oandp.com/articles/2014-04_13.asp](http://www.oandp.com/articles/2014-04_13.asp) Brian Robillard, MS, earned his Master’s degree in biomedical engineering on March 5, 2014. Advised by Dr Stefania Fatone, Brian conducted research at NUPOC that culminated in his thesis, “Design of a Process for Fabricating Prosthetic Sockets with Additive Manufacturing Technology.” Brian has accepted a post as Associate Consultant at Mars & Co.

Meetings:

**Dr. Steven Gard** participated in a Rehabilitation Engineering Research Center (RERC) proposal review panel for the National Institute on Disability and Rehabilitation Research (NIDRR) in April 2014.

Grant Awards:

 Principal Investigators Yongang Huang, PhD, Stefania Fatone, PhD, John Coleman, PhD, Todd Anderson, PhD were awarded a collaborative research grant from the National Institute of Health to develop an “Interface Monitoring System to Promote Residual Limb Health.” This 4 year grant is scheduled to start June 1 2014.

Grant Submissions:


**Dr Stefania Fatone** collaborated on an application to the Shriners Hospitals for Children for a Clinical Research Grant on “Ankle-Foot Orthoses Footwear Combinations: The Impact of Biomechanical Optimization.” (Principal Investigator: Jeremy Bauer, MD). Submitted April


Letter of Intent Submissions:
