

CAROLYNN PATTEN, PhD, PT, FAPTA

Director, Neural Control of Movement Lab

Research Career Scientist
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Physical Therapy, Neurology, Applied Physiology & Kinesiology
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EDUCATION

<u>SCHOOL</u>	<u>LOCATION</u>	<u>DATE</u>	<u>DEGREE</u>
Stanford University VA Career Development Awards (Levels I & II): Motor Unit Firing Patterns in Post-stroke Hemiparesis	Stanford, CA	1998-2004	Postdoctoral Fellow
University of Massachusetts Dissertation: Adaptations in Human Motor Unit Control Properties: Influences of Aging and Training	Amherst, MA	1998	PhD (Exercise Neuroscience)
Boston University Research Option: Use of Accelerometry to Measure Postural Sway	Boston, MA	1992	MS (Physical Therapy)
University of Washington	Seattle, WA	1980	BA (Kinesiology)

RESEARCH INTERESTS

My research focuses on understanding the neural basis of human movement with the overriding goals of: i) elucidating mechanisms of movement dysfunction in adult neuropathologies; ii) determining capacity for motor recovery following central nervous system injury; and iii) identifying critical factors that contribute to rehabilitation efficacy. To achieve these goals, my research program investigates:

- neural mechanisms and biomechanical consequences of CNS pathologies causing motor dysfunction;
- novel approaches of neuromodulation to promote behavioral motor recovery;
- neuromechanical characteristics of therapeutic responders and non-responders;
- development of customized therapies using innovative methods, including computational modeling.

This translational neuroscience research combines expertise in neurophysiological (i.e., transcranial magnetic stimulation (TMS), EMG, motor unit recordings, reflex probes), neuroimaging, biomechanical (measures of force production, kinetics), behavioral (kinematics), and clinical approaches to study human performance. As a result, my research crosses disciplines including motor control, neuroscience, biomechanics, clinical medicine, rehabilitation and bioengineering. From a practical standpoint, my research influences clinical care in neurorehabilitation and therefore helps individuals with motor dysfunction resulting from neuropathologies, such as stroke, maximize recovery, restore activity participation, and optimize quality of life.

ACADEMIC EXPERIENCE

<u>DATES</u>	<u>POSITION</u>	<u>INSTITUTION</u>
2016 – date	Professor	Department of Physical Therapy University of Florida, Gainesville, Florida
2007- 2016	Associate Professor	Department of Physical Therapy University of Florida, Gainesville, Florida

2005-2007	Clinical Associate Professor	Department of Orthopaedic Surgery Division of Functional Restoration Stanford University School of Medicine
2005-2007	Clinical Assistant Professor	Department of Physical Therapy & Rehabilitation Science University of California, San Francisco
2004-2007	Adjunct Assistant Professor	Department of Rehabilitation Sciences Boston University
2003-2005	Consulting Assistant Professor	Department of Orthopaedic Surgery Division of Functional Restoration Stanford University School of Medicine
2002-2004	Assistant Professor	Department of Rehabilitation Sciences Boston University
1998-2003	Consulting Assistant Professor	Department of Functional Restoration Stanford University School of Medicine

PROFESSIONAL EXPERIENCE

<u>DATES</u>	<u>POSITION</u>	<u>INSTITUTION</u>
04/1995-01/1998	Physical Therapist	Optimum Rehab Sundance Rehabilitation University Health Services- UMass/Amherst
01/1995-04/1995	Clinical Specialist	Boston VA Medical Center
06/1993-01/1995	Senior Physical Therapist	Boston VA Medical Center
09/1992-06/1993	Physical Therapist	Baltimore VA Medical Center

AWARDS AND HONORS

Higher Education Resource Services (HERS) Academic Leadership Institute	07/2017
Catherine Worthingham Fellow, FAPTA American Physical Therapy Association	03/2016
University of Florida Research Foundation Professor University of Florida	05/2015 – 2018
Full Scholarship to Event-Related Potentials Neuroscience Summer School University of California Davis, Center for Mind & Brain (Steven Luck, PhD)	07/2015
Research Career Scientist Rehabilitation Research and Development Service, Department of Veteran's Affairs	2015-2020
Dean's Citation Paper Award – University of Florida College of Public Health & Health Professions	09/2014
Linda Crane Research Award Florida Physical Therapy Association	08/2014
Employee Recognition Award VA Brain Rehabilitation Research & Development Center of Excellence	12/2013
Visiting Scientist-- Neural Control of Movement Lab The Pannum Institute, University of Copenhagen, DENMARK	06-07/2012, 11/2011

Greene Memorial Lecturer Department of Physical Therapy Springfield College, MA	04/2011
Research Career Scientist Rehabilitation Research and Development Service, Department of Veteran's Affairs	2010-2015
Clinician Publication Award California Chapter American Physical Therapy Association	2007
Visiting Scientist Fellowship Faculty of Biomedical Kinesiology Katholieke University, BELGIUM	11/2006
Speaker Dept. of Veterans Affairs Senior Management Conference	08/2004
Honoree America Physical Therapy Association - Profiles in Excellence	12/2003
Advanced Research Career Development Award Rehabilitation Research and Development Service, Department of Veteran's Affairs	2001-2004
Outstanding Presentation 2nd National VA Rehabilitation R&D Service Conference	02/2000
John V. Basmajian Student Investigator Award International Society for Electrophysiology & Kinesiology	1998
Research Career Development Award Rehabilitation Research and Development Service, Department of Veteran's Affairs	1998-2001
Employee Performance Award VA Palo Alto Health Care System – Rehab Research & Development Center	1998
Boston University Women's Graduate Club Scholarship	1995
Employee Performance Award Boston VA Medical Center - Physical Medicine and Rehabilitation Service	1994
Department of Veteran's Affairs Health Professions Scholarship	1990-1992
Student Advisory Board, Class Representative Department of Physical Therapy, Sargent College, Boston University	1990-1992
Employee Performance Award Seattle VAMC - General Medical Research	1988,1989,1990

RESEARCH EXPERIENCE

<u>DATES</u>	<u>POSITION</u>	<u>INSTITUTION</u>
10/2010-Present	Research Career Scientist (GS-14) BRRC Upper-extremity Research Initiative Leader Director, Neural Control of Movement Lab	Brain Rehabilitation Research Center Malcom Randall VAMC
10/2008-09/2010	Senior Research Scientist (GS-14) Upper Extremity Research Initiative Leader Director, Neural Control of Movement Lab	Brain Rehabilitation Research Center Malcom Randall VAMC
08/2007-10/2008	Research Scientist (GS-13) Upper Extremity Research Initiative Leader Director, Neural Control of Movement Lab	Brain Rehabilitation Research Center Malcom Randall VAMC

03/2004-08/2007	Research Scientist RR&D Center Core Principal Investigator	Brain Rehabilitation Research Center Malcom Randall VAMC
03/1998-02/2004	Post-Doctoral Fellow	Rehabilitation R&D Center of Excellence - VA Palo Alto
09/1995-01/1998	Graduate Research Assistant	Motor Control Laboratory Department of Exercise Science University of Massachusetts
09/1993-08/1995	Graduate Research Assistant	Motor Control Laboratory Department of Physical Therapy Boston University
05/1991-07/1992	Research Assistant	Motor Control Laboratory Department of Physical Therapy Boston University
07/1987-06/1990	Research Associate & Lab Manager	Department of Otolaryngology/Head & Neck Surgery Seattle VA Medical Center

PUBLICATIONS

ISI Researcher ID – B-4804-2009 ORCID – 0000-0002-9948-0045 SCOPUS ID 7006031491

Summary – Over 50 original, peer-reviewed manuscripts published. A number of these are highly cited (12 >100, 5 >200) works in human motor neurophysiology, neuromechanics and neurorehabilitation (current H-index: 26 per ISI, 33 per google scholar).

Name denotes student or fellow as first author, name* denotes student or fellow supervised by C Patten, †denotes senior/corresponding author.

PEER-REVIEWED PUBLICATIONS

1. Sethi A, Richards LG, Patterson T, McGuirk TE, **Patten C**, Stergiou N. Speed and rhythm affects temporal structure of variability in reaching movements post-stroke: a pilot study, *Journal of Motor Behavior*. doi:10.1080/00222895.2016.1219304, published online Oct 11, 2016, PMID: 2776692.
2. Meyer AJ, Eskinazi I, Jackson JN, Rao AV, **Patten C**, Fregly BF. Muscle Synergies Facilitate Computational Prediction of Subject-specific Walking Motions. *Frontiers in Bioengineering and Biotechnology - Bionics and Biomimetics*, 4 (77), Sept 2016, PMID: 27790612.
3. Archer DB, Misra G, **Patten C**, Coombes SA. Microstructural properties within the corticospinal tract and central visual pathway predict visuomotor performance in chronic stroke, *Hum Br Mapp*, 37 (6): 2039-54, 2016. doi.10.1002/hbm.23155. PMID: 26920656
4. Colon-Perez L, Triplett W, Price CC, Ford A, Corti M*, Nguyen P, Fitzgerald DB, Leonard C, Crosson B, **Patten C**, Mareci TH. A majority-rule approach for region-of-interest guided streamline fiber tractography. *Brain Imaging and Behavior*, ePub Nov 16, 2015, PMID 26572144.
5. Wagle Shukla A, Shuster J, Chung JW, Vaillancourt D, **Patten C**, Ostrem JL, Okun MS. Systematic review and meta-analysis of rTMS therapy in Parkinson's Disease, *Phys Med & Rehab*, 24 Aug 2015 pii: S1934-1482(15)00970-3. doi: 10.1016/j.pmrj.2015.08.009. Review. PMID: 26314233.
6. Reid KF, Martin KI, Doros G, Clark DJ, Hau C, **Patten C**, Phillips EM, Frontera WR, Fielding R.A. Comparative Effects of light or heavy resistance power training for improving lower extremity power and physical performance in mobility-limited older adults. *Journal of Gerontology A: Biological and Medical Sciences*, 2015 Mar;70(3):374-80. doi: 10.1093/gerona/glu156. PMID: 25199912.
7. Little VL*, McGuirk TE, **Patten C**†. Impaired limb shortening in gait post-stroke: What's in a name? *PLoS One*, 16 Oct, 2014, DOI: 10.1371/journal.pone.0110140. PMID: 25329317

8. Phadke CP*, Robertson CT*, **Patten C†**. Upper-extremity reflex inhibition is reproducible and strongly related to grip force post-stroke. *Int'l Journal of Neuroscience*, 125 (6): 441-448, 2015. doi:10.3109/00207454.2014.946990, PMID: 24703887.
9. Rose DK*, **Patten C**, McGuirk TE, Lu X, Triggs WJ. Does Inhibitory Repetitive Transcranial Magnetic Stimulation Augment Functional Task Practice to Improve Arm Recovery in Chronic Stroke? *Stroke Research & Treatment*, Vol 2014: ID305236, 2014. PMID: 25197611.
10. Clark DJ*, Reid KF, **Patten C**, Phillips EM, Ring SA, Wu SS, Fielding RA. Does quadriceps neuromuscular activation capability explain walking speed in older men and women? *Exp Gerontol*. 2014 Jul; **55**:49-53. doi: 10.1016/j.exger.2014.03.019. epub 2014 Apr 2. PMID: 24703887.
11. Reid KF, Pasha E, Doros G, Clark DJ*, **Patten C**, Phillips EM, Frontera WF, Fielding RA. Longitudinal decline of lower extremity muscle power in healthy and mobility-limited older adults: influence of muscle mass, strength, composition, neuromuscular activation and single fiber contractile properties. *Eur J Appl Physiol*, **114 (1)**: 29-39, 2014. PMID: 24122149
12. McGregor KM, Nocera JR, Sudhyadhom A, **Patten C**, Manini T, Kleim JA, Crosson B, Butler AJ. Effects of aerobic fitness on aging-related changes of interhemispheric inhibition. *Frontiers in Aging Neuroscience. Research Topic: From Brain to Body: The Impact of Nervous System Declines on Muscle Performance in Aging*, **5:66**, 2013 doi: 10.3389/fnagi.2013.00066. PMID: 24198784
13. Clark DJ*, Pojednic R, Reid K, **Patten C**, Pasha E, Phillips EM, Fielding RA. Longitudinal decline of neuromuscular activation capacity and power in older adults. *Journal of Gerontology A: Biological and Medical Sciences*, **68(11)**: 1419-25, 2013. PMID: 23676250
14. Clark DJ*, Manini TM, Fielding RA, **Patten C**. Neuromuscular determinants of fast walking speed in healthy, well functioning older adults. *Exp Gerontol*, **48(3)**: 358-63, 2013, PMID: 23376102
15. Sethi A, Patterson T, McGuirk TE, **Patten C**, Richards LG, Stergiou N. Temporal structure of variability decreases in upper-extremity movements post-stroke. *Clin Biomech*, **28(2)**: 134-9, 2013. PMID: 23337766
16. **Patten C**, Condliffe EG, Dairaghi CA & Lum PS. Concurrent neuromechanical and functional gains following upper-extremity power training post-stroke. *J NeuroEng & Rehab*, **10:1**, 2013 PMID: 23336711.
17. Clark DJ*, **Patten C†**. Eccentric versus concentric resistance training to enhance neuromuscular activation and walking speed following stroke. *Neurorehabilitation Neural Repair*, **27(4)**: 225-44, 2013 PMID: 23292848
18. McGregor KM, Heilman KM, Nocera JR, **Patten C**, Manini TM, Crosson B, Butler AJ. Aging, aerobic activity and interhemispheric communication. *Brain Sciences*, 2(4): 634-648, 2012. doi: 10.3390/brainsci2040634.
19. Lodha N*, **Patten C**, Coombes SA, Cauraugh JH. Bimanual force control strategies differ between finger extension and power grip in chronic stroke. *Neuropsychologia*, 50(11): 2536-45, 2012. PMID: 22781814.
20. Pojednic RM, Clark DJ*, **Patten C**, Reid KF, Phillips EM and Fielding RA. The specific contributions of force and velocity to muscle power in older adults. *Exp Gerontology*, 47(8): 608-13, 2012. PMID: 22626972.
21. Spiess MR*, Jaramillo JK, Behrman AL, Teraoka JK, **Patten C†**. Unexpected recovery after Robotic Locomotor Training at Physiologic Stepping Speed. *Arch PM&R*, 93(8): 1476-84, 2012. PMID: 22446153
22. Corti M*, McGuirk TE, Wu SS, **Patten C†**. Recovery of Upper Extremity Motor Function Post-stroke: Differential Effects of Two Therapeutic Interventions. *Neurorehabilitation and Neural Repair*, 26(7): 842-54, 2012. PMID: 22357633.
23. Phadke CP*, Condliffe EG*, Robertson CT*, **Patten C†**. Inter-limb differences and test-retest reliability of flexor carpi radialis H-reflex measurement post-stroke. *Clinical Neurophysiology*, 123(8): 1606-15, 2012. PMID: 22277759.
24. Corti M*, **Patten C†**, Triggs WJ. Repetitive transcranial magnetic stimulation of motor cortex after stroke: A Systematic Review. *Am J PM&R*, 91(3): 254-270, 2012. PMID: 22042336
25. Reid KF, Doros G, Clark DJ*, **Patten C**, Carabello RJ, Cloutier G, Phillips EM, Krivickas L, Frontera W and Fielding RA. Muscle power failure in mobility-limited older adults: preserved single fiber function despite lower whole muscle size, quality and neuromuscular activation. *Eur J Appl Physiol*, 112(6): 2289-301, 2012. PMID: 22005960.

26. **Naik S***, **Patten C**, Lodha N, Coombes SA, Cauraugh JH. Force control deficits in chronic stroke: Grip formation and release phases. *Experimental Brain Research*, 211: 1-15, 2011. PMID 21448576
27. **Clark DJ***, **Patten C**, Reid KR, Carabello RJ, Phillips EM, Fielding R.A. Muscle Performance and Physical Function Are Associated With Voluntary Rate of Neuromuscular Activation in Older Adults. *Journal of Gerontology A: Biological and Medical Sciences*, 66(1): 115-121, 2011. PMID: 20829294
28. **Clark DJ***, **Patten C**, Reid KR, Fielding RA, impaired voluntary neuromuscular activation limits muscle power in mobility-limited older adults. *Journal of Gerontology A: Biological and Medical Sciences*, 65(5): 495-502, 2010. PMID: 20156882
29. DeGroot F, Pipeleers G, Jonkers I, Demeulenaere J, **Patten C**, Swevers J, De Schuter J. A physiology based inverse dynamic analysis of human gait: potential and perspectives. *Computer Methods in Biomechanics and Biomedical Engineering*, 12(5): 563-74, 2009. PMID: 19319704
30. **Westlake KP***, **Patten C†**. Pilot study of robot versus manual-assisted treadmill training for locomotor recovery post-stroke. *J NeuroEng & Rehab*, 6(18), 2009. PMID: 19523207
31. **Jonkers I***, Delp SL, **Patten C†**. Capacity to increase walking speed is limited by impaired hip & ankle power generation in lower functioning persons post-stroke. *Gait & Posture*, 29(1): 129-37, 2009. PMID: 18789692
32. **Pak SS***, **Patten C†**. Strengthening to promote functional recovery post-stroke: an evidence-based review. *Topics in Stroke Rehabilitation*, 15(3): 177-199, 2008. PMID: 18647724
33. **Wagner JM***, Rhodes JA*, **Patten C†**. Reproducibility and minimal detectable change of three-dimensional kinematic analyses of forward reaching tasks in person with post-stroke hemiparesis. *Physical Therapy*, 88(5): 652-63, 2008. PMID: 18326055
34. **Chen G***, **Patten C†**. Joint moment work during the stance-to-swing transition in hemiparetic subjects. *Journal of Biomechanics*: 41(4): 877-83, 2008. PMID: 18067898
35. Chen G. and **Patten C†**. Treadmill training with harness support: selection of training parameters for individuals with post-stroke hemiparesis. *J Rehab Res & Dev*, 43(4): 485-498, 2006. PMID: 17123188
36. Clark DJ*, Condliffe EG*, **Patten C†**. Activation impairment alters muscle torque-velocity in post-stroke hemiparesis. *Clinical Neurophysiology*, 117(10): 2328-2337, 2006. PMID: 16926111
37. **Patten C**, Dozono JM, Jue ME, Schmidt SG, Lum PS. Combined functional motor retraining and dynamic high intensity resistance training promotes recovery of upper-extremity motor recovery in post-stroke hemiparesis. *J Neurol PT*, 30(3): 99-115, 2006. PMID: 17029654
38. Kautz SA, **Patten C**, Neptune R. Does unilateral pedaling activate a rhythmic locomotor pattern in the non-pedaling leg in post-stroke hemiparesis? *Journal of Neurophysiology*, 95(5): 3154-63, 2006. PMID: 16452259
39. Clark DJ*, Condliffe EG*, **Patten C†**. Reliability of concentric and eccentric torque during isokinetic knee extension in post-stroke hemiparesis. *Clin Biomech*, 21(4): 395-404, 2006. PMID: 16403594
40. Chen G, **Patten C**, Kothari D. and Zajac FE. Gait deviations associated with post-stroke hemiparesis: improvement during treadmill walking using weight support, speed, support stiffness, and handrail hold. *Gait & Posture*, 22(1): 57-62, 2005. PMID: 15996593
41. Chen G, **Patten C**, Kothari D. and Zajac FE. Gait differences between individuals with post-stroke hemiparesis & non-disabled controls at matched speeds. *Gait & Posture*, 22(1): 51-56, 2005. PMID: 15996592
42. Condliffe EG*, Clark DJ*, **Patten C†**. Reliability of elbow stretch reflex assessment in chronic post-stroke hemiparesis, *Clinical Neurophysiology*, 116(8): 1870-1878, 2005. PMID: 15979400
43. Kautz SA, **Patten C**. Interlimb Influences on Paretic Leg Function in Post-stroke Hemiparesis. *Journal of Neurophysiology*, 93(5): 2460-73, 2005. PMID: 15590727
44. Flansbjerg UB, Holmback AM, Downham D, **Patten C**, Lexell J. Reliability of Gait Performance Tests in Men and Women with Hemiparesis After Stroke. *J Rehab Med*, 37: 75-82, 2005. PMID: 15788341
45. Kim CM, Kothari DH, Lum PS, **Patten C†**. Reliability of Dynamic Muscle Performance in the Hemiparetic Upper-Limb. *J Neurol PT*, 29(1): 9-17, 2005. PMID: 16386156
46. Lum PS, **Patten C**, Kothari D, Yap R. Effects of velocity and angle on elbow torque during isokinetic strength testing in post-stroke hemiparesis. *Muscle & Nerve*, 30: 732-42, 2004. PMID: 15468340

47. **Patten C**, Lexell J, Brown HE. Weakness and strength training in persons with post-stroke hemiplegia: Rationale, Method, and Efficacy. *J Rehab Res & Dev*, 41(3A): 293-312, 2004. PMID: 15543447
48. **Patten C**, Meyer RA & Fleckenstein JL. T2 Mapping of Muscle. Dynamic and Functional Musculoskeletal Imaging--*Sem Musculoskel Radiology*, Vol 7, No 4: 297-305, 2003. PMID: 14735428
49. **Patten C**, Kothari D, Whitney JA, Lexell J & Lum PS. Reliability and Responsiveness of Elbow Trajectory-tracking in Chronic Post-stroke Hemiparesis. *J Rehab Res & Dev*, 40(6): 487-500, 2003. PMID: 15077661
50. **Patten C**, Horak FB, Krebs DE. Head & Body Center of Gravity Control Strategies: Adaptations Following Vestibular Rehabilitation. *Acta Oto-laryngologica*, 123(1): 32-40, 2003. PMID: 12625570
51. **Patten C**, Kamen G, Rowland DM. Adaptations in Maximal Motor Unit Discharge Rate Following Strength Training in Young and Older Adults. *Muscle & Nerve*, 24: 542-550, 2001. PMID: 11268027
52. **Patten C**, Kamen G. Adaptations in Motor Unit Discharge Activity with Force Control Training in Young and Older Adults. *Eur J Appl Physiol*, 83, 128-143, 2000. PMID: 11104053
53. **Patten C**. Reeducating Force Control in Older Persons Through Strength Training. *Topics in Geriatric Rehabilitation*, 15(3), 47-59, 2000.
54. Leong B, Kamen G, **Patten C** & Burke JR. Maximal motor unit discharge rates in the quadriceps muscles of older weightlifters. *Med Sci Sports & Exercise*, 31(11), 1638-1644, 1999. PMID: 10589869
55. Kamen G, **Patten C**, Du CC & Certo CME. An Accelerometry-based system for the assessment of balance and postural sway. *Gerontology*, 44: 40-45, 1998. PMID: 9436014
56. Kamen G, Sison SV, Du CC, **Patten C**. Motor Unit Discharge Rates During Maximal Effort in Older Adults, *J Appl Physiol*, 79:1908-1913, 1995. PMID: 8847252
57. **Patten C**, Hillel AD. The Eleventh Nerve Syndrome: Accessory Nerve Palsy or Adhesive Capsulitis? *Archives of Otolaryngology/Head and Neck Surgery*, (119), 1993. PMID: 8427686

PUBLICATIONS UNDER REVIEW

- **Banks CL***, Pai M, McGuirk TE, Fregly BJ, **Patten C†**. "EMG Synergy Analysis Differentiates Responders and Non-Responders Post-stroke," *Frontiers in Computational Neuroscience*, revision submitted 5/11/17.
- Archer D, **Patten C**, Coombes SA. Free-water and free-water corrected fractional anisotropy in primary and premotor corticospinal tracts in chronic stroke. *Human Brain mapping*, revision2 submitted, 5/8/17.
- Meyer A.J., **Patten C.**, Fregly B.J. Lower Extremity EMG-to-Moment Modeling for Walking with Automated Calibration of Musculoskeletal Geometry. *PLoS One*, revision3 submitted 4/17/17.
- **Little VL***, McGuirk TE, Banks CL*, Batchelor KJ*, **Patten C†**. "Unilateral Stepping Improves Paretic Single Limb Support Following Stroke." *Physical Therapy*, submitted 1/06/17.
- Bianco NA, **Patten C.**, Fregly B.J. Can measured muscle synergies reconstruct unmeasured muscle excitations? *Journal of Biomechanical Engineering – Transactions ASME*, revision submitted 11/23/16
- **Elrod JM**, McGuirk TE, **Patten C†**. Neuromechanical effects of a wearable exoskeleton robotic device on sit-to-stand performance following stroke, *J Neuroengineering and Rehabilitation*, submitted 10/30/16.
- **Little VL***, McGuirk TE, Perry LA, Kautz SA, **Patten C†**. Pelvic excursion during walking post-stroke: a novel classification system. *Neurorehabilitation & Neural Repair*, submitted 9/30/16.

PUBLICATIONS IN PREPARATION (Data Collection Complete)

- **Patten C†**, Corti M*, McGuirk TE, Duker KE*, Triggs WJ. Individual Differences in Response to Upper-extremity rehabilitation post-stroke. *In preparation for Brain Sciences*
- **Little VL***, Mercado MM*, Perry LA, Rooney K, Kautz SA, **Patten C**. Acute spatio-temporal changes in response to locomotor training conditions post-stroke. *In preparation for Neurorehabil Neural Repair*.
- **Patten C**, Little VL, Walker ER, McGuirk TE. Brain-behavior correlates of walking dysfunction following stroke," *In preparation for Clinical Neurophysiology*.

- **Patten C.**, Patil S*, Lu X, Distinct patterns of walking recovery following therapeutic intervention post-stroke: Responders vs. Non-Responders. *In preparation for Stroke.*
- Sethi A, Richards LG, Patterson T, McGuirk TE, **Patten C**, Stergiou N. Test-retest reliability and minimal detectable change of approximate entropy to quantify adaptability during arm movements post-stroke.
- **Patten C**, Lodha N, Corti M, Triggs WJ. Neurophysiological Evidence for Age-related Differences in Motor Lateralization, *in preparation for Cortex*
- Lodha N, Triggs WJ, **Patten C**. Differential Modulation of Interhemispheric Inhibition in Unimanual vs. Bimanual Task Conditions. *In preparation for Behavioral and Brain Research.*
- Little VL*, McGuirk TE, **Patten C**†. Speed-dependent effects on toe clearance and limb shortening: what do they tell us? *In preparation for Medicine and Science in Sports and Exercise.*
- Little VL*, McGuirk TE, Westlake KP, **Patten C**†. Adaptations in phasic interdependence of interjoint coordination post-stroke. *In preparation for Neurorehabil Neural Repair.*
- **Patten C**. Motor Unit Firing Patterns in Post-Stroke Hemiplegia. *In preparation for Clinical Neurophysiology*

EDITORIAL INVITATIONS

BOOK CHAPTERS

- **Patten C**, Little VL*, & McGuirk TE. Robotics for Stroke Recovery (ISBN 978-1-4471-2276-0). Chapter 15 (pp 255-290) In Neurorehabilitation Technology, Dietz V., Rymer W.Z., & Nef T., Editors. Springer, 2011. DOI: 10.1007/978-1-4471-2277-7_15.
- **Patten C.** & Craik RL. Sensorimotor changes and Adaptation in the Older Adult. In Geriatric Physical Therapy, 2nd Edition, Guccione, A.A., Editor. Mosby-Year Book, 2000.
- **Patten C**, Steindorf, S. Principles of Physical Therapy. In Outpatient Medicine, S. Fihn and S. McGee, Editors. W.B. Saunders & Co., 1992.
- Hillel AD, **Patten C**. Neck Dissection: Morbidity and Rehabilitation, in Head and Neck Oncology, Third Edition, Charlotte Jacobs, Editor. Kluwer Academic Publishers, 1989. PMID: 1976363

EDITORIAL/INVITED COMMENTARY

- **Patten C**, Gonzalez-Rothi EJ, Little VL, Kautz SA. Invited commentary on: Allowing intralimb kinematic variability during locomotor training poststroke improves kinematic consistency: a subgroup analysis from a randomized clinical trial. *Physical Therapy*, 2009; 89(8): e1-2. PMID: 19648104
- **Patten C**, Dozono JM, Jue ME, Schmidt SG, Lum PS. Its Not About the Muscle! Response to invited commentary. *J Neurol PT*, 30(3): 118-119, 2006. PMID: 17076032

MONOGRAPHS

- **Patten, C.** Motor Unit Firing Patterns and Age-related Changes. PROCID Symposium on Muscular Disorders in computer users: mechanisms and models. Copenhagen, 1999, pp 84-89.

BOOK REVIEWS

- **Patten C.** Review of Clinical Applications in Surface Electromyography, *Physical Therapy Journal*.
- **Patten C.** Review of Sedentary Life and Nutrition, *Topics in Geriatric Rehabilitation* 8(4), June 1993.

PATENTS and COPYRIGHTS

- Topp EL, **Patten C**, Inventors. Securing a TMS Coil to the Patient's Head. University of Florida Research Foundation, Inc., Assignee. United States Patent Application US-2015-0202453-A1, 2015.

ABSTRACTS

Name denotes student or fellow as first author, name* denotes student or fellow supervised by C Patten, § denotes international presentation

1. § **Patten C**, Little VL, Banks CL, McGuirk TE. Corticospinal Efficacy to the Medial Gastrocnemius Predicts Gait Function Following Stroke. *Society for Neuroscience Abstracts*, 2017.

2. Little VL*, **Patten C**. Desensitization of paretic limb sensory input contributes to gait dysfunction post-stroke. APTA Combined Sections Meeting, San Antonio, TX, February, 2017.
3. Rose DK*, **Patten C**. Does Excitatory rTMS Augment Functional Task Practice to Improve Arm Recovery Post-stroke? APTA IV STEP Conference, Columbus, OH, July, 2016.
4. Banks CL*, Little VL*, Walker ER*, **Patten C**. Exaggerated Dorsiflexion Excitability: A Biomarker for Gait Impairment Following Stroke? BANCOM, Biomechanics and Neural Control of Movement Conference, Deer Creek, Ohio, June 2016.
5. Ding Q*, Kamath SM*, Triggs WJ, **Patten C**. SICI during voluntary movement reveals persistent impairment in cortical stroke. BANCOM, Biomechanics and Neural Control of Movement Conference, Deer Creek, Ohio, June 2016.
6. **Patten C**, Topp EL, Walker ER*, Banks CL*, Little VL*. Does TMS perturb the Gait Cycle? BANCOM, Biomechanics and Neural Control of Movement Conference, Deer Creek, Ohio, June 2016.
7. Little VL*, Walker ER*, Banks CL*, **Patten C**. Intracortical Circuits Reveal Muscle- and Task-specific Dysfunction Contributing to Weakness Following Stroke. International Stroke Conference, Los Angeles, CA, February, 2016. Abstracted in: *Stroke*, 47(2): 2016.
8. **Patten C**, Ding Q*, Kamath SM*, Triggs WJ. SICI during voluntary movement reveals persistent impairment in cortical stroke. International Stroke Conference, Los Angeles, CA, February, 2016. Abstracted in: *Stroke*, 47(2): 2016.
9. Banks CL*, Little VL*, Walker ER*, **Patten C**. Exaggerated Modulation of Dorsiflexor MEPs During Plantarflexion Correlates with Gait Dysfunction Post-stroke. APTA Combined Sections Meeting, Anaheim, California, February, 2016.
10. Otzel DM, Fielding RA, **Patten C**, Reid KF, Phillips EM, Clark DJ. Quantifying voluntary neuromuscular activation in older adults: a comparison of methodological techniques. Gerontological Society of America, Annual Meeting, November 2015.
11. Walker ER*, Little VL*, **Patten C**. Long-Interval Inhibition, Not Cortical Silent Period, Reveals Sub-Populations Among Stroke Survivors. Neural Engineering Session, Biomedical Engineering Society Annual Meeting, Tampa, Florida, October, 2015.
12. Bianco NA, **Patten C**, Fregly BJ. Can measured muscle synergies reconstruct unmeasured muscle excitations? Summer Biomechanics, Bioengineering & Biotransport Conference (SB³C2015), Snowbird, Utah, June 2015.
[Winner, Undergraduate Student Paper Competition, Summer Bioengineering Conference]
13. Meyer AJ, **Patten C**, Fregly BJ. Subject-specific calibration of geometric neuromusculoskeletal models. Summer Biomechanics, Bioengineering & Biotransport Conference (SB³C2015), Snowbird, Utah, June 2015.
[Finalist - Graduate Student Paper Competition, Summer Bioengineering Conference]
14. Archer DB, Misra G, Vaillancourt DE, **Patten C**, Coombes SA. Error Augmentation in Chronic Stroke: Behavioral and Neuroanatomical Correlates. Society For Neuroscience, Washington D.C., November 2014.
15. Elrod JM, McGuirk TE, **Patten C†**. Induced Kinetic Adaptations During Sit-to-Stand Using a Robotic Exoskeleton. World Congress of Biomechanics, July, 2014.
[Finalist, World Congress of Biomechanics Student Paper Competition]
16. Rose DK*, Triggs WJ, **Patten C†**. Use of Contralesional Inhibitory rTMS to augment task practice post-stroke. APTA Combined Sections Meeting, February, 2014. *J Neurol PT*, 2013 & www.JNPT.org.
17. Little VL*, McGuirk TE, Lodha N*, **Patten C†**. Influence of structural vs. functional corticospinal tract integrity on gait performance post-stroke. APTA Combined Sections Meeting, February, 2014. Abstracted in: *J Neurol PT*, 2013 & www.JNPT.org.
18. Archer DB, Misra G, **Patten C**, Coombes SA. Probabilistic tractography of transcallosal motor tracts in the chronic phase after stroke. Society for Neuroscience Abstracts, 2013.

19. § Little VL*, McGuirk TE, Lodha N*, **Patten C†**. Structural vs. functional corticospinal tract integrity serving plantarflexors post-stroke. Society for Neuroscience Abstracts, 2013.
20. § Lodha N*, Triggs WJ, **Patten C†**. Modulation of inter-hemispheric inhibition during bimanual gripping following stroke. Society for Neuroscience Abstracts, 2013.
21. § **Patten C**, White EA*, Lodha N*. Unilateral activation of the less affected limb to task failure facilitates the ipsilesional hemisphere post-stroke. Society for Neuroscience Abstracts, 2013.
22. Rose DK*, Triggs WJ, **Patten C†**. Enhancing arm recovery post-stroke: Use of Contralesional Inhibitory rTMS to augment task practice. American Congress of Rehab Med, Annual Conference, November, 2013.
23. § Meyer, A.J., **Patten, C.**, Fregly, B.J. A surrogate model for lower extremity EMG-to-moment estimation during walking. *Proceedings of the XXIV Congress of the Int'l Society of Biomechanics*, Brazil, August, 2013.
24. Reid KF, Martin K, Doros G, Clark DJ*, **Patten C**, Phillips EM, Hau C, Frontera WR, Fielding RA. Comparative effects of high velocity and low velocity power training on muscle performance, muscle mass and functional ability in mobility-limited elders: a randomized trial. Annual FASEB Meeting, April, 2013
25. McGregor KM, Heilman K, **Patten C**, Manini T, Crosson B, Butler A. Aging, aerobic activity and interhemispheric communication. Annual Meeting Cognitive Neuroscience Soc, San Francisco, April, 2013.
26. § **Patten C**, McGuirk TE, Patil S*. Paretic leg muscle coordination improves during overground walking with the Tibion Bionic Leg. Second Singapore Rehabilitation Conference, February, 2013.
27. § **Patten C**, Patil S*, McGuirk TE. Actuated assistance with the Tibion Bionic Leg improves weight bearing symmetry during sit-to-stand in individuals post-stroke. Second Singapore Rehabilitation Conference, February, 2013.
28. Little VL*, McGuirk TE, **Patten C†**. Debunking the notion of so-called foot-drop post-stroke. APTA Combined Sections Meeting, January, 2013. Abstracted in: J Neurol PT, 36(4), 2012 & www.JNPT.org. **[Graduate Student Research Award, American Physical Therapy Association - Neurology Section]**
29. Little VL*, McGuirk TE, **Patten C†**. Reduced walking speed disrupts interjoint coordination in the absence of pathology. APTA Combined Sections Meeting, January, 2013. **[Selected for presentation in the Gossman Symposium, APTA - Section on Research]**
30. Rose DK*, **Patten C†**. How well does inhibitory rTMS augment functional task practice to improve arm recovery post-stroke? APTA Combined Sections Meeting, January, 2013. Abstracted in: J Neurol PT, 36(4), December, 2012 & www.JNPT.org.
31. § Clark DJ*, Manini TM, **Patten C**. Plantarflexor force impairment contributes to emerging walking deficits in healthy older adults. International Conference on Sarcopenia Research, Orlando, FL, December, 2012.
32. § Little VL*, McGuirk TE, **Patten C†**. So-called 'Foot-Drop' post-stroke: Not a dorsiflexor impairment. Proceedings International Conference on Neurorehabilitation, Toledo, Spain, November, 2012. In: Pons JL, Torricelli D, & Pajaro M, eds. *Converging Clinical and Engineering Research on Neurorehabilitation: Part II*. Berlin, Germany: Springer; 2013:691-695. doi: 10.1007/978-3-642-34546-3_112. **[Finalist, Int'l Conference on NeuroRehabilitation Student Paper Competition]**
33. § **Patten C**, McGuirk TE, Patil S*. Effects of 'Intention-based' Robotic Exoskeleton on Muscle Activation Patterns During Overground Walking. Proceedings International Conference on Neurorehabilitation, Toledo, Spain, November, 2012. 10.1007/978-3-642-34546-3_18
34. § Patil S*, McGuirk TE, **Patten C†**. Effect of a Wearable Robotic Leg Orthosis on Weight Bearing Symmetry During Sit-to-Stand in Individuals Post-stroke. Proceedings International Conference on Neurorehabilitation, Toledo, Spain, November, 2012. 10.1007/978-3-642-34546-3_17
35. § Roemmich R, **Patten C**, Corti M*, Stegemöller E, Hass C. Split-belt treadmill training alters inter-hemispheric interactions and improves interlimb coordination in persons with Parkinson's disease. Society for Neuroscience Abstracts, 2012.
36. Meyer, A.J., **Patten, C.**, and Fregly, B.J. A novel statistical method for EMG-to-moment estimation during gait. *Proceedings of the 36th Annual Meeting of the American Society of Biomechanics*, August, 2012.

37. Little VL*, McGuirk TE, Perry LA, **Patten C†**. Pelvic Excursion During Walking Post-stroke. Proc Am Soc for Biomechanics Annual Meeting, August, 2012. Abstracted in: Digital Conference Proceedings: 36th Annual American Society for Biomechanics, Gainesville, FL, p. 617-618 (2012).
http://www.asbweb.org/conferences/2012/topics/ASBAbstracts_final.pdf
38. Patil S*, **Patten C†**. Distinct patterns of recovery following therapeutic intervention post-stroke: Responders vs. Non-Responders. Proc Am Soc for Biomechanics Annual Meeting, August, 2012.
39. Little VL*, McGuirk TE, **Patten C†**. Is the problem really foot drop? Proc Am Soc for Biomechanics Annual Meeting, August, 2012. Abstracted in: Digital Conference Proceedings: 36th Annual American Society for Biomechanics, Gainesville, FL, p. 619-620 (2012).
http://www.asbweb.org/conferences/2012/topics/ASBAbstracts_final.pdf
40. Lodha N*, Corti M*, Triggs WJ, **Patten C†**. Interhemispheric Inhibition and Motor Lateralization: Relationship to Age. Proc Am Soc for Biomechanics Annual Meeting, August, 2012.
41. Guri A*, Corti M*, **Patten C†**. Priming the motor system – Passive and Active Movements Induce Distinct GABA-ergic effects. Proc Am Soc for Biomechanics Annual Meeting, August, 2012.
42. Corti M*, **Patten C†**. Power Training Post-stroke Engages Neural Circuits at Spinal and Supraspinal Levels. Proc Am Soc for Biomechanics Annual Meeting, August, 2012.
43. Meyer AJ, **Patten C**, Fregly, B.J. Evaluation of a Novel Statistical Method for EMG-to-Moment Estimation During Gait. Proceedings of the ASME 2012 Summer Bioengineering Conference, June 2012.
doi:10.1115/SBC2012-80926 [Student Award Competition, Second Place]
44. Triplett WH, Price CC, Ford A, Corti M*, Nguyen P, Fitzgerald DB, Leonard C, Crosson B, **Patten C**, Mareci T. Reproducibility in diffusion-weighted MRI fiber tractography of the human corticospinal tract. University of Florida College of Medicine Research Day, March, 2012.
45. Patil S*, Jonkers I*, Liu X, **Patten C†**. Distinct Patterns of Walking Recovery Following Therapeutic Intervention Post-stroke: Responders vs. Non-responders. Abstracted in: J Neurol PT, 35(4), 211, 2011 & www.JNPT.org.
46. Phadke C*, Robertson CT*, Condliffe EG*, **Patten C†**. Correlation between FCR H-reflex inhibition and grip strength post-stroke. Abstracted in: J Neurol PT, 35(4), 214, 2011 & www.JNPT.org.
47. Little VL*, McGuirk TE, Perry LA, **Patten C†**. Pelvic excursion during walking post-stroke: a novel classification system. APTA Combined Sections Meeting, Section on Research, February, 2011.
48. Corti M*, Naik S, McGuirk TE, Triggs WJ, **Patten C†**. Power training reduces inter-hemispheric competition post-stroke. APTA Combined Sections Meeting, Section on Research, February, 2011.
49. Bowden M*, Behrman AL, Gregory C*, **Patten C**, Kautz SA. Translational Biomechanics: Development of Portable Quantitative Measurement. Abstracted in: J Neurol PT, 34(4), 227, 2010.
50. Little VL*, Marcoux KL*, Gonzalez-Rothi EJ*, McGuirk TE, **Patten C†**. Inter-joint coordination: Differential changes following locomotor training post-stroke. Abstracted in: J Neurol PT, 34(4), 227, 2010 and www.JNPT.org.
51. § Lodha N*, **Patten C**, Naik SK*, Cauraugh JH. Bimanual grip force modulation in chronic stroke. Society for Neuroscience Abstracts, 2010.
52. Spiess M*, Jaramillo JK, Behrman AL, Teraoka JK, **Patten C†**. Does reestablished reciprocal stepping pattern EMG from treadmill training transfer to over ground walking in iSCI? Data from a case study. 4th National Spinal Cord Injury Conference, October, 2010.
53. § **Patten C**, McGuirk TE, Robertson CT*, Gonzalez-Rothi EJ*, Little VL*. A quantitative EMG approach to identify subject-specific parameters of enhanced bilateral locomotor output post-stroke. Proceedings Society for Neural Control of Movement, April, 2010.
54. § Patil S*, Jonkers I*, **Patten C†**. Therapeutically-induced improvements in stance phase muscle coordination post-stroke. Proceedings Society for Neural Control of Movement, April, 2010.

55. § Little VL*, McGuirk TE, Gonzalez-Rothi EJ*, Westlake KP*, **Patten C†**. More is not always better. Adaptations in muscle activation patterns during overground gait following locomotor training. Proceedings Society for Neural Control of Movement, April, 2010.
 56. § Gonzalez-Rothi EJ*, McGuirk TE, Little VL*, Robertson CT*, **Patten C†**. Externally-Driven Biomechanically Coordinated Stepping with Asymmetrical Guidance Enhances Bilateral Motor Output Post-stroke. Proceedings Society for Neural Control of Movement, April, 2010.
 57. § Robertson CT*, Little VL*, Gonzalez-Rothi EJ* and **Patten C†**. External Biomechanical Control of Locomotion Normalizes the Bilateral Sensorimotor State Post-stroke. Proceedings Society for Neural Control of Movement, April, 2010.
 58. § Corti M*, **Patten C†**. Differential adaptations in elbow stretch reflex modulation in persons post-stroke. Proceedings Society for Neural Control of Movement, April, 2010.
 59. Little VL*, Gonzalez-Rothi EJ*, McGuirk TE, Westlake KP*, **Patten C†**. Joint Kinetics Adapt Bilaterally Following Locomotor Training Post-stroke. Abstracted in: J Neurol PT, 33(4): 234, 2009.
 60. Patil S*, Jonkers I*, **Patten C†**. Unilateral paretic limb power training produces bilateral locomotor effects post-stroke. Abstracted in: J Neurol PT, 33(4): 234, 2009.
- [Graduate Student Research Award, APTA Neurology Section]**
61. Gonzalez-Rothi EJ*, Little VL*, McGuirk TE, Jaramillo J, **Patten C†**. Neuromechanical adaptations following locomotor training post-stroke. Abstracted in: J Neurol PT, 33(4): 235, 2009.
 62. Corti M*, **Patten C†**. Power training improves stretch reflex modulation in persons post-stroke. Abstracted in: J Neurol PT, 33(4): 235, 2009
 63. § Gonzalez-Rothi EJ*, Little VL*, McGuirk TE, Jaramillo J, **Patten C†**. Walking-related outcomes following locomotor training post-stroke. European Society for Movement Analysis in Adults and Children (ESMAC). London, **UK**, September, 2009. Abstracted in: Gait & Posture, 30 (Suppl 2): S130, 2009.
 64. § Little VL*, Gonzalez-Rothi EJ*, McGuirk TE, Westlake KP*, **Patten C†**. Gait adaptations following locomotor training post-stroke. European Society for Movement Analysis in Adults and Children (ESMAC). London, **UK**, September, 2009.
 65. § **Patten C.**, Corti, M*, McGuirk, T.E. Improved coordination of reach-to-grasp post-stroke: learning the movement vs. changing the strategy. Proceedings International Society for Posture & Gait Research (ISPGR), Bologna, **Italy**, June, 2009.
 66. § Corti M*, McGuirk TE, **Patten C†**. Differential adaptations in reaching control post-stroke: movement execution vs. coordination. Proceedings International Society for Posture & Gait Research (ISPGR), Bologna, **Italy**, June, 2009.
 67. Gregory CM, Bowden MG, **Patten C**, Vandenborne KE, Kautz SA. Improved metabolic efficiency post-stroke is associated with increased walking velocities. American Physical Therapy Association-Combined Sections Meeting, Las Vegas, NV, 2009.
 68. § Westlake KP*, **Patten C†**. Comparative Study of Two Motor Learning Approaches to Restoration of Locomotion Post-Stroke, Society for Neuroscience Abstracts, 2008.
 69. § Corti M*, McGuirk TE, **Patten C†**. Differential effects on kinematics of free reaching after functional task practice and dynamic resistance training in low functioning persons post-stroke. Proceedings 2nd Summer School - Advanced Technologies for Neuro-motor Assessment & Rehabilitation. STARTER: Strategic Network for Assistive & Rehabilitation Technology, Bologna, ITALY, July 2008
 70. § Clark DJ*, Dairaghi CA, **Patten C†**. Effects of Concentric vs. eccentric resistance training on muscle strength and walking function in adults post-stroke. Society for Neural Control of Movement, May, 2008.
 71. § **Patten C**, Patil S*, Jonkers I*. Gait speed modulation in post-stroke hemiparesis. Proceedings Society for Neural Control of Movement, May, 2008
 72. Clark DJ*, **Patten C**, Reid KF, Carabello RJ, Phillips EM and Fielding RA. Slow rate of neuromuscular activation contributes to impaired movement acceleration and peak power in mobility-limited older adults. Abstracted in: FASEB J, 22:1163.9, 2008

73. Veeraraghavan K*, Wagner JM*, **Patten C†**. Differential effects of treatment outcomes based on chronicity of stroke and severity of upper extremity motor impairment. APTA Combined Sections Meeting, 2008. Abstracted in: *J Neurol PT*, 31(4): 191, 2007.
74. Rhodes JA*, **Patten C†**, Wagner JM*. Reliability and responsiveness of three-dimensional kinematic analysis of forward reach tasks in adults with post-stroke hemiparesis. APTA Combined Sections Meeting, 2008. Abstracted in: *J Neurol PT*, 31(4): 210, 2007.
75. § Jonkers I*, Delp SL, **Patten C†**. To what extent does walking speed influence the interpretation of gait analysis data in hemiparetic gait? European Society for Movement Analysis in Adults and Children (ESMAC). Athens, **GREECE**, September, 2007. Abstracted in: *Gait & Posture*, 26S: S3, 2007.
76. § Chen G*, **Patten C†**. Joint moment work during the stance-to-swing transition in hemiparetic subjects. Int'l Society for Posture & Gait Research, Burlington, VT, July, 2007.
77. § **Patten C**, Jaramillo JP, Grogan AP, Teraoka JK, and Chen G. Locomotor Training Speed Influences Lower Extremity Motor Activation in Clinically Motor Complete Spinal Cord Injury. International Society for Posture & Gait Research, Burlington, VT, July, 2007.
78. § Jonkers I*, Delp SL, **Patten C†**. Gait Speed Modulation is limited by impaired hip and ankle power generation in lower functioning persons post-stroke. International Society for Posture & Gait Research, Burlington, VT, July, 2007.
79. § Kautz SA, **Patten C**, Neptune RR, Worthen LC, Kim CM. The influence of mechanical load on the locomotor pattern in persons with post-stroke hemiparesis. International Society for Posture & Gait Research (ISPGR), Burlington, Vermont, July, 2007.
80. Clark DJ*, **Patten C**, Fielding RA. Does force or velocity contribute more to maximal power in older adults? Abstracted in: *Med Sci Sports & Exercise*, May, 2007
81. § **Patten C**, Dozono JM, Jonkers I*. Gait Speed Improves Significantly Following Dynamic, High-Intensity Resistance Training in Persons Post-stroke. International Stroke Conference, San Francisco, CA, February, 2007. Abstracted in: *Stroke*, 38(2): 465, 2007.
82. § Jonkers I*, Liu M, Arnold A, Thelen D, Anderson FC, **Patten C**, Delp SL. Factors that Impede Forward Progression during Hemiparetic Gait: A Simulation-Based Case Study World Congress of Biomechanics, **GERMANY**, July 2006.
83. § Clark DJ*, Condliffe E*, **Patten C†**. Activation impairment alters muscle torque-velocity in post-stroke hemiparesis. Society for Neuroscience Abstracts, 2005.
84. Jonkers I*, **Patten C**, Arnold A, Delp S. Is the reflex threshold during the pendulum test related to the onset of vastus excitation during hemiparetic gait? *Gait & Clinical Movement Analysis Society*, Portland, OR, Abstracted in: *Gait & Posture*, 22S: S34, 2005.
85. Clark DJ*, Condliffe E*, **Patten C†**. Reliability of Lower Extremity Torque Production in Persons with Post-Stroke Hemiparesis. Abstracted in: *Med Sci Sports & Exercise*, 37(S5): 292, 2005.
86. Jonkers I*, **Patten C**, Arnold A, Delp S. Does dynamic reflex threshold of knee extensors predict musculo-tendon lengthening velocity during hemiparetic gait? *Gait & Clinical Movement Analysis Society*, Portland, OR, April 2005.
87. § Condliffe E G*, Kothari DH, Lum PS, **Patten C†**. High-intensity Resistance Training Improves Reflex Modulation in Post-stroke Hemiparesis, Society for Neuroscience Abstracts, 2004.
88. § Kothari D*, McGill KC, **Patten C†**. Severity of Motor Dysfunction Corresponds with Activation Impairment in Post-stroke Hemiparesis. Society for Neuroscience Abstracts, 2004
89. § **Patten C**, Kothari DH, Condliffe EG*, Dairaghi C & Lum PS. Effects of Dynamic High-Intensity Resistance Training on Upper-extremity Motor Function and Power in Post-stroke Hemiparesis, World Federation for NeuroRehabilitation, Zurich, **SWITZERLAND**, Abstracted in: *Neurologie & Rehabilitation*, 4: S12, 2004
90. **Patten C**, Kothari DH, Condliffe E*, Yap R, Northrop S, Lum PS. Improvements in Dynamic Upper-extremity Strength and Motor Activation following Resistance Training Combined with Functional Motor Relearning in Post-stroke Hemiparesis. Abstracted in: *J Neurol PT*, 27(4): 188, 2003.

91. Lum PS, **Patten C**, Kothari DH, Yap R. Velocity-dependent deficits in torque production in post-stroke hemiparesis. Abstracted in: *J Neurol PT*, 27(4): 168, 2003.
92. Brown HE, Kothari DH, Yap R, Northrop S, Lum PS, **Patten C**†. Do Strength Gains Underlie Functional Improvement in Post-stroke Hemiparesis? *J Neurol PT*, 27(4): 167, 2003.
93. Kothari DH, Northrop S, Yap R, Condliffe EG, Lum PS, **Patten C**†. Upper-extremity Strength Gains following High Intensity Resistance Training Combined with Functional Motor Relearning in Post-stroke Hemiparesis. Abstracted in: *J Neurol PT*, 27(4): 167, 2003.
94. Northrop S, Brown HE, Kothari DH, Lum PS, **Patten C**†. Clinical Effects of Resistance Training Combined with Functional Motor Re-learning in Post-stroke Hemiparesis. Abstracted in: *J Neurol PT*, 27(4): 167, 2003.
95. § Kautz SA, **Patten C**, Neptune RR, Worthen LC, Kim CM. Bilateral Coordination Deficits Differ with Post-stroke Motor Recovery Status. Abstracted in: Society for Neuroscience Abstracts 2003
96. Chen G, **Patten C**, Kothari DH, and Zajac FE. Factors governing temporal symmetry in hemiparetic gait: Improvement on the treadmill with harness support. 8th Annual Gait and Clinical Movement Analysis Meeting, Wilmington, DE, May 7-10th, 2003.
97. § **Patten C**, Srisethnil J*, Asakawa D, Wright GA, Gold G. Imaging Activation Impairment in Post-stroke Hemiparesis. International Society for Magnetic Resonance in Medicine, Honolulu, HI, May 2002.
98. § Chen G, **Patten C**, Worthen LC, Kothari DH, and Zajac FE. Treadmill walking with harness support: Mechanical energetics in a healthy and hemiparetic subject. International Stroke Symposium, Kansas City, KS, April 26-28, 2002.
99. **Patten C**, Whitney JA*, Kothari D, Lum PS. Reliability of Elbow Trajectory Tracking in Chronic Post-stroke Hemiparesis, 2002 VA RR&D Meeting, February, 2002
100. Chen G, **Patten C**, Burgar CG, Kautz SA and Zajac FE. Harness-support compliance in treadmill training of post-stroke hemiparesis. Proceedings 25th Annual Meeting American Society of Biomechanics (2001), San Diego, CA. 389-390.
101. **Patten C**, Gardner MC*, Dickinson LM*, McGill KC, Zajac FE. Altered motor unit activity corresponds with weakness and locomotor disability in post-stroke hemiparesis. APTA Combined Sections Meeting, Abstracted in: *Neurology Report*, 24(5): 198, 2000.
102. Chen G, Schwandt D, Van der Loos H, Anderson J, Ferris DP, Zajac FE, Kautz SA, Burgar CG, **Patten C**, Neptune RR, Gordon KE. Compliance-adjustable, force-sensing harness support for studying treadmill training in neurologically impaired subjects. 6th Annual Gait and Clinical Movement; Analysis Meeting, Sacramento, CA. In *Gait & Posture* 13: 293-294, 2000.
103. § Kautz SA, **Patten C**, Neptune RR & Harvey J. Inter-limb coordination influences on the excitation of paretic leg muscles during lower limb tasks in persons with post-stroke hemiparesis. Society for Neuroscience Abstracts, 26: 163, 2000.
104. § **Patten C**, McGill KC, Rose J. & Lateva A. Common Drive Among Concurrently Active Motor Units in Cerebral Palsy and Post-stroke Hemiparesis. Society for Neuroscience Abstracts, 26: 462, 2000.
105. **Patten C**, Gardner MC*, Dickinson LM*, McGill KC & Zajac FE. Altered Motor Unit Activity Corresponds with Weakness & Locomotor Disability in Post-stroke Hemiparesis. APTA Combined Sections Meeting, 2001. Abstracted in: *Neurology Report*, 24(5): 198, 2000.
106. **Patten C**, Gardner M*, McGill KC & FE Zajac. Motor Unit Firing Patterns in Hemiparesis. 2nd National VA Rehabilitation Research & Development Service Conference, Washington, D.C., February, 2000.
107. **Patten C**, van Emmerik REA & Kamen G. Motor Unit Discharge Rate Variability: Adaptation in Frequency Content with Force Control Training. Abstracted in: *Med Sci Sports Ex*, 31(5), S136. 1999.
108. § Kamen G, **Patten C**, Rowland DM. Motor Unit Synchronization in Young and Older Adults Following Resistance Training. Society for Neuroscience Abstracts, 24: 424, 1998.
109. § **Patten C**, Kamen G, Rainsford KA & Porter MM. Adaptations in Antagonist Motoneuron Excitability in Young and Older Adults. Society for Neuroscience Abstracts, 23: 2237, 1997.

110. **Patten C**, van Emmerik REA & Kamen G. Motor Unit Discharge Rate Variability: Age and Training Related Adaptations in Frequency Content. Am College Sports Medicine, Annual Meeting, Denver, CO, May, 1997. Abstracted in: Med Sci Sports & Exercise, 29(5), S1127, May 1997.
111. **Patten C**, Kamen G. Adaptations in Human Motor Unit Discharge Behaviour to Strength Training. Society for Neuroscience, Washington, D.C., November, 1996.
112. § **Patten C**, Kamen G. Adaptations in Motor Unit Discharge Behaviour Following Isometric Resistance Training in Young and Older Adults. Proceedings Canadian Society for Biomechanics, Biennial Meeting, Vancouver, B.C., **CANADA** August, 1996.
113. § **Patten C**, Burke JR, Kamen G, Rowland D. Age and Practice Effects on Motor Unit Discharge Variability. Abstracted in Society for Neuroscience Abstracts, 21: 1433, 1995.
114. **Patten C**, Kamen G, Rowland D, Du CC. Rapid Adaptations in Motor Unit Firing Rate During the Initial Phase of Strength Development. American College of Sports Medicine, Annual Meeting, Minneapolis, MN, June 1995. Abstracted in: Med Sci Sports & Exercise, Supplement, June, 1995.
115. Leong B, Kamen G, **Patten C**, Du CC. Motor Unit Discharge Rates in Older Weight Lifters During Maximal Voluntary Contractions. American College of Sports Medicine, Annual Meeting, Minneapolis, MN, June 1995. Abstracted in: Med Sci Sports & Exercise, Supplement, June, 1995.
116. § Krebs DE, Riley PO, **Patten C**, Horak FB. Head and Body Center of Gravity (CG) Biomechanics: Locomotor Control Adaptations to Vestibular Loss and Rehabilitation. Processings Second World Congress of Biomechanics, Amsterdam, **THE NETHERLANDS**, July, 1994.
117. **Patten C**, Hillel AD. Comparisons of Upper Extremity Isokinetic Muscle Performance Between Older and Young Normal Adults. APTA Annual Conference, 1994. Abstracted in: Physical Therapy Journal, Volume 74 (5), Suppl. PO-084-T, 1994.
118. **Patten C**, Krebs DE, Horak FB, Riley PO. Head and Body Center of Gravity Control Strategies: Adaptations Following Vestibular Rehabilitation. APTA Annual Conference, 1994. Abstracted in: Physical Therapy Journal, Volume 74 (5), Suppl PL-351-SA, 1994.
119. § Kamen G, Sison SV, Du CC, **Patten C**. Motor Unit Discharge Rates During Maximal Effort in Older Adults. Proceedings Triennial Meeting of International Union of Physiological Scientists, Glasgow, **SCOTLAND**, July 1993.
120. **Patten C**, Kamen G, Sison SV, Du CC. Improvements in Balance in Young and Older Adults Documented by Accelerometry. Abstracted in: Med Sci Sports & Exercise, Volume 25 (5), S198, 1993.
121. **Patten C**, Kamen G, Sison SV, Du CC. Quantitative Assessment of Balance Performance in Young and Older Normal Subjects. Abstracted in: Neurology Report, 16 (4), 1993.
122. § Kamen G, **Patten C**, Du CC. Assessment of Balance Function in Older Adults. Proceedings International Society for Physical Activity, Aging, and Sport. Jyväskylä, **FINLAND**, June 1992.
123. **Patten C**, Hillel AD. The Eleventh Nerve Syndrome: Accessory Nerve Palsy or Adhesive Capsulitis? Abstracted in: Archives of Otolaryngology/Head and Neck Surgery, May 1991.

INVITED RESEARCH PRESENTATIONS

§ Denotes international invited presentation

PEER REVIEWED

- **Patten C**, Little VL, Condliffe EG. "A Mechanism-based Framework for Neurorehabilitation." **APTA NEXT Conference and Exposition**, Boston, MA, June, 2017.
- **Patten C**. "Interlimb Transfer Following Stroke." Linda Crane Research Award presentation, **Florida Physical Therapy Association Annual Conference**, Orlando, FL, September, 2015.
- § **Patten C**. "Muscle Synergies Differentiate Potential for Locomotor Recovery Following Stroke." Symposium contribution: Neuromechanical Characterization of Muscle Coordination, XX Congress **International Society for Electrophysiology and Kinesiology (ISEK)**, Rome, **ITALY**, July, 2014.

- § **Patten C.** "Synergy Analysis of Pre-treatment EMG Differentiates Responders and Non-responders to Stroke Rehabilitation." Special session contribution: Muscle Synergy Analysis: From Descriptive to Predictive Applications, 7th **World Congress of Biomechanics**, Boston, MA, July, 2014.
- **Patten C.** "Translating Research into Clinical Practice: Rehabilitation Robotics after Stroke." Stroke Special Interest Group Symposium, American Congress of Rehabilitation Medicine Annual Conference, Orlando, FL, November, 2013.
- § **Patten C.** "Neural mechanisms underlying motor deficits and neurorehabilitation." Satellite symposium at **International Society for Posture & Gait Research (ISPGR)**, Akita, **JAPAN**, June, 2013.
- Fregly, B.J. and **Patten C.** Model-based Stroke Rehabilitation. OpenSim Webinar. Hosted by The National Center for Simulation in Rehabilitation Research, Stanford University, Stanford, CA (www.opensim.stanford.edu), November 8, 2012.
- Fregly, B.J. and **Patten C.** "Model-based Stroke Rehabilitation." Clinical-Technical Symposium, Gait and Clinical Movement Analysis Society Annual Meeting, Grand Rapids, MI, May, 2012.
- **Patten C.** "Recipe for Success: Have we identified the active ingredients for locomotor training?" Symposium session at APTA Combined Sections Meeting, February, 2012.
- § **Patten C.** "Clinical Application of New Technologies – current developments in robotic locomotor training." **International Neurorehabilitation Symposium**, Zurich, **SWITZERLAND**, June, 2011.
- **Patten C.** "Recipe for Success: Have we identified the active ingredients for effective locomotor rehabilitation?" Symposium at APTA Combined Sections Meeting, February, 2011
- **Patten C.** "A Mechanism-based Framework for Neurorehabilitation." Invited Speaker, 31st Annual Braintree Neurorehabilitation Conference, Cambridge, MA. November, 2010.
- **Patten C.** "Upper-extremity motor recovery post-stroke: learning the movement or changing the strategy?" 31st Annual Braintree Neurorehabilitation Conference, Cambridge, MA, November, 2010.
- **Patten C.** "Robotic Gait Training Post-stroke – more than going through the motions." North American Neurorehabilitation Symposium, The Shepherd Center, Atlanta, GA; August, 2010
- **Patten C.** Therapeutic Effects on Neuromechanical Control of Gait Post-stroke. Contribution to Symposium: An instrumented step beyond gait speed: Mechanisms of Gait Dysfunction and Recovery Post-stroke. (Session Chair) APTA Combined Sections Meeting, February, 2010.
- **Patten C.** Behavioral Correlates of neurologic dysfunction & recovery: Assessments for translational research. Symposium contribution at Winter Conference on Brain Research, January, 2010.
- **Patten C.** Principles of Motor Learning for Neurorehabilitation. State of the Science Conference, Walter Reed Army Medical Center, Washington, D.C., January, 2009.
- **Patten C.** Intervention approaches for paralysis and weakness. Contribution to Concentrated Educational Series (Concentrated Educational Series): Recovery and Rehabilitation after Stroke, American Physical Therapy Association Annual Conference, San Antonio, TX, June, 2008.
- **Patten C.** Gait speed modulation in post-stroke hemiparesis. Contribution to Altering Locomotion through Learning and Conscious Control: implications for rehabilitation. Neural Control of Movement Society, Naples, FL, May, 2008.
- **Patten C.** Innovative Approaches to Promoting Upper-extremity Recovery. Contribution to: Emerging Therapies and Technologies in Brain Rehabilitation, VA HSR&D National Meeting, February, 2008.
- **Patten C.** Optimizing the scheduling and type of exercise to maximize functional outcomes. Invited contribution to symposium: Rehabilitation Intervention Effectiveness: Impact of Dose-response and Timing Post-stroke, International Stroke Conference, New Orleans, LA, February, 2008.
- § **Patten C.** Can strengthening produce functional improvements in gait following stroke? Invited contribution to symposium: Utilizing exercise as a Research and Rehabilitative Tool in Special Populations, Canadian Society of Exercise Physiology, London, Ontario, **CANADA**, November, 2007.

- **Patten C.** Effectiveness of Strengthening on Functional and Neurologic Recovery: Evidence From Adults and Children. Educational Session with Katherine Sullivan, PhD, PT and Samuel C. Lee, PhD, PT at APTA Annual Conference, Orlando, Florida, June, 2006.
- § **Patten C.** Dynamic High Intensity Resistance Training Improves Upper Extremity Motor Function, Power and Reflex Modulation Post-stroke. Invited contribution to symposium, Upper Extremity Motor Control & Rehabilitation, Biannual Motor Control Conference, Varna, **BULGARIA**, September, 2005.
- § **Patten C.** Evidence that both Motor Learning and strength Training drive Upper-extremity recovery Post-stroke, contribution to session: Neuroplasticity in Relation to Functional Recovery—What is the Human Clinical Evidence? III-STEP (Summer Institute on Translating Evidence into Practice: Linking Movement Science and Intervention), Salt Lake City, Utah, July, 2005.
- **Patten C.** Is there evidence for neurorehabilitation practice? Invited Symposium Contribution: Function-focused rehabilitation for the neurologic patient. APTA Annual Meeting, Anaheim, CA. June, 2001.
- **Patten C.** Motor unit firing patterns in Hemiplegia – Identifying Mechanisms Contributing to Weakness in Post-stroke Hemiparesis. Invited contribution to Symposium: From Gee Whiz to What Is? American Society of Neurorehabilitation, San Diego, California, April, 2000. (focus on applications of biomedical engineering in clinical practice of neurorehabilitation).
- **Patten C.** Measuring Clinically Important Aspects of Balance & Gait. Invited contribution to Symposium: Measurement of Balance & Gait, 2nd VA Rehabilitation Research & Development Service Meeting, Washington, D.C., February 2000.
- § **Patten C.** Motor unit firing patterns and age related changes Invited presentation for symposium on Motor unit firing patterns in voluntary movements. International symposium on Motor control in human voluntary upper limb precision tasks, Copenhagen, **DENMARK**, 25-27 November, 1999.
- § **Patten C.** Variability in Motor Unit Discharge Activity: Effects on Force Regulation and Movement Control with Aging. Presentation for Movement Control Symposium. International Society of Biomechanics, Calgary, Alberta, **CANADA**, August, 1999.
- **Patten C.** Managing Balance Problems in the Older Patient. Symposium Lecture for: Rehabilitation in the Elderly -- Neuro-Musculo-Skeletal Considerations. American Academy of Cardiovascular and Pulmonary Rehabilitation, Annual Conference. Orlando, Florida. October 1993.

NON-PEER REVIEWED

- **Patten C.** "Development of Functional Biomarkers for Neuromotor Recovery Following Stroke." Research Seminar, Center for Neurorestoration and Neurotechnology, Providence VAMC, Providence, RI, April, 2017.
- **Patten C.** "Upper-extremity Rehabilitation Post-stroke: are we asking the right questions?" Research Seminar, Rehabilitation Institute of Chicago, December, 2016.
- **Patten C.** "Technology Enabled Rehabilitation." Grand Rounds, Department of Physical Medicine and Rehabilitation, University of California Davis, September, 2016.
- **Patten C.** "Stroke Rehabilitation in Crisis – Transformative Opportunities for Neural Engineering." Invited Seminar, Department of Physical Medicine and Rehabilitation, University of California Davis, July, 2016.
- **Patten C.** "Neural and Biomechanical Mechanisms of Locomotor Potential post-stroke." Rehabilitation Sciences Seminar, Department of Physical Therapy, University of Florida, October, 2013.
- **Patten C.** "Rehabilitation Robotics – Paradigm Shift or Going Through the Motions?" Invited Speaker, Rehabilitation Robotics Seminar Series, University of Michigan, September, 2013.
- **Patten C.** "A Transcranial Magnetic Stimulation (TMS) Primer for Neurorehabilitation." Continuing Education Course, Brooks Rehabilitation Institute of Higher Learning, August, 2013.
- **Patten C.** "Differential adaptations in cortical and spinal circuits following upper-extremity rehabilitation post-stroke." Invited Speaker, Panther Rehab Grand Rounds, Department of Physical Medicine and Rehabilitation, University of Pittsburgh, July, 2013.

- **Patten C.** "Interlimb and Interhemispheric Asymmetries Following Stroke: Is it time to reconsider the role of the contralesional hemisphere?" Invited Seminar, Department of Rehabilitation and Movement Science, University of Vermont, April, 2013.
- **Patten C.** "From Motor Units to Motor Recovery Following Stroke – Insights from Neurophysiology Challenge Clinical Dogma." Invited Seminar, Physical Therapy Division, University of North Carolina, Chapel Hill, February, 2013.
- **Patten C.** "Power, Priming & Practice – Neural & Behavioral Effects on Upper-extremity Motor Recovery Post-stroke." Physical Therapy Program, University Minnesota Medical School. May, 2012.
- **Patten C.** "Identification of Responders and Non-responders Post-stroke - Insights gained by interpreting clinical change from a neuromechanical perspective." Invited Seminar, Department of Physical Medicine and Rehabilitation, University of Minnesota, March, 2012.
- § **Patten C.** "Settling for More Embracing a Translational Research Model for Rehabilitation." Faculty of Rehabilitation Medicine, University of Alberta, **CANADA**, October, 2011.
- **Patten C.** "Balancing Excitation and Inhibition in Motor Recovery Post-stroke" Invited Seminar, Center for Exercise Science, University of Florida, September, 2011.
- **Patten C.** "A Series of Unexpected Results: Do we understand the capacity for motor recovery post-stroke?" Physical Therapy and Rehabilitation Sciences, University of Maryland, August, 2011.
- **Patten C.** "From Motor Units to Motor Recovery Post-stroke." Invited Seminar at Integrative Neuroscience Research Center, Marquette University, May 10, 2011.
- **Patten C.** "Walking Recovery Post-stroke: Some do, some don't." SyNaPs – Brain Rehabilitation Research Center, Malcom Randall VA Medical Center, Gainesville, FL. February, 2010
- § **Patten C.** "Development of Infrastructure for a Multi-disciplinary Rehabilitation Research Program." Flinders University Medical School, Adelaide, **AUSTRALIA**. December, 2010.
- **Patten C.** "Retraining Gait Post-stroke – We're not doing what we think we're doing!" University of Florida/VA Aging and Rehabilitation Research Seminar, October, 2010.
- **Patten C.** "Bridging Science and Clinical Practice: You can be that Scientist!" Symposium at APTA Combined Sections Meeting, February, 2010.
- **Patten C.** A Tale of Two Hemispheres: Using TMS to Study How Inter-hemispheric Inhibition Affects Motor Function Post-stroke. Brain Rehabilitation Research Center, Malcom Randall VAMC, October, 2009
- **Patten C.** Role of Reflex Regulation in Upper-extremity Functional Motor Adaptations Post-stroke. Brain Rehabilitation Research Center, Malcom Randall VAMC, Gainesville, FL. April, 2009
- **Patten C.** Neural and Biomechanical Determinants of Bilateral Locomotor Control Post-stroke. Biomedical Engineering Seminar Series, University of Florida, April 8, 2009.
- § **Patten C.** Neuromotor Contributions to Walking Function Post-stroke. Centre de Recherche Interdisciplinaire en Réadaptation, Université du Montréal, Montréal, Québec, **CANADA**. February, 2009.
- **Patten C.** Power to the (hemiparetic) people – Neuromechanical Adaptations to Novel Locomotor Training Paradigms in Persons Post-stroke. University of California, San Francisco - Neurobehavioral Core for Rehabilitation Research (NCRR), October, 2008.
- **Patten C.** Is there a Role for Robotics in Rehabilitation? Invited presentation at APTA National Student Conclave, San Jose, CA, October, 2008.
- **Patten C.** Desperately seeking Synergy! An update from the upper-extremity research initiative. Brain Rehabilitation Research Center, Malcom Randall VAMC, Gainesville, FL. April, 2008.
- **Patten C.** Power to the hemiparetic people – neuromechanics of gait in post-stroke hemiparesis. Rehabilitation Sciences Seminar, Dept. of Physical Therapy, University of Florida, November, 2007.
- **Patten C.** Physical Therapy Interventions with Robotics. Invited presentation at APTA National Student Conclave, Valley Forge, PA, October, 2007.

- § **Patten C.** Intervention-related Adaptations in Neurophysiological and Biomechanical Mechanisms of Upper-extremity Weakness Post-stroke. Faculty of Medical Rehabilitation, University of Manitoba, Winnipeg, Manitoba, **CANADA**, January, 2007.
- § **Patten C.** Neurophysiological Mechanisms and Biomechanical Consequences of Lower Extremity Weakness Following Stroke. Faculty of Physiology, University of Manitoba, Winnipeg, Manitoba, **CANADA**, January, 2007.
- **Patten C.** Intervention-related Adaptations in Neurophysiological Biomechanical Mechanisms of Weakness in Post-stroke Hemiparesis, Seminar, Department of Physical Therapy and VA Brain Rehabilitation R&D Center, University of Florida, Gainesville, FL, December, 2006.
- § **Patten C.** Neurophysiological Mechanisms & Biomechanical Consequences of Weakness Post-stroke. Faculty of Biomedical Kinesiology, Katholieke University, Leuven, **BELGIUM**, November, 2006.
- § **Patten C.** Strengthening to Promote Recovery of Function in Neurologic Populations. Invited course (2 days). Hoge School Physiotherapie & University Rehabilitation Centre, Heerlen, **THE NETHERLANDS**. November, 2006.
- **Patten C.** "Combined Dynamic Resistance Training and Functional Task Practice Promote Greater Recovery of Upper-extremity Function in Post-stroke Hemiparesis." Bay Area Regional III-STEP Conference. Hosted by Kaiser-Permanente/Samuel Merritt College, September, 2006.
- **Patten C.** Its not about the muscle.....strengthening vs. functional task practice for motor rehabilitation post-stroke. Seminar, Department of Physical Therapy and Biokinesiology, University of Southern California, Los Angeles, CA, 29 August, 2006.
- **Patten C.** Fundamental Strategies for Musculoskeletal Rehabilitation. Monthly Musculoskeletal Research Lecture, Dept. of Orthopaedic Surgery, Stanford University Medical School, May 2006.
- **Patten C.** But Doctor, I can't get my strength back.....Understanding Weakness in Post-stroke Hemiparesis. Invited seminar at Center For Applied Biomechanics and Rehabilitation Research (CABRR), National Rehabilitation Hospital, November, 2005.
- **Patten C.** Contemporary Perspectives on Motor Rehabilitation Post-stroke. Dept of Physical Therapy & Rehabilitation Sciences, University of California, San Francisco, November, 2005.
- **Patten C.** Research Update – Neurorehabilitation for Post-stroke Hemiplegia. Invited Symposium, Abilities Expo, Santa Clara, California, November, 2005.
- **Patten C.** Promoting Recovery of Upper-extremity Function in Post-stroke Hemiparesis: Dynamic High-intensity Resistance Training vs. Functional Motor Relearning. San Jose District APTA, November, 2005.
- **Patten C.** "Emerging Technologies in Rehabilitation Research & Development." Invited symposium at VA Senior Management Conference, Washington, D.C., August, 2004
- **Patten C.** "How Foundation Research Facilitates Follow-on Funding." Invited contribution to Symposium: Foundation Funding, Where It Goes. APTA Combined Sections Meeting, Nashville, TN, February, 2004
- **Patten C.** Doctor, I can't get my strength back.....why we are weak following stroke. Five College Life Sciences Colloquium (invited), Smith College, November 10, 2003.
- **Patten C.** "Why is scientific research important to physical therapy clinicians?" Symposium contribution: Foundation Funding, Where It Goes. APTA Combined Sections Meeting, Tampa, FL, February, 2003
- **Patten C.** Identifying mechanisms of weakness in post-stroke hemiplegia. Seminar, Department of Physical Therapy and Biokinesiology, University of Southern California, Los Angeles, CA, Oct, 2002.
- **Patten C.** Career Development & Mentoring. VA RR&D Symposium, Houston, Texas, June, 1999
- **Patten C.** Age and Training-related Adaptations in Motor Unit Control Properties. Invited seminar, Neurological Sciences Institute, Oregon Health Science University, Portland, OR, February 26, 1999.
- **Patten C.** Repetitive Strain Injuries: Causes, Treatment, & Prevention. Invited presentation to Massachusetts Society of Court Reporters Annual Conference. Braintree, MA. October 19, 1996.

- **Patten C.** Musculoskeletal considerations in prescribing exercise for older adults. "Exercise: Promoting Function & Independence in the Elderly." Boston University Summer Institute in Gerontology, June, 1995.
- **Patten C.** Interpreting the Clinical Test of Sensory Integration and Balance. Invited inservice presentation at Spaulding Rehabilitation Hospital, Boston, Massachusetts, July, 1994.
- **Patten C.** Using the Motion Analysis Lab to Answer Clinical Questions. Invited presentation at Biomechanics of Human Movement in Orthopaedics, Rehabilitation & Sports. Massachusetts Institute of Technology, June, 1994.
- **Patten C.** Assessment and Treatment of Balance Disorders in Physical Therapy Regional Inservice, Kaiser-Permanente of the Mid-Atlantic States, April, 1993.

TEACHING

COURSES TAUGHT AND SUPERVISED

GRADUATE

University of Florida

BMS 6810 – ICM-1 Inter-disciplinary Family Health (2015-16) – College of Medicine

PHT6935C – RSD (PhD) Seminar (2010, 2015) – Rehabilitation Sciences PhD Program

RSD 8111 - Translational Neuroscience Research (2008, 2010, 2011, 2015, 2017) – Rehabilitation Sciences PhD

PHT6935 - Analytical Techniques in Human Movement (2008, 2009) – Rehabilitation Sciences PhD

RSD 6930 - Directed Readings, Motor Control & Neuromechanics (2008, 2016) – Rehabilitation Sciences PhD

University of California, San Francisco

PT 419 MPT student research experiences (2005, 2006, 2007)

PT 890, and DPT student research projects (2006, 2007)

Boston University

PT 634 - Diagnostic Procedures for Rehabilitation Professionals (2002, 2003, 2004)

PT 634 - Diagnostic Procedures for Rehabilitation Professionals - developed and taught online version for transitional DPT curriculum (2004, 2005)

University of Massachusetts - Amherst

Exercise Science 611 - Research Design and Methods (1996, 1997)

UNDERGRADUATE

Stanford University

Human Biology 136 – Neural Control of Movement (2007)

University of Massachusetts - Amherst

Exercise Science 199 – Seminar: Talent Advancement Program (1996, 1997)

INVITED LECTURES

University of Florida

Developing a Testable Research Question, ISC 3523C *Research Methods* – UFTeach Program, College of Education, February, 2014

Upper-extremity Motor Control - Determinants for neurorehabilitation, PHT6511 *Motor Control*, Physical Therapy Doctoral Program, August, 2012

Use of TMS to Image Language and Motor Systems, LIN 4790 *Brain & Language*, Department of Linguistics, College of Liberal Arts & Sciences, March, 2011

Fundamentals of TMS to Study Motor Control, APK 6225 *Biomechanical Instrumentation*, College of Health & Human Performance, April, 2010

Contemporary approaches to stroke rehabilitation, PHT 6513 *Neurorehabilitation I*, Physical Therapy Doctoral Program, October, 2007, 2008, 2009

Neuromuscular System Physiology Clinical Correlation, PHT 6153 *Human Physiology*, Physical Therapy Doctoral Program, September, 2016

University of California, San Francisco

Neuromechanics of weakness; Efficacy of strengthening post-stroke, PT 710-*Neurological Pathokinesiology I* (February 2005, 2006, 2007)

Boston University

Peripheral Nerve Injuries, PT 653 – *Neurological Systems II* (1994)

Stroke Rehabilitation and Assessment, PT652, 653 - *Neurological Systems I & II* (1994, 1995)

Assessment of Posture and Balance, HP 771 - *Foundations of Motor Control* (1994, 1995)

Aging and Motor Control, PT551 – *Neuroscience for Physical Therapy* (2002)

Basics of Clinical EMG Examination, PT 653 - *Neurological Systems II* (2002)

Problem Based Learning Tutor, PT756 – *Comprehensive Clinical Reasoning* (2002, 2003)

American International College (Springfield, MA)

The Aging Motor System, *Motor Control* (October 1995, 1996) - Age-related Neuro-musculo-skeletal Changes and their Functional Implications for Rehabilitation Management

Life Span Development (October 1995, 1996)

University of Massachusetts - Amherst

Acute Sports Injuries – neurological sequelae, Exercise Science 110 - *Intro to Exercise Science* (September, 1997)

GRANTS

CURRENT ACTIVE GRANTS

AS PRINCIPAL INVESTIGATOR OR CO-PRINCIPAL INVESTIGATOR

- 6/2016 – 05/2017 University of Florida Health Board Endowment Fund
Type: Pilot Grant
Title: Acute Markers of Walking Recovery Following Stroke
Role: Principal Investigator
Direct Costs: \$59,981
- 10/2015 – 9/2020 Dept of Veterans Affairs, Rehabilitation R&D
Type: Research Career Scientist (5 years, renewal) (N9274S)
Role: Principal Investigator
Costs: 5 year salary award (6.6/8) \$668,330 direct/\$1,055,961 total
- 10/2015 – 09/2017 National Institutes of Health (NINDS)
Type: R21 (1R21NS091686-01)
Title: Assessment of Locomotor Potential Following Stroke
Role: Principal Investigator (Co-Investigators: Jens Bo Nielsen, PhD, Sam Wu, PhD)
Costs: \$275,000 direct/\$412,000 total
- 10/2015 – 9/2017 Dept of Veterans Affairs, Rehabilitation R&D
Type: SPIRE (N1759P)
Title: Neural Mechanisms Mediating Interlimb Transfer Following Stroke
Role: Principal Investigator
Costs: \$200,000 direct/\$316,000 total
- 7/2015 – 6/2019 Dept of Veterans Affairs, Rehabilitation R&D
Type: Merit Review (N1677R)
Title: Corticospinal Efficacy as a Prognostic Indicator for Walking Recovery Post-stroke
Role: Principal Investigator
Costs: \$1,099,011 direct/\$1,736,437 total
- 03/2011 Rehabilitation Research & Development, Department of Veterans Affairs

Type: Supplemental Equipment Grants
\$250,000: Upgrade to Lokomat System
\$250,000: Instruments for non-invasive brain stimulation and neuronavigation
\$175,000: Upgrades to BRRRC Human Motor Performance Lab

AS CO-INVESTIGATOR

- 07/2015 – 06/2017 American Heart Association (Southeastern Affiliate)
Type: Grant-in-Aid
Title: Structure and Function of Premotor Cortex in Chronic Stroke
Role: Co-Investigator (PI: Steven A Coombes, PhD)
Direct Costs: \$165,000
Period: 2 years
- 07/2015 – 06/2017 American Heart Association (National Award)
Type: Mentored Clinical & Population Research Award (15MCPRP25670037)
Title: A Novel Strategy to Improve Gait and Increase Fall-Related Efficacy Post-stroke
Role: Mentor (Candidate/PI: Dorian K. Rose, PhD, PT)
Direct Costs: \$154,000
Period: 2 years
- 07/2014 – 06/2019 Rehabilitation Research & Development, Department of Veterans Affairs
Type: RR&D Center of Excellence
Title: Brain Rehabilitation Research Center (B9252-C)
Role: Co-Investigator, Upper-extremity Initiative Leader (PI: JJ Daly)
Direct Costs: \$4,500,000

PENDING GRANTS

AS PRINCIPAL INVESTIGATOR OR CO-PRINCIPAL INVESTIGATOR

Submitted December 19/2016

National Science Foundation/National Institutes of Health
Type: CRCNS (Collaborative Research in Computational Neuroscience)
Title: A Computational Neuromechanics Pipeline for Personalized Stroke
Neurorehabilitation
Role: Co-Principal Investigator with BJ Fregly, PhD)
Direct Costs: \$1,250,000
Period: 5 years
Status: in review

In preparation for September/2017

National Institutes of Health
Type: R01
Title: Direct vs. Indirect Corticospinal Control of Locomotion Post-stroke
Role: Principal Investigator (multiple PI project with Jens Nielsen, PhD)
Direct Costs: \$1,250,000
Period: 5 years
Status: in preparation

AS CO-INVESTIGATOR

Submitted April 10/2017

National Institutes of Health
Type: F31 - Diversity
Title: Stretch-mediated EMG: a functional biomarker for impairment following stroke
Role: Sponsor (Candidate: Caitlin L Banks, M.S.)
Direct Costs: \$55,582

Period: 3 years
Status: in review

In preparation for July, 2017

National Institutes of Health

Type: R01

Title: Adaptation of Brain and Body Responses to Perturbations During Gait in Young and Older Adults

Role: Co-Investigator (PI: HJ Huang, University of Central Florida)

Direct Costs: \$1,785,919

Period: 5 years (earliest start 09/2017)

Status: scored 34 (percentile 24) on first submission

GRANTS RECEIVED

AS PRINCIPAL INVESTIGATOR or CO-PRINCIPAL INVESTIGATOR

1992	Dudley Allen Sargent Research Fund (Boston University) Type: Internal grant Title: Use of Accelerometry to Measure Postural Sway Role: Principal Investigator Costs: \$1900
1994-1997	Foundation for Physical Therapy Type: Doctoral Student Research Awards (DOCS) Title: Neural and Structural Motor Unit Contributions to Muscular Force in Older Adults Role: Principal Investigator Costs: \$15,000 per year (each of 3 years)
1998-2001	Department of Veterans Affairs. Rehabilitation Research & Development Type: Research Career Development Award (Mentored) Title: Motor-Unit Firing Patterns in Hemiplegia (D0701) Role: Principal Investigator Direct Costs: \$ 275,000 Mentors: Felix E. Zajac, III, PhD & Kevin C. McGill, PhD
1998-2000	Foundation for Physical Therapy Type: New Investigator Fellowship and Training Initiative (post-doctoral award) Title: Motor Unit Discharge and Control of Functional Movement in Hemiplegia Role: Principal Investigator Direct costs: \$60,000
01/2000- 12/2003	Department of Veterans Affairs, Rehabilitation Research & Development Type: Merit Review Title: Effects of Strength Training on Upper-limb Function Post-stroke (B2405R) Role: Co-Principal Investigator (with Peter S. Lum, PhD) Direct Costs: \$414,700
01/2000-12/2000	VA VISN 21 Research Council Type: Young Investigator Award Title: Comparison of Computer-Aided EMG Analysis Tools Role: Principal Investigator Direct Costs: \$5,000
02/2001- 02/2004	Department of Veterans Affairs Rehabilitation, Research & Development Type: Advanced Research Career Development Award (mentored) Title: Motor-Unit Firing Patterns in Hemiplegia (D2206-V)

Role: Principal Investigator
 Direct Costs: \$300,000
 Mentors: Felix E. Zajac, III, PhD & Kevin C. McGill, PhD

04/2003-03/2006 Department of Veterans Affairs, Rehabilitation Research & Development
 Type: Merit Review
 Title: Therapeutic Effects on Neuromuscular Function in Post-stroke Hemiplegia (B29792R)
 Role: Principal Investigator
 Direct Costs: \$800,000

Summer 2003 Department of Veterans Affairs, Rehabilitation Research & Development
 Type: Clinical Trial Planning Grant
 Title: Effects of Locomotor Training in Post-stroke Hemiplegia
 Role: Principal Investigator
 Direct Costs: \$200,000

08/2005- 09/2011 Department of Veterans Affairs, Rehabilitation Research and Development
 Type: Merit Review
 Title: Mechanisms of Upper Extremity Recovery in Post-stroke Hemiparesis (B3964R)
 Role: Principal Investigator
 Direct Costs: \$1,000,000

08/2005- 08/2010 Department of Veterans Affairs, Rehabilitation Research & Development
 Type: Merit Review (RFA on Body Weight Supported Treadmill Training)
 Title: Internally v. Externally-driven BWSTT for Locomotor Recovery Post-stroke(B540231)
 Role: Principal Investigator
 Direct Costs: \$450,000

05/2008 Rehabilitation Research & Development, Department of Veterans Affairs
 Type: Supplemental Equipment Grants
 \$111,185: Large Equipment Grant – (Suppl to Merit B3964R)
 TheraStride Body Weight Support System for the HMPL
 \$105,147: Small Equipment Grants (3) Supplement to Merit #B540231
 i) Brain Voyager - integrated hardware/software for brain image co-registration
 ii) REO Upper-extremity Robot
 iii) Neurophysiology Components (PowerLab, Grass Stimulator)

08/2008- 06/2012 Department of Veterans Affairs, Rehabilitation Research and Development
 Type: Merit Review
 Title: Developing Evidence-based Parameter Selection for Locomotor Training (A6365B)
 Role: Co-Principal Investigator w/Steven A. Kautz, PhD
 Direct Costs: \$675,000 (3 year proposal)

B04/2009- 03/2010 University of Florida Parkinson's Foundation Center of Excellence
 Type: Pilot Grant
 Title: Central versus Peripheral Stimulation to Improve Gait Dysfunction in PD
 Role: Co-Principal Investigator with C.J. Haas
 Direct Costs: \$7,500

07/2009-09/2011 Department of Veterans Affairs, Rehabilitation Research & Development
 Type: Pilot Grant
 Title: Neuromuscular Adaptations to UE Resistance Training Post-stroke (B5016R)
 Role: Principal Investigator
 Direct Costs: \$50,000

05/2011-12/2013 Tibion Corporation
 Type: Investigator-Initiated Project

Title: Acute Neural and Biomechanical Effects of the Tibion PK-100 Bionic Leg
Role: Principal Investigator
Total Costs: \$406,000

06/2011- 05/2013 Brooks Foundation Endowment
Type: Pilot Grant (00095072)
Title: Neurobehavioral Effects of HYBRID vs. CIMT for UE Hemiparesis Post-stroke
Role: Principal Investigator
Direct Costs: \$40,000

05/2012-05/2013 VA Brain Rehabilitation Research Center
Type: Innovation RFP Pilot Grant (0512BRRC-4)
Title: Neural and Behavioral Effects of Mono vs. Bi-hemispheric tDCS for Motor Recovery Post-stroke
Role: Principal Investigator
Direct Costs: \$25,000

06/2012-08/2013 University of Florida Clinical and Translational Sciences Institute (UL1 TR000064)
Type: Pilot Project
Title: Novel Techniques to Study Corticospinal Tract Function During Walking
Role: Principal Investigator
Direct Costs: \$25,000

05/2013-05/2014 VA Brain Rehabilitation Research Center
Type: Innovation RFP Pilot Grant (0312-BRRC-11)
Title: Paradoxical Facilitation of the Ipsilesional Hemisphere Following NP Limb Fatigue
Role: Principal Investigator
Direct Costs: \$25,000

3/2014 – 2/2015 VA Brain Rehabilitation Research Center
Type: Innovation RFP Pilot Grant (0214BRRC14)
Title: Inter-limb Transfer Mediated by Unilateral Stepping Following Stroke
Role: Principal Investigator
Direct Costs: \$26,276

08/2012-08/2015 National Science Foundation
Type: CBET
Title: Computational Neuromechanics for Stroke Rehabilitation (CBET – 1159735)
Role: Co-Principal Investigator with B.J. Fregly
Costs: \$237,825 direct/\$337,000 total

10/2010-09/2015 Rehabilitation Research & Development, Department of Veterans Affairs
Type: Research Career Scientist[†] (B7577S)
Role: Principal Investigator
Costs: 5 year salary award (8/8), \$723,000 direct/\$1,142,340 total

[†] Eligibility to compete for Research Career Scientist status follows six years of independent funding as Principal Investigator

10/2014 – 10/2015 Florida Physical Therapy Association
Type: Linda Crane Research Grant
Title: Neural Mechanisms Mediating Interlimb Transfer Following Stroke
Role: Principal Investigator
Direct Costs: \$10,000 total

10/2013-12/2015 Rehabilitation R&D, Dept of Veterans Affairs
Type: SPIRE (O1435P)
Title: Neurophysiological Correlates of Lower Extremity Motor Asymmetries Post-stroke

Role: Principal Investigator
Costs: \$200,000 direct/\$316,000 total

AS CO-INVESTIGATOR

- 09/1996 – 04/2000 The Whitaker Foundation
Type: Biomedical Engineering Research Grant (95-0547)
Title: Computer Simulation Analysis of Coordination Deficits in Post-stroke Hemiparesis
Role: Co-Investigator (PI: Steven A. Kautz, PhD)
Direct costs: \$209,906
- 01/2000-12/2002 National Institutes of Health (NINCDS)
Type: R01
Title: Intermuscular Coordination of Mammalian Movement
Role: Co-Investigator (PI: Felix E. Zajac, III, PhD)
Direct Costs: \$724,947
- 06/2000- 05/2004 National Institutes of Health (NICHD (NCMRR))
Type: R01
Title: Bilateral Coordination of Hemiparetic Locomotion (KAU0004AGS)
Role: Co-Investigator (PI: Steven A. Kautz, PhD)
Direct Costs: \$869,443
- 01/2003 – 12/2008 Department of Veterans Affairs, Rehabilitation Research & Development
Type: RR&D Center of Excellence
Title: Bone & Joint Research Center
Role: Core Principal Investigator (PI: CR Jacobs)
Direct Costs: \$5,000,000
- 06/2005- 05/2009 National Institutes of Health (NIA)
Type: R01
Title: Lower extremity muscle power and function in the elderly (AG018844-04A1)
Role: Co-Investigator (PI: Roger Fielding, PhD)
Direct Costs: \$2,072,482
- 01/2006- 12/2010 National Institutes of Health (NIBIB)
Type: R01
Title: EMG-based Estimation of Muscle Structure and Function
Role: Co-Investigator (PI: Kevin McGill, PhD)
Direct Costs: \$1,000,000
- 09/2007-08/2009 National Institutes of Health (NIDDK)
Type: R21
Title: Testosterone Replacement Therapy in Advanced Chronic Kidney Disease
Role: Co-Investigator (PI: Ralph Rabkin, MD)
Direct costs: \$275,000
- 07/2009 – 06/2014 Department of Veterans Affairs, Rehabilitation Research & Development
Type: RR&D Center of Excellence
Title: Brain Rehabilitation Research Center (B6793-C)
Role: Co-Investigator, Upper-extremity Initiative Leader (PI: LJ Gonzalez-Rothi)
Direct Costs: \$4,500,000
- 04/2010- 09/2011 Department of Veterans Affairs, Health Services Research & Development
Type: Pilot Grant
Title: Survey of the Organizational Structure of the Physical Therapy Service in VHA
Role: Co-Investigator (PI: Patsi Sinnott, Ph.D)
Direct Costs: - \$100,000 (1 year pilot proposal)

03/2011-03/2013 University of Florida Claude D. Pepper Older Americans Independence Center
 Type: Pilot Grant
 Title: Locomotor Reserve: A Novel Approach for Detecting Mobility Deficits with Aging
 Role: Co-Investigator (PI: David Clark, ScD.)
 Direct Costs: \$130,000 (2 year proposal)

07/2009 - 12/2012 Florida Department of Health
 Type: James and Esther King Biomedical Research Program (09KN-13)
 Title: Use of rTMS to Enhance Post-stroke Recovery
 Role: Co-Investigator (PI: Dorian K. Rose, PT, PhD)
 Total Costs: \$375,000

7/2012-06/2014 American Heart Association
 Type: Post-doctoral Fellowship (2years)
 Title: Cortical Mechanisms of Bimanual Motor Control Post-stroke
 Role: Primary Mentor (Candidate: Neha Lodha, PhD)
 Direct Costs: \$100,000

08/2012 National Institutes of Health (NICHD (NCMRR))
 Type: R13 Conference Grant (HD074380)
 Title: Regenerative Medicine in Rehabilitation – APTA Section on Research Retreat
 Role: Co-Investigator (PI: Sam Ward, PhD, PT)
 Direct Costs: \$12,000

07/2012- 07/2015 Florida Department of Health
 Type: James & Esther King Biomedical Research Program
 Title: Cortical and Subcortical Brain Functioning in Chronic Stroke (3KN01)
 Role: Co-Investigator (PI: Stephen A. Coombes, PhD)
 Direct Costs: \$375,000

07/2013 – 06/2015 Department of Defense
 Florida Trauma Rehabilitation Center for Returning Military Personnel
 Project 1: Adaptive Walking Response for Effective Community Ambulation Post-iSCI
 Role: Co-Investigator (PI: Nicole Tester, PhD, Center Grant PI: WR. Mann, PhD, OTR/L)
 Direct Costs: \$100,000

07/2014 – 06/2016 American Heart Association (Southeastern Affiliate)
 Type: Post-doctoral Fellowship (14POST20490007)
 Title: Influence of Limb Biomechanics on Plantarflexor Capacity Post-stroke
 Role: Primary Mentor (Candidate: Eric R. Walker, PhD)
 Direct Costs: \$100,000
 Period: 2 years

COLLABORATIONS

E. Paul Zehr, PhD – University of Victoria, British Columbia, **CANADA**
 Serve as consultant on: Sci-Fit as an adjunct to Locomotor Training Post-stroke” (Zehr, PI).

Jens-Bo Nielsen, PhD – University of Copenhagen, **DENMARK**
 Collaborator on studies of recovery of corticomotor control of walking: VA RR&D Merit Review,
 “Corticospinal Efficacy as a Prognostic Indicator of Walking Recovery Post-stroke” and NIH/NINDS R21,
 “Assessment of Locomotor Potential Post-stroke”

Stuart Baker, PhD – Newcastle University, **UNITED KINGDOM**
 Collaborator on studies of the role of the reticulospinal tract in motor recovery post-stroke

Laurent Bouyer, PhD – Laval University, Quebec, **CANADA**
 Collaborator on studies investigating training-related adaptation in locomotor activity

PROFESSIONAL ORGANIZATIONS

2015 – Current	Clinical TMS Society
2012 – Current	American Heart Association
2008 – Current	Society for the Neural Control of Movement
2006 – Current	International Society for Posture and Gait
1998 – Current	International Society for Electrophysiology and Kinesiology
1996 – Current	Society for Neuroscience
1994 – 2004	American College of Sports Medicine
1990 – Current	American Physical Therapy Association - Sections on: Research, Neurology, Florida Chapter

MANUSCRIPT REVIEWER (Ad Hoc)

2017	Neurorehabilitation and Neural Repair (1), Journal of Physiology (1), Arch PM&R (1)
2016	Journal of NeuroEngineering and Rehabilitation (1), Journal of Physiology (1), Gait & Posture (1)
2015	Journal of Visualized Experiments (1), Journal of NeuroEngineering and Rehabilitation (1), American Journal of Physical Medicine & Rehabilitation (1)
2014	American Journal of Physical Medicine & Rehabilitation (2), Stroke (2), Neurorehabilitation & Neural Repair (2), Journal of NeuroEngineering & Rehabilitation (2), Journal of Gerontology: Medical Sciences (1)
2013	Exercise & Sport Sciences Reviews (2), Sports Medicine (2), Neurorehabilitation & Neural Repair (3), Journal of NeuroEngineering & Rehabilitation (2), Experimental Brain Research (2)
2012	American Journal of Physical Medicine & Rehabilitation (1), Motor Control (2), Neurorehabilitation & Neural Repair (2), Experimental Brain Research (2)
2011	PLoS One (1), Prosthetics and Orthotics International (1), Neurorehabilitation & Neural Repair (1), Journal of NeuroEngineering & Rehabilitation (1), Journal of Neurophysiology (2), Medicine & Science in Sports and Exercise (2)
2010	Physiotherapy Research International (1), Neurorehabilitation & Neural Repair (1), Experimental Brain Research (1)
2009	Computer Methods in Biomechanics & Biomedical Engineering (2), Neuroscience Letters (2), Human Movement Science (1), Clinical Biomechanics (2), Stroke (2), Neurorehabilitation & Neural Repair (1)
2008	Journal of Electromyography & Kinesiology (1), Stroke (1), J NeuroEngineering & Rehabilitation
2007	Stroke (1), Disability & Rehabilitation (1), Physiotherapy Research & Practice (1), Neurorehabilitation & Neural Repair (1), Arch Physical Med & Rehab (1), ExpBrain Research (1)
2006	Stroke (1), Neurorehabilitation & Neural Repair (1), Physical Therapy (3)
2005	Journal of NeuroEngineering & Rehabilitation (1), Archives of Physical Medicine & Rehabilitation (1), Physical Therapy (2), IEEE Transaction on Systems Man & Cybernetics - Part B (1), Journal of Neurologic Physical Therapy (1), Muscle & Nerve (1)
2004	Journal of Neurologic Physical Therapy (1)
2003	Journal of Neurophysiology (1), Experimental Brain Research (1), Canadian Journal of Applied Physiology (1), Journal of Clinical Neurophysiology (1)
2001	Journal of Applied Physiology (1)
2000	Journal of Rehabilitation Research & Development (1), European Journal of Applied Physiology (1)
1999	Journal of Gerontology: Medical Sciences (1)
1998	Journal of Orthopaedic & Sports Physical Therapy (1), Medical Engineering & Physics (1)
1997	Medicine & Science in Sports and Exercise (1)
1995	APTA Cardiopulmonary Section Journal (1)

JOURNAL EDITORIAL BOARDS & COMMITTEES

06/2007- 12/2013 Physical Therapy Journal
Editorial Board Member

04/2006-06/2007 Physical Therapy Journal
Steering Committee

SCIENTIFIC REVIEW COMMITTEES

2017 Stroke Association (UK)
Research Project Grant Review

2016 – 2021 National Institutes of Health
Musculoskeletal Rehabilitation Sciences Study Section
Appointed Member

2011 - date Scientific Advisory Board – Program Project Grant
Spinal Circuits and the Musculoskeletal System (NIH (NICHD) P01HD032571)
Arthur W. English, Program Director (Emory University)

2007-2010 American Stroke Association
Scientific Review Committee

2005 International Conference on Rehabilitation Robotics
Awards Review Committee

2003 Department of Veterans Affairs
Office of Research & Development Annual Meeting Abstract Reviewer

2002–2006 American Physical Therapy Association - Section on Neurology
Research Committee, Chairman

2000–2007 American Physical Therapy Association - Section on Neurology.
Research Committee Member 2005

GRANT REVIEW PANELS

10/2015 National Institutes of Health
Musculoskeletal Rehabilitation Sciences
Ad Hoc Panel Reviewer (Baltimore, MD)

06/2015 National Institutes of Health
Oral and Skin Systems - Special Emphasis Panel
Fellowships: Physiology and Pathobiology of Musculoskeletal
Ad Hoc reviewer (Panel)

03/2015 National Institutes of Health
Emerging Technologies and Training in Neurosciences IRG
ETTN-10 Clinical Neurophysiology, Devices, Neuroprosthetics & Biosensors SBIR SEP
Ad Hoc Panel Reviewer (Washington, D.C.)

02/2015 VA Rehabilitation R&D
Career Development Panel
Panel Reviewer (Washington, D.C.)

06/2014 National Institutes of Health
Emerging Technologies and Training in Neurosciences IRG
ETTN-10 Clinical Neurophysiology, Devices, Neuroprosthetics & Biosensors SBIR SEP
Ad Hoc Panel Reviewer (Washington, D.C.)

04/2014 Department of Defense – Clinical & Rehabilitative Medicine Research Program (CRM RP)

Neurosensory Research Program
Panel Reviewer (Baltimore, MD)

10/2013 American Heart Association
Biotechnology and Biomedical Engineering Panel
Panel Reviewer

07/2013 Canada Research Chairs, College of Reviewers
Review for Dr. Michelle Ploughman (Memorial University), Tier 2 Canada Research Chair in
Rehabilitation, Neuroplasticity and Brain Recovery

04/2013 National Institutes of Health, NICHD
Function, Integration and Rehabilitation Sciences Subcommittee - Special Emphasis Panel
Ad Hoc Panel reviewer

10/2012 National Institutes of Health
Emerging Technologies and Training in Neurosciences IRG
ETTN-10 Clinical Neurophysiology, Devices, Neuroprosthetics & Biosensors SBIR SEP
Ad Hoc Panel Reviewer (Washington, D.C.)

03/2012 NASA - National Space Biomedical Research Institute
Musculoskeletal Biology Peer Review Panel (Washington, D.C.)

02/2011 National Institutes of Health
Emerging Technologies and Training in Neurosciences IRG
ETTN-10 Clinical Neurophysiology, Devices, Neuroprosthetics & Biosensors SBIR SEP
Ad Hoc Panel Reviewer (Santa Monica, CA)

06/2010 National Institutes of Health, Emerging Technologies and Training in Neurosciences IRG
ETTN-10 Clinical Neurophysiology, Devices, Neuroprosthetics & Biosensors SBIR SEP
Ad Hoc Reviewer (Mail)

Summer, 2010 Foundation for Physical Therapy
Ad Hoc Reviewer

01/2007-12/2009 Foundation for Physical Therapy
Chair, Scientific Review Committee

01/2005-12/2009 Foundation for Physical Therapy
Scientific Review Committee

01/2008-01/2009 Canadian Stroke Network
Expert Scientific Review Committee

02/2007 National Institutes of Health, NINDS
NINDS-K Clinical Trials Study Section
Reviewer (panel), (Washington, D.C.)

Spring 2005 VA Rehabilitation R&D Merit Review Panel - Scientific Reviewer
Winter 2004
Fall 2004
Spring, 2002 NASA - Musculoskeletal Biology, Exercise and Countermeasures Review Panel

UNIVERSITY & COLLEGE COMMITTEES

07/2016 – current Admissions Committee
Doctor of Physical Therapy
Department of Physical Therapy
College of Public Health & Health Professions, University of Florida

11/2015 – current Steering Committee

Interdisciplinary PhD Program in Rehabilitation Sciences
College of Public Health & Health Professions, University of Florida

07/2014- 06/2016 Research Committee
College of Public Health & Health Professions, University of Florida

03/2014 Meeting Chair
Review Panel - Biomedical Engineering and Medicine
Opportunity Seed Fund
University of Florida

02/2014 Reviewer
University Professors Scholarship Applications
College of Public Health & Health Professions, University of Florida

08/2008- 07/2014 Tenure and Promotion Committee
College of Public Health & Health Professions, University of Florida

08/2009-02/2012 Institutional Review Board (IRB-01)
Health Sciences Center, University of Florida

DEPARTMENTAL & INSTITUTIONAL COMMITTEES

05/2015 – date Search Committee
Department of Physical Therapy, University of Florida
Open Rank Tenure Track Position – Neuroplasticity and Neurorehabilitation

09/2014 – current Neuromuscular Plasticity Symposium Planning Committee
T-32 Training Grant
Interdisciplinary PhD Program in Rehabilitation Sciences
Department of Physical Therapy, University of Florida

07/2013 Research Service
Malcom Randall VA Medical Center
Review of application for promotion to GS-14, Charlie Jia, PhD

05/2013 – date Search Committee
Department of Physical Therapy, University of Florida
Open Rank Tenure Track Position
Associate/Full Professor – Muscle Plasticity,

07/2009 – date Research and Development Committee
Malcom Randall VA Medical Center
Medical Center-wide committee for review and oversight of research activity

08/2008-05/2009 Search Committee
Department of Applied Physiology & Kinesiology, University of Florida
Assistant/Associate Professor, Biobehavioral Control

08/2008-05/2009 Search Committee
Department of Physical Therapy, University of Florida
Associate/Full Professor Neural Plasticity and Neurorehabilitation

09/2008 – date Task force on Doctoral Program Development
Rehabilitation Sciences Doctoral Program, University of Florida

09/ 2008 – date Professional and Leadership Development Committee
Department of Physical Therapy, University of Florida

12/2007– 06/2009 Sub-committee for Clinical Investigation
Malcom Randall VA Medical Center

	Subcommittee of medical center-wide R&D committee
08/2007– date	Executive Committee Brain Rehabilitation Research Center, Malcom Randall VA Medical Center Coordinator, Upper Extremity Research Initiative
11/2006 – 08/2007	Research and Development Committee VA Palo Alto Health Care System Medical Center-wide review committee
11/2006 – 08/2007	Rehabilitation R&D Sub-committee VA Palo Alto Health Care System

PROFESSIONAL ASSOCIATIONS

08/2011 – 08/2012	American Physical Therapy Association – Section on Research Research Retreat – Regenerative Medicine in Rehabilitation Meeting Co-Chair, Program Committee Chair
03/2010-08/2011	American Physical Therapy Association – Section on Research Chair, Planning Committee 2012 Research Retreat
08/2009-03/2010	American Physical Therapy Association Taskforce on Women’s Initiatives
2006-2008	Research Committee, Co-chairman for Strategic planning American Physical Therapy Association - Section on Neurology
2000-2003	American Physical Therapy Association Program Committee Reviewer for Neurology Section

SESSION CHAIR

06/2017	A Mechanism-based Framework for Neurorehabilitation - Educational Session at APTA NEXT Conference, Boston, MA
08/2012	Stroke – Thematic poster session at American Society for Biomechanics Annual Meeting, University of Florida, Gainesville, FL
02/2012	Recipe for Success: Have we identified the active ingredients for effective locomotor rehabilitation? Educational Session at APTA Combined Sections Meeting, Chicago, IL
02/2011	Recipe for Success: Have we identified the active ingredients for effective locomotor rehabilitation? Educational Session at APTA Combined Sections Meeting, New Orleans, LA
02/2010	Bridging Science and Clinical Practice: You can be that Scientist! Symposium at APTA Combined Sections Meeting, San Diego, CA
02/2010	An instrumented step beyond gait speed: Mechanisms of Gait Dysfunction and Recovery Post-stroke. APTA Combined Sections Meeting, San Diego, CA
08/2009	Modulatory Mechanisms of Motor Control – Mechanisms Underlying Disordered Movement: Impairments with Force Generation. Research Retreat - APTA Section on Research, Asilomar, CA
02/2008	Recovery – International Stroke Conference (American Heart Assn), New Orleans, LA
02/2006	Imagery and Imaging – American Physical Therapy Association Combined Sections Meeting, Section on Neurology, San Diego, California
02/2006	Post-stroke Hemiplegia – American Physical Therapy Association Combined Sections Meeting, Section on Neurology, San Diego, California
09/2005	§ Upper Extremity Motor Control - Biannual Motor Control Conf, Varna, Bulgaria

02/2003	Mechanisms of Neural Recovery - American Physical Therapy Association Combined Sections Meeting, Section on Neurology, Tampa, Florida
08/1999	§ Muscle Symposium - International Society of Biomechanics, Calgary, Alberta, Canada

MENTORING

§ Denotes international student or fellow

DISSERTATION COMMITTEES

2013-2016	Derek Archer, PhD (Applied Physiology & Kinesiology, University of Florida)
2011-2016	Andrew Meyer, PhD (Mechanical and Aerospace Engineering, University of Florida)
2011-2015	Ilan Eskinazi, PhD (Mechanical and Aerospace Engineering, University of Florida)
2013-2015	Nyeonju Kang, PhD (Applied Physiology & Kinesiology, University of Florida)
2010-2012	Harsimran S. Baweja, PT, PhD (Appl Physiology & Kinesiology, University of Florida)
2009-2011	Neha Loda, PhD (Applied Physiology & Kinesiology, University of Florida)
2009-2010	Bhavna Raja, PT, PhD (Rehabilitation Sciences, University of Florida)
2008-2010	Amit Sethi, OTR, PhD (Rehabilitation Sciences, University of Florida)
2001-2003	George Chen, PhD (Mechanical Engineering, Stanford University)

THESIS COMMITTEES

September 2015	§ Mi Jung Jeon, MSc (Sport & Exercise Science, The University of Auckland NEW ZEALAND) – External Examiner
2014 – 2015	Nicholas Bianco (Undergraduate Thesis - Mechanical and Aerospace Engineering, University of Florida)
2013-2014	Mihir Pai, M.S. (Mechanical and Aerospace Engineering, University of Florida)
2011 – 2012	Bruce Cam (Undergraduate Thesis - Mechanical and Aerospace Engineering, University of Florida)
2011 – 2012	Sean Tighe, M.S. (Biomedical Engineering, University of Florida)
2008-2009	Sagar Naik, PT, M.S. (Applied Physiology & Kinesiology, University of Florida)
Spring 2005	§ Melanie Lomaglio, PT, M.Sc. (Rehabilitation Sciences, University British Columbia CANADA) – External Examiner

POST DOCTORAL FELLOWS MENTORED

08/2013- 04/2017	Virginia L. Little, PT, NCS, PhD Supported by VA BRRC Innovation Awards (0313BRRC-11 & 0214BRRC-14), PI – Patten VA Geriatrics Research & Education Clinical Center (GRECC) Special Fellowship (November, 2014 – April, 2017)
07/2013- 07/2016	Eric R. Walker, Ph.D Supported by VA RR&D SPiRE Award (01435-P), PI – Patten American Heart Association Southeastern Region Post-doctoral Fellowship "Influence of Limb Biomechanics on Plantarflexor Capacity Post-stroke" (July, 2014- 16)
10/2011- 06/2014	Neha Lodha, Ph.D Supported by VA RR&D Merit Review (A6365B), PI – Patten American Heart Association Southeastern Region Post-doctoral Fellowship "Cortical Mechanisms of Bimanual Motor Control Post-stroke" (July, 2012 – June, 2014)
01/2008-08/2009	Chetan Phadke, PhD, PT Supported by VA RR&D Merit Review B3964R, PI – Patten
06/2007-07/2010	Christopher T. Robertson, PhD –

02/2007-12/2007 VA RR&D Assoc Investigator (linked to RR&D Merit Review #B540231, PI - Patten)
 § Kelly P. Westlake, PhD, PT –
 Canadian Institutes of Health Research - Clinical Initiative – Post-doctoral Fellowship
 “Changes in proprioceptive integration following robotic-assisted body weight supported treadmill training in people with stroke.”

06/2006-12/2007 Joanne M. Wagner, PhD, PT –
 VA RR&D Assoc Investigator (linked to RR&D Merit Review # B3964R, PI - Patten)

02/2006-12/2007 Michael Harris-Love, PhD, PT –
 NIH Bone & Joint Decade Young Investigator

06/2004-06/2006 § Ilse Jonkers, PhD, PT –
 Flemish Research Council Fellowship (Belgium) – Co-supervisor with Scott Delp, PhD

JUNIOR FACULTY MENTORED

08/1/2012 - 03/30/2015 Aparna Wagle Shukla, MBBS, DNB, MD
 UF CTSI KL-2 Scholar
 “Pathological Insights into STN DBS for Primary Cervical Dystonia”

7/1/2012 – 6/30/2015 Steven A. Coombes, PhD
 JEK Biomedical Research Grant (Junior Faculty Mentor)
 “Cortical and Subcortical Brain Functioning in Chronic Stroke”

10/2010-9/2012 Keith McGregor, PhD
 Level-1 Career Development Award, VA Rehabilitation R&D Service
 “Effects of Aerobic Fitness on Neurological Markers of Aging”

01/2010-12/2012 Mark C. Bowden, PhD, PT
 Level-1 Career Development Award, VA Rehabilitation R&D Service
 “Evaluation of Walking Specific Motor Learning Post-stroke.”
 NIH K12 Scholar – November, 2011 – June 2012

01/2010-12/2014 David J. Clark, ScD
 Level-2 Career Development Award, VA Rehabilitation R&D Service
 “Neural Determinants of Impaired Locomotor Adaptability Post-stroke”
 Claude D. Pepper Scholar – UF Pepper Center, August 2010 – August 2013

09/2009-09/2015 Dorian K. Rose, PhD, PT
 Level-2 Career Development Award, VA Rehabilitation R&D Service “Combining neural and behavioral therapies to enhance stroke recovery”
 NIH K12 Scholar – June, 2009 – June 2012

09/2008-08/2011 Michelle Woodbury, PhD, OTR/L
 Level-2 Career Development Award, VA Rehabilitation R&D Service
 “A Toolbox for measuring post-stroke upper extremity motor ability”

06/2008-06/2011 Christopher Gregory, PhD, PT
 Level-2 Career Development Award, VA Rehabilitation R&D Service
 “Skeletal muscle properties and the metabolic cost of walking post-stroke”
 NIH K12 Scholar – October, 2008 – June 2012

GRADUATE STUDENTS ADVISED

08/2016 – date Katherine E. Duker (Rehabilitation Sciences, University of Florida)
 Enrolled August 2016
 Recipient of University of Florida Fellowship

08/2015 – date Caitlin L. Banks (Rehabilitation Sciences, University of Florida)

PhD Program enrollment, August 2015
Recipient of University of Florida Fellowship (for PhD program)

12/2014 – 10/2015 § Marcela DeAbreu, PT, PhD Candidate (Universidade Federal São Carlos, **BRAZIL**)
International Exchange Scholar, PhD 'Sandwich'
Supported by Brazilian Federal Agency for Support & Evaluation of Graduate Education
CAPES Scholarship

08/2014 – 12/2016 Caitlin L. Banks (Biomedical Engineering, University of Florida)
Master of Science

08/2014 – date Qian Ding, PT (Rehabilitation Sciences, University of Florida)
Enrolled August 2014
Recipient of University of Florida Fellowship

08/2012- 08/2016 Sahana Kamath, PT, MPT (Rehabilitation Sciences, University of Florida)
PhD
Enrolled August, 2012
Recipient of University of Florida Fellowship
PhD candidacy attained May 5, 2016
Dissertation defense July 15, 2016
Degree conferred August 5, 2016

01/2008-12/2013 Shilpa Patil, PT (Rehabilitation Sciences, University of Florida)
PhD
Transferred to my supervision January, 2008
Statistics minor, candidacy achieved May, 2011
RSD PhD candidacy attained July, 2011
Dissertation defense October 31, 2013
Degree conferred December 13, 2013

08/2008-08/2013 Virginia Little, MSPT, NCS (Rehabilitation Sciences, University of Florida)
PhD
Enrolled August 2008
Candidacy attained June 2011
Dissertation defense July 1, 2013
Degree conferred August 8, 2013

08/2008-12/2012 Martina Spiess, PT, MSc (Rehabilitation Sciences, University of Florida)
PhD
Enrolled August 2008
PhD Candidacy attained June, 2010
Dissertation defense November 20, 2012
Degree conferred December 7, 2012
Recipient of University of Florida Alumni Fellowship
Co-mentorship with Andrea Behrman, PhD, PT

01/2008-04/2012 Manuela Corti, PT (Rehabilitation Sciences, University of Florida)
PhD
Enrolled January, 2008
PhD Candidacy attained May 2010
Dissertation Defense April 4, 2012
Degree conferred April 27, 2012.
Recipient of University of Florida Alumni Fellowship

09/2002-05/2007 David J. Clark (Movement and Rehabilitation Sciences Program, Boston University)
ScD

Enrolled September, 2002
ScD Candidacy attained, March 2005
Dissertation Defense April, 2007
Degree conferred, May, 2007

- 05/2006 Aaron Grogan (Biomedical Engineering, Boston University)
Master of Science
- 05/2004 Elizabeth G. Condliffe (Biomedical Engineering, Boston University)
Master of Science

PHYSICAL THERAPY STUDENT RESEARCH

- 2006-2007 Academic Year Sang Pak
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research
- 2006-2007 Academic Year Tianna Meriage
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research
- 2006-2007 Academic Year Jennifer Rhodes
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research
- 2006-2007 Academic Year Liza Yanuzzi
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research
- Summer, 2001 Jennifer Whitney
Department of Physical Therapy
California State University Long Beach
PT Student Research Internship
- Summer 1999 Mark C. Gardner
Department of Physical Therapy
Arcadia University
PT Student Research Internship

UNDERGRADUATE STUDENT RESEARCH

- Spring 2015 – Spring 2016 Katherine Batchelor
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor, 2015 – 2016
University Professors Scholar, 2015 – 2016
(Summa Cum Laude, University of Florida DPT Class of 2019)
- Spring 2015 – Spring 2016 Nicole Hood
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor, 2015 – 2016
(Summa Cum Laude, Yale University School of Public Health, Class of 2020)
- Spring 2015 – Spring 2016 Amanda Hoss
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor, 2015 – 2016
(Summa Cum Laude, University of Florida MOT Class of 2018)

Spring 2015 – Spring 2016	Elizabeth Jenkins Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor, 2015 – 2016 (Summa Cum Laude, University of Florida MOT Class of 2018)
Spring 2015 – Spring 2016	Alexandra Rekas Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor, 2015 – 2016 (Summa Cum Laude)
Fall 2014 – Spring 2016	Spencer Gilleon Department of Biological Engineering Undergraduate Research Advisor (Magna Cum Laude, Colorado School of Mines, Mechanical Engineering Graduate Studies)
Spring 2014 – 2015	Heather Boyco Department of Mechanical and Aerospace Engineering Undergraduate Research Advisor University Professors Scholar, 2014 - 2015
Spring 2014 –2015	Dorothy Trenter Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor (Magna Cum Laude)
Spring 2014 –2015	Anjanie Pandey Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor (Summa Cum Laude)
Spring 2014 –2015	Emily Maltby Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor (Summa Cum Laude, University of Florida MOT Class of 2017)
Spring 2014	Zhengyang Qian UF Teach Program (STEM), University of Florida College of Education Research Methods Course Internship
Spring 2014	Brooke Hammock Denninghoff Department of Applied Physiology & Kinesiology, University of Florida Full time Research Internship
Fall 2012 – Spring 2013	Jonathan Kennedy Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor (Summa Cum Laude, University of Miami Medical School Class of 2017)
Fall 2012 – Spring 2013	Jennifer Nedrich Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor (Summa Cum Laude, University of Florida MOT Class of 2015)
Spring 2012 – 2013	Emily White Department of Health Sciences, University of Florida Undergraduate Honors Research Advisor University Professors Scholar, 2012-2013 (Summa Cum Laude, University of Florida MOT Class of 2015)
Spring 2011 – 2012	Albina Guri Department of Health Sciences, University of Florida

Undergraduate Honors Research Advisor
(Summa Cum Laude, W Virginia School of Osteopathic Medicine, Class of 2017)

Spring 2011 – 2012 Lucas Egan
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor
(Summa Cum Laude, Florida Gulf Coast University, DPT Class of 2015)

Spring 2012 Christopher Hillhouse
Dept of Applied Physiology & Kinesiology, University of Florida
Full time Research Internship
(University of South Florida, College of Medicine, Class of 2016)

Summer 2010 Stacey Ann Beam,
Research Internship
Washington & Jefferson College

Spring 2010 – 2011 Mae Mercado
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor
University Professors Scholar, 2009-2010
(Summa Cum Laude. University of Florida DPT Class of 2014)

Spring 2010 – 2011 David Moshe
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor
(Summa Cum Laude. University of Florida College of Medicine, Class of 2015)

Spring 2009 – 2010 Alicia Anderson
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor
(Magna Cum Laude. University of Florida, DPT Class of 2013)

Spring 2009 – 2010 Kristen Gangarossa
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor.
(Summa Cum Laude. University of Florida, DPT Class of 2013)

Spring 2009 – 2010 Katie Marcoux
Department of Health Sciences, University of Florida
Undergraduate Honors Research Advisor
(Summa Cum Laude. University of Florida, DPT Class of 2013)

Summer 2008 Jennifer DeMarco
Department of Applied Physiology & Kinesiology, University of Florida
Research Practicum, Directed Research

2006-2007 Academic Year Sang Pak
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research internship

2006-2007 Academic Year Tianna Meriage
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research internship

2006-2007 Academic Year Jennifer Rhodes
Department of Physical Therapy and Rehabilitation Sciences,
University of California, San Francisco
DPT student research internship

2006-2007 Academic Year	Liza Yanuzzi Department of Physical Therapy and Rehabilitation Sciences, University of California, San Francisco DPT student research internship
Summer, 2001	Jennifer Whitney Research Project Physical Therapy California State University Long Beach
Summer 2000	Allison Magruder Paralyzed Veterans of America Summer Scholars Program California Polytechnic University, San Luis Obispo
January – August, 1999	Frederick J. Rumford, III Department of Exercise Science, University of Massachusetts Research Independent Study & Undergraduate Honors Thesis Committee
Summer 1998	Cheng Feng Paralyzed Veterans of America Summer Scholars Program University of Texas
1996-1997 Academic Year	Kara A. Rainsford Department of Exercise Science, University of Massachusetts Research Independent Study
1996-1997 Academic Year	Shannon E. Chabot Dept. of Exercise Science, University of Massachusetts Research Independent Study
1993-1994 Academic Year	Daniel M. Rowland Department of Biomedical Engineering, Boston University Senior Biomedical Engineering Research Project

AWARDS & HONORS TO STUDENTS and TRAINEES MENTORED BY CAROLYNN PATTEN

2016

Katherine E. Duker	University of Florida Graduate School Fellowship	August 2016 - August 2020
Caitlin L. Banks	University of Florida College of Public Health and Health Professions	Graduate Student Research Award

2015

Caitlin L. Banks	University of Florida Graduate School Fellowship	August 2015 – August 2019
Virginia Little, PT, PhD, NCS	VA Geriatrics Research Education & Clinical Center	Research Award
Caitlin L. Banks	University of Florida Neuromuscular Plasticity Symposium	Graduate Student Research Award
Katherine Batchelor	University of Florida Undergraduate Honors Program	University Professors Scholarship

2014

Virginia Little, PT, PhD, NCS	VA Geriatrics Research Education & Clinical Center Special Fellowship	November 2014 – October, 2016
Qian Ding, PT	University of Florida Graduate School Fellowship	August 2014- August 2018

Eric R. Walker, PhD	American Heart Association Post-doctoral Fellowship	July 2014 – June 2016
Jonathan Elrod	International Society for Biomechanics	Finalist, Student Research Paper Competition
Heather Boyco	University of Florida Undergraduate Honors Program	University Professors Scholarship
Virginia Little, PT, PhD, NCS	University of Florida Neuromuscular Plasticity Symposium	Post-doctoral Student Poster Award
Sahana Kamath, PT, MPT	University of Florida Neuromuscular Plasticity Symposium	Graduate Student Research Award

2013

Virginia Little, PT, NCS	American Physical Therapy Association Section on Research	Gossman Symposium Presenter
Virginia Little, PT, NCS	American Physical Therapy Association Section on Neurology	Post-professional Graduate Student Research Award
Neha Lodha, PhD	University of Florida Neuromuscular Plasticity Symposium	Post-doctoral Student Poster Award
Emily White	University of Florida College of Public Health & Health Professions	Undergraduate Research Award
Sahana Kamath, PT, MPT	University of Florida College of Public Health & Health Professions	Graduate Student Research Award

2012

Virginia Little, PT, NCS	University of Florida Neuromuscular Plasticity Symposium	Graduate Student Poster Award
Lucas Egan	University of Florida College of Public Health & Health Professions	Undergraduate Research Award
Emily White	University of Florida Undergraduate Honors Program	University Professors Scholarship May 2012 - 2013
Sahana Kamath, PT, MPT	University of Florida Graduate School Fellowship	August 2012 - 2016
Virginia Little, PT, NCS	International Conference on Neurorehabilitation	Finalist, Student Research Competition
Shilpa Patil, PT	University of Florida	Graduate Student Travel Award
Neha Lodha, PhD	American Heart Association Post-doctoral Fellowship	July, 2012 – June, 2014

2011

Manuela Corti, PT	Howard Hughes Medical Institute International Student Research Fellowship	UF Nominee (one of 7 finalists nominated for national competition)
David Moshe	University of Florida, College of Public Health & Health Professions	Undergraduate Research Award
Shilpa Patil, PT	University of Florida	Graduate Student Research Award

Martina Spiess, PT, MSc	College of Public Health & Health Professions University of Florida	International Student Award
2010		
Shilpa Patil, PT	American Physical Therapy Assn Section on Neurology	Post-professional Graduate Student Research Award
Virginia Little, PT, NCS	University of Florida Neuromuscular Plasticity Symposium	Graduate Student Poster Award
Alicia Anderson	University of Florida College of Public Health & Health Professions	Undergraduate Research Award
Katie Lynn Marcoux	University of Florida College of Public Health & Health Professions	Undergraduate Dean's Scholar
Mae Mercado	University of Florida Undergraduate Honors Program	University Professors Scholarship May 2010-2011
Manuela Corti, PT	Tallahassee Memorial Foundation	Bryan Robinson Neuroscience Endowment Grant
Virginia Little, PT, NCS	Foundation for Physical Therapy	Promotion of Doctoral Studies – I Barnes-Leahy Endowed Scholarship for Neurology
Virginia Little, PT, NCS	NIH T-32 Fellow	August 2010 - 2013
Stacey Beam	Washington & Jefferson College	Magellan Award - Summer, 2010
2009		
Manuela Corti, PT	University of Florida - College of Public Health & Health Professions	Graduate Student Research Award
Manuela Corti, PT	Southeastern Region American Society for Biomechanics	Graduate Student Poster Award
Virginia Little, PT, NCS	Foundation for Physical Therapy	Promotion of Doctoral Studies- I
2008		
Manuela Corti, PT	University of Florida Alumni Fellowship	January 2008 – December 2011
Dorian K. Rose, PhD, PT	NIH K-12 RRCD Fellow	January 2008 – December 2011
Manuela Corti, PT	University of Florida	Graduate Student Travel Award
Martina Spiess, PT, MSc	University of Florida Alumni Fellowship	August 2008 - 2012
Kelly Westlake, PhD, PT	University of California, San Francisco School of Medicine	Travel Award
Manuela Corti, PT	University of Florida	International Student Award
Virginia Little, PT, NCS	Foundation for Physical Therapy	Florence Kendall Scholarship
Chetan Phadke, PhD, PT	University of Florida Neuromuscular Plasticity Symposium	Post-doctoral Student Poster Award

2007

David J. Clark, ScD	University of Florida	Post-doctoral Student Poster Award
	Neuromuscular Plasticity Symposium	
Chris Gregory, PhD, PT	NIH K-12 RRCD Fellow	2007 - 2010

2006

Kelly Westlake, PhD, PT	Canadian Institutes of Health Research	Post-doctoral Fellowship
		2006 – 2011

2005

David J. Clark	Boston University	Dudley Allen Sargent Research Grant
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