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Education

2013	Postdoc	Neurology	University of California, Irvine
2010	PhD	Biokinesiology	University of Southern California
2000	MS	Physical Therapy	University of Indianapolis
1995	BS/MPT	Physical Therapy	University of Evansville

Training

- 2019 Training in Grantsmanship for Rehabilitation Research (TIGRR) Workshop funded by the National Center for Medical Rehabilitation Research at NIH
- 2017 17th Annual OBSSR/NHLBI Summer Institute on Randomized Behavioral Clinical Trials funded by the National Institutes of Health

Academic Positions

- 2020 – Associate Professor, Physical Therapy Program, Department of Exercise Science, University of South Carolina, Columbia, SC
- 2014 – Director, Motor Behavior and Neuroimaging Laboratory, University of South Carolina, Columbia, SC
- 2014 – 2019 Assistant Professor, Physical Therapy Program, Department of Exercise Science, University of South Carolina, Columbia, SC
- 2010 – 2013 Postdoctoral Research Fellow, Neurorehabilitation Laboratory, University of California, Irvine, Irvine, CA
- 2008 – 2016 Adjunct Instructor, Department of Physical Therapy, University of Tennessee Health Science Center, Memphis, TN
- 2003 – 2009 Teaching/Research Assistant, Doctor of Physical Therapy Program, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles, CA
- 2000 – 2002 Adjunct Instructor, Physical Therapist Assistant Program, Krannert School of Physical Therapy, University of Indianapolis, Indianapolis, IN
- 1999 – 2000 Graduate Assistant, Krannert School of Physical Therapy, University of Indianapolis, Indianapolis, IN

Clinical Positions

- 2003 – 2004 Physical Therapist, Northridge Hospital Medical Center, Northridge, CA
- 2002 – 2003 Physical Therapist, Head Injury Rehabilitation Services, Marina del Ray, CA
- 2001 – 2002 Physical Therapist, Clarian Health Partners, Indianapolis, IN

- 1999 – 2002 Physical Therapist, Rehabilitation Hospital of Indiana, Indianapolis, IN
1998 – 1999 Physical Therapist, Florence Physical Therapy Associates, PC, Lugoff, SC
1995 – 1999 Physical Therapist, HealthSouth Rehabilitation Hospital, Columbia, SC

Honors and Awards

- 2023 Distinguished Research Service Award, Office of the Vice President for Research, University of South Carolina
- 2011 Best Podium Presentation Award, California Physical Therapy Association Annual Conference, California Physical Therapy Association
- 2008 Research Publication Award, Physical Therapist-Student, California Physical Therapy Association
- 2008 Interdisciplinary Research Award, Student Research Day, School of Dentistry, University of Southern California
- 2000 Award for Excellence in Research in Postprofessional Program, Krannert School of Physical Therapy, University of Indianapolis

Peer-Reviewed Journal Publications (underline represents student/mentee)

1. Rizor E, Fridriksson J, Peters DM, Rorden C, Bonilha L, Yourganov G, Fritz SL, **Stewart JC**. (accepted). Brain-hand function relationships based on level of grasp function in chronic left-hemisphere stroke. *Neurorehabilitation and Neural Repair*.
2. Goh HT, **Stewart J**, Becker K. (accepted). Fatigue is associated with perceived effort and two-dimensional reach performance after stroke. *Journal of Neurologic Physical Therapy*.
3. Lewis AF, Bohnenkamp R, Myers M, den Ouden DB, Fritz SL, **Stewart JC**. (2024). Effect of positive social comparative feedback on the resting state connectivity of dopaminergic neural pathways: a preliminary investigation. *Neurobiology of Learning and Memory*, 212, 107930.
4. Goh HT, **Stewart J**, Becker K. (2024). Validating the Fatigue Scale for Motor and Cognitive Function (FSMS) in chronic stroke. *Neurorehabilitation*, 54, 275-285.
5. Goh HT, **Stewart J**, Becker K, Hung CJ. (2023). Memory-guided reaching: is it effortful? *Motor Control*, 27(2), 194-216.
6. Lewis AF, Bohnenkamp R, Johnson L, den Ouden DB, Wilcox S, Fritz SL, **Stewart JC**. (2023). Effects of positive social comparative feedback on motor sequence learning and performance expectancies. *Frontiers in Psychology*, 13, 1005705.
7. Hayward K, Ferris JK, Lohse KR, Borich MR, Borstad A, Cassidy JM, Cramer SC, Dukelow SP, Findlater SE, Hawe RL, Liew SL, Neva JL, **Stewart JC**, Boyd LA. (2022). An observational study of neuroimaging biomarkers of severe upper limb impairment after stroke. *Neurology*, 99(4), e402-e413.
8. Klusek J, Newman-Norlund R, Fairchild A, Newman-Norlund S, Sayers S, **Stewart JC**, Berry-Kravis E, Fridriksson J. (2022). Low normal FMR1 genotype in older women: Psychological well-being and motor function. *Archives of Gerontology and Geriatrics*, 103, 104789.
9. Lingo VanGilder J, Bergamino M, Hooyman A, Fitzhugh M, Rogalsky C, **Stewart JC**, Beeman SC, Schaefer SY. (2022). Using whole-brain diffusion-tensor analysis to evaluate white matter structural correlates of delayed visuospatial memory and one-week motor skill retention in nondemented older adults: A preliminary study. *PLoS One*, 17(9), e0274955.

10. **Stewart JC**, Baird JF, Lewis AF, Fritz SL, Fridriksson J. (2022). Effect of behavioral practice targeted at the motor action selection network after stroke. *European Journal of Neuroscience*, 56, 4469-4485.
11. Jordon M, **Stewart JC**, Silfies SP, Beattie PF. (2022). Task-based functional connectivity and BOLD activation during within-scanner performance of lumbopelvic motor tasks: an fMRI study. *Frontiers in Human Neuroscience*, 16, 816595.
12. Smith C, Hetherington A, Silfies SP, **Stewart JC**. (2022). Scaling of joint motion and muscle activation for 3-dimensional control of reach extent. *Journal of Motor Behavior*, 54(2), 222-236.
13. Goh HT, **Stewart JC**, Becker K, Hung CJ. (2022). Perceived effort for reaching is associated with self-reported fatigue. *Journal of Motor Behavior*, 54(1), 14-26.
14. Handlery R, **Stewart JC**, Pellegrini C, Monroe C, Hainline G, Flach A, Handlery K, Fritz S. (2021). Physical activity in de novo Parkinson's Disease: daily step recommendation and effects of treadmill exercise on physical activity. *Physical Therapy & Rehabilitation Journal*, 101, 1-11.
15. Lewis AF, **Stewart JC**. (2021). Comparison of corticospinal tract integrity measures extracted from standard versus native space in chronic stroke. *Journal of Neuroscience Methods*, 359, 109216.
16. Peters DM, Fridriksson J, Richardson JD, **Stewart JC**, Rorden C, Bonilha L, Middleton A, Fritz SL. (2021). Upper and lower limb motor function correlates with ipsilesional corticospinal tract and red nucleus structural integrity in chronic stroke: a cross-sectional, ROI-based MRI Study. *Behavioural Neurology*, 2021, 3010555.
17. Handlery R, Regan EW, **Stewart JC**, Pellegrini C, Monroe C, Hanline G, Handlery K, Fritz S. (2021). Predictors of daily steps at one year post stroke: a secondary analysis of a randomized controlled trial. *Stroke*, 52(5), 1768-1777.
18. Regan EW, Handlery R, **Stewart JC**, Pearson JL, Wilcox S, Fritz SL. (2021). Feasibility of integrating survivors of stroke into cardiac rehabilitation: a mixed methods pilot study. *PLoS One*, 16(3): e0247178.
19. Regan E, Fridriksson J, Schaefer SY, Rorden C, Bonilha L, Lingo Vangilder J, **Stewart JC**. (2021). Neural correlates of within-session practice effects in mild motor impairment after stroke: a preliminary investigation. *Experimental Brain Research*, 239(1), 151-160.
20. **Stewart JC**, Saba A, Baird JF, Kolar MB, O'Donnell M, Schaefer SY. (2021). Effect of standing on a standardized measure of upper extremity function. *OTJR: Occupation, Participation, and Health*, 41(1), 32-39.
21. Regan EW, Handlery R, **Stewart JC**, Pearson JL, Wilcox S, Fritz S. (2021). Integrating survivors of stroke into cardiac rehabilitation improves cardiovascular endurance and functional strength. *Journal of the American Heart Association*, 10(3), e017907.
22. **Stewart JC**, Handlery K, Baird JF, Blanck EL, Pathak G, Fritz SL. (2020). Targeted engagement of the action selection network during task-oriented arm training after stroke. *Neural Plasticity*, 8814158.
23. Handlery R, Fulk G, Pellegrini C, **Stewart JC**, Monroe C, Fritz S. (2020). Stepping after stroke: walking characteristics in people with chronic stroke differ based on walking speed, walking endurance and daily steps. *Physical Therapy Journal*, 100(5), 807-817.
24. Lewis AF, Myers M, Heiser J, Kolar M, Baird JF, **Stewart JC**. (2020). Test-retest reliability and minimal detectable change of corticospinal tract integrity in chronic stroke. *Human Brain Mapping*, 41(9), 2514-2526.
25. Regan E, Middleton A, **Stewart JC**, Wilcox S, Pearson JL, Fritz SL. (2020). The six-minute walk test as a screening tool for fall risk in person with stroke: a cross-sectional analysis. *Topics in Stroke Rehabilitation*, 27(2), 118-126.

26. Goh HT, **Stewart JC**. (2019). Post-stroke fatigue is related to motor and cognitive performance: a secondary analysis. *Journal of Neurologic Physical Therapy*, 43(4):233-239.
27. Regan E, Handlery R, Liuzzo DM, **Stewart JC**, Burke AR, Hainline GM, Horn C, Keown JT, McManus AE, Lawless BS, Purcell M, Fritz S. (2019). The Neurological Exercise Training (NExT) Program: A Pilot Study of a Community Exercise Program for Survivors of Stroke. *Disability and Health Journal*, 12, 528-532.
28. **Stewart JC**, Lewthwaite R, Rocktashel J, Winstein CJ. (2019). Self-efficacy and reach performance in individuals with mild motor impairment due to stroke. *Neurorehabilitation and Neural Repair*, 33(4), 319-328.
29. Gunn LJ, **Stewart JC**, Morgan B, Metts ST, Magnuson JM, Iglowski NJ, Fritz SL, Arnot C. (2019). Instrument-assisted soft tissue mobilization and proprioceptive neuromuscular facilitation techniques improve hamstring flexibility better than static stretching alone: a randomized clinical trial. *Journal of Manual & Manipulative Therapy*, 27(1), 15-26.
30. Baird JF, Gaughan ME, Saffer HM, Sarzynski MA, Herter TM, Fritz SL, den Ouden DB, **Stewart JC**. (2018). The effect of energy-matched exercise intensity on brain-derived neurotrophic factor and motor learning. *Neurobiology of Learning and Memory*, 156, 33-44.
31. Schaefer SY, Saba A, Baird J, Kolar MB, Duff K, **Stewart JC**. (2018). Within-session practice effects in the Jebsen Hand Function Test (JHFT). *American Journal of Occupational Therapy*, 72(6), 7206345010p1-7206345010p5.
32. Quinlan EB, Dodakian L, See J, McKenzie A, **Stewart JC**, Cramer SC. (2018). Biomarkers of rehabilitation therapy vary according to stroke severity. *Neural Plasticity*, 9867196.
33. Baird J, **Stewart JC**. (2018). Sequence-specific implicit motor learning using whole-arm 3-dimensional reach movements. *Experimental Brain Research*, 236, 59-67.
34. Peters DM, Fridriksson J, **Stewart JC**, Richardson JD, Rorden C, Bonilha L, Middleton A, Gleichgerrcht E, Fritz SF. (2018). Cortical disconnection of the ipsilesional primary motor cortex is associated with gait speed and upper extremity motor impairment in chronic stroke. *Human Brain Mapping*, 39, 120-132.
35. **Stewart JC**, O'Donnell M, Handlery K, Winstein CJ. (2017). Skilled reach performance correlates with corpus callosum structural integrity in individuals with mild motor impairment after stroke: a preliminary investigation. *Neurorehabilitation and Neural Repair*, 31(7), 657-665.
36. **Stewart JC**, Cramer SC. (2017). Genetic variation and neuroplasticity: role in rehabilitation after stroke. *Journal of Neurologic Physical Therapy*, 41, S17-S23.
37. **Stewart JC**, Dewanjee P, Tran G, Quinlan EB, Dodakian L, McKenzie A, See J, Cramer SC. (2017). Role of corpus callosum in sensorimotor function differs based on level of motor impairment after stroke. *Neuroimage: Clinical*, 14, 641-647.
38. **Stewart JC**, Deewanjee P, Shariff U, Cramer SC. (2016). Dorsal premotor activity and connectivity relate to action selection performance after stroke. *Human Brain Mapping*, 37(5), 1816-1830.
39. Dodakian L, **Stewart JC**, Cramer SC. (2014). Motor imagery during movement activates the brain more than movement alone after stroke: a pilot study. *Journal of Rehabilitation Medicine*, 46(9), 843-848.
40. **Stewart JC**, Tran X, Cramer SC. (2014). Age-related variability in performance of a motor action selection task is related to differences in brain structure and function among older adults. *Neuroimage*, 86, 326-334.

41. **Stewart JC**, Gordon J, Winstein CJ. (2014). Control of reach extent with the paretic and nonparetic arms after unilateral sensorimotor stroke II: planning and adjustments to control movement distance. *Experimental Brain Research*, 232(11), 3431-3443.
42. **Stewart JC**, Gordon J, Winstein CJ. (2014). Control of reach extent with the paretic and nonparetic arms after unilateral sensorimotor stroke: kinematic differences based on side of brain damage. *Experimental Brain Research*, 232(7), 2407-2419.
43. **Stewart JC**, Cramer SC. (2013). Patient-reported outcomes provide unique insights into motor function after stroke. *Stroke*, 44(4), 1111-1116.
44. **Stewart JC**, Gordon J, Winstein CJ. (2013). Planning and adjustments for the control of reach extent in a virtual environment. *Journal of NeuroEngineering & Rehabilitation*, 10, 27.
45. Schweighofer N, Lee JY, Goh HT, Choi Y, Kim S, **Stewart JC**, Lewthwaite R, Winstein CJ. (2011). Mechanisms of the contextual interference effect in individuals post-stroke. *Journal of Neurophysiology*, 106(5), 2632-2641.
46. **Stewart JC**, Yeh SC, Jung Y, Yoon H, Whitford M, Chen S, Li L, McLaughlin M, Rizzo A, Winstein CJ. (2007). Intervention to enhance skilled arm and hand movements after stroke: A feasibility study using a new virtual reality system. *Journal of NeuroEngineering & Rehabilitation*, 4, 21.
47. Domholdt E, **Stewart JC**, Barr JO, Melzer BA. (2002). Entry-level doctoral degrees in physical therapy: Status as of Spring 2000. *Journal of Physical Therapy Education*, 16(1), 60-68.

Invited Commentaries and Editorials

1. Silfies SP, Vendemia JMC, Beattie P, **Stewart JC**, Jordon M. (2017). Changes in brain structure and activation may augment abnormal movement patterns: an emerging challenge in musculoskeletal rehabilitation. *Pain Medicine*, 18(11), 2051-2054.
2. **Stewart JC**, Flach A. (2015). Making the most of every repetition. *Journal of Neurologic Physical Therapy*, 39(1), 31-32.

Book Chapters

1. Winstein CJ, **Stewart JC**. (2006). Conditions of task practice for individuals with neurological impairments. In: *Textbook of Neural Repair and Neurorehabilitation. Medical Neurorehabilitation* (eds Selzer M, Clark S, Cohen L, Duncan P, Gage F), Cambridge University Press, Cambridge, 89-102.

Peer-Reviewed Conference Papers

1. **Stewart JC**, Gordon J, Winstein CJ. (2008). Use of a virtual environment to investigate planning of unconstrained reach actions after stroke: a feasibility study. *Virtual Rehabilitation 2008*, Vancouver, Canada, 13-21.
2. Yeh SC, **Stewart J**, McLaughlin M, Parsons TD, Winstein CJ, Rizzo AA. (2007). Evaluation approach for post-stroke rehabilitation via virtual reality aided motor training. *Twelfth Annual International Conference on Human-Computer Interaction*, Beijing, China, 378-387.
3. Yeh SC, **Stewart J**, McLaughlin M, Parsons TD, Winstein CJ, Rizzo AA. (2007). VR aided motor training for post-stroke rehabilitation: system design, clinical test, methodology for evaluation. *IEEE Virtual Reality Conference*, Charlotte, NC, 299-300.

4. McLaughlin M, Zimmermann R, Liu LS, Jung Y, Peng W, Jin SA, **Stewart J**, Yeh SC, Zhu W, Seo B. (2006). Integrated voice and haptic support for tele-rehabilitation. *Fourth Annual IEEE International Conference on Pervasive Computing and Communications Workshops*, Pisa, Italy, 595-599.
5. **Stewart JC**, Yeh SC, Jung Y, Yoon H, Whitford M, Chen S, Li L, McLaughlin M, Rizzo A, Winstein CJ. (2006). Pilot trial results from a virtual reality system designed to enhance recovery of skilled arm and hand movements after stroke. *Fifth International Workshop on Virtual Rehabilitation*, New York, NY, 11-17.
6. Jung Y, Yeh SC, **Stewart J**, USC-UT Consortium for Interdisciplinary Research. (2006). Tailoring virtual reality technology for stroke rehabilitation: a human factors design. *Proceedings on Human Factors in Computing Systems, CHI 2006*, Montreal, Canada, 929-934.
7. Yeh SC, Rizzo A, Zhu W, **Stewart J**, McLaughlin M, Cohen I, Jung Y, Peng W. (2005). An integrated system: virtual reality, haptics and modern sensing technique (VHS) for post-stroke rehabilitation. *ACM Symposium on Virtual Reality Software and Technology*, Monterey, CA, 59-62.

Conference Research Presentations (underline represents student/mentee)

1. Pandya R, Lockhart O, Lewis A, Maxwell K, Fritz SL, **Stewart JC**. (2024). Effect of task-oriented arm training in standing on bimanual and unimanual arm use in stroke: a preliminary study. *American Society of Neurorehabilitation Annual Meeting*.
2. Liao KC, Christian I, **Stewart J**, Jackson E, Wang W, Shang T, Goh HT. (2024). Behavioral and neural correlates of post-stroke fatigue: a randomized controlled trial protocol. *American Society of Neurorehabilitation Annual Meeting*.
3. Pandya R, Lockhart O, Lewis A, Maxwell K, Fritz SL, **Stewart JC**. (2024). Task-oriented arm training in standing after stroke: a feasibility study. *Combined Sections Meeting of the APTA*.
4. McAdams D, Trunnelle B, Pugh D, Liu H, **Stewart J**, Becker K, Goh HT. (2024). Relationship between self-reported fatigue and brain activation during reaching: an fNIRS study. *Combined Sections Meeting of the APTA*, accepted.
5. Geary MD, Arnot CF, Jacobson ET, Grant LA, Bayliss R, Bruce ME, Cooper SK, Parrish AM, Pfeiffer A, Steadings JE, Turner J, **Stewart JC**. (2024). Impact of mobilization with movement on hip flexion range of motion: a randomized control trial. *Combined Sections Meeting of the APTA*, accepted.
6. Smith CR, Silfies SP, Behroozmand R, Kantak S, **Stewart, JC**. (2023). Investigation of the effect of attentional focus instructions on learning a whole-arm sequence task. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*.
7. Lewis AF, Bohnenkamp R, **Stewart JC**. (2023). Genetic variation in the dopamine system impacts learning response to positive social comparative feedback. *American Society of Neurorehabilitation Annual Meeting*.
8. Marshall T, Paz C, **Stewart J**, Becker K, Goh HT. (2023). Psychometric properties of the Fatigue Scale for Motor and Cognitive Function (FSMC) in chronic stroke. *Combined Sections Meeting of the APTA*.
9. Lewis AF, Bohnenkamp R, Myers M, den Ouden D, Fritz S, **Stewart JC**. (2022). Effect of positive social comparative feedback on resting state connectivity of dopaminergic neural pathways: a preliminary investigation. *Society for Neuroscience*.
10. Goh HT, **Stewart JC**, Becker K. (2022). Unique role of post-stroke fatigue in reach performance and arm use after stroke. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*.

11. **Stewart JC**, Lewis AF, Baird J, Handlery K, Lockhart O, Blanck E, Fritz SL. (2022). Targeting the action selection network during functional arm training after stroke: a feasibility study. *International Stroke Conference*.
12. Goh HT, **Stewart JC**, Becker K. (2022). Post-stroke fatigue is related to perceived effort during reaching. *Combined Sections Meeting of the APTA*.
13. Chung YC, **Stewart JC**, Shang T, Goh HT. (2022). Reduced corticomotor excitability and increased cortical inhibition are associated with post-stroke fatigue. *Combined Sections Meeting of the APTA*.
14. Lewis AF, Bohnenkamp R, Johnson L, den Ouden D, Wilcox S, Fritz S, **Stewart JC**. (2021). Effects of social comparative feedback on motor sequence learning and the kinematic variables of performance. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*.
15. Smith C, Via J, Roark H, Watkins M, Baird JF, **Stewart JC**. (2021). Sequence-specific implicit motor learning of a 3-dimensional whole-arm sequence task in the non-dominant versus dominant arm, *North American Society for the Psychology of Sport and Physical Activity Annual Conference*.
16. Lewis AF, Bohnenkamp R, Johnson L, den Ouden D, Wilcox S, Fritz S, **Stewart JC**. (2021). Effects of social comparative feedback on motor sequence learning and perceived competence. *American Society of Neurorehabilitation Annual Meeting*.
17. Johnson LR, Heiser JC, Corely RK, Lewis AF, **Stewart JC**. (2021). Effect of task-oriented arm training on corticospinal tract integrity in chronic stroke. *Combined Sections Meeting of the APTA*.
18. Jordon MK, Beattie PF, Silfies SP, **Stewart J**. (2021). Increased insular and mid-cingulate cortex activation in individuals with cLBP occurs only during pain-specific tasks. *Combined Sections Meeting of the APTA*.
19. Smith CR, Via J, Roark H, Watkins M, Baird JF, **Stewart JC**. (2021). Sequence-specific implicit motor learning using the non-dominant left arm in a three-dimensional virtual environment. *Annual Meeting of the Southeast Chapter of the American College of Sports Medicine*.
20. Handlery R, Fulk G, Pellegrini C, **Stewart JC**, Monroe C, Fritz SL. (2020). Walking characteristics in individuals with stroke differ based on walking speed, endurance and daily steps. *Annual Meeting of the American College of Sports Medicine*.
21. Regan EW, Handlery R, Wilcox S, **Stewart J**, Pearson JL, Fritz SL. (2020). Outcomes from integrating stroke survivors into cardiac rehabilitation. *AHA Quality of Care & Outcomes Research Conference*.
22. Lewis AF, **Stewart JC**. (2020). Corticospinal tract fractional anisotropy extracted from native versus standard space in chronic stroke. *Combined Sections Meeting of the APTA*.
23. Goh HT, Becker K, Hung CJ, Beutel, **Stewart J**. (2020). Subjective fatigue is correlated with perceived effort and reach performance. *Combined Sections Meeting of the APTA*.
24. Regan EW, Wilcox S, **Stewart JC**, Pearson JL, Fritz SL. (2020). Integrating stroke survivors into cardiac rehabilitation: exploring effectiveness, feasibility, physical therapist involvement and policy implications. *Combined Sections Meeting of the APTA*.
25. Jordon MK, Beattie PF, Silfies SP, Bialosky JE, **Stewart J**. (2020). Task-based functional connectivity during lumbopelvic motor tasks: an fMRI study in healthy participants. *Combined Sections Meeting of the APTA*.
26. Jordon MK, Beattie PF, Silfies SP, Bialosky JE, **Stewart J**. (2020). Individuals with chronic low back pain exhibit alterations in brain activation during lumbopelvic motor tasks. *Combined Sections Meeting of the APTA*.

27. Behnke AD, Gibbs K, Jansen SS, **Stewart JC**, Westlake FL, Harrington SE. (2020). Comparing functional assessment in those with CIPN vs. community dwelling older adults. *Combined Sections Meeting of the APTA*.
28. Lewis AF, **Stewart JC**. (2019). Comparison of corticospinal tract fractional anisotropy extracted from native versus standard space in chronic stroke. *American Society of Neurorehabilitation Annual Meeting*.
29. Smith CR, Hetherington A, Silfies SP, **Stewart JC**. (2019). Joint motion and muscle activation scaling during 3-Dimensional Reach Actions. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*.
30. Handlery K, Lockhart O, Lewis AF, Kolar M, Blanck E, Fritz SL, **Stewart JC**. (2019). Applied principles of individualization during task-oriented arm training in individuals with chronic stroke: a case series. *World Physical Therapy Conference*.
31. Anderson K, Adkins D, **Stewart J**, Simpson A, Woodbury ML. (2019). Using evidence from neuroscience, psychology, and learning theory to know when to grade task difficulty. *AOTA Annual Conference & Expo*.
32. Lewis AF, Myers M, Heiser J, Kolar MB, **Stewart JC**. (2019). Reliability and minimal detectable change of fractional anisotropy of the corticospinal tract in chronic stroke. *Combined Sections Meeting of the APTA*. *Awarded Best Poster Award-Basic or Applied Research, Stroke Special Interest Group
33. **Stewart JC**, Lewis AF, Baird JF, Fritz SL, Fridriksson J. (2018). Effect of behavioral practice targeted at the premotor-prefrontal component of the motor network after stroke. *American Society of Neurorehabilitation Annual Meeting*.
34. Hayward KS, Ferris J, Lohse K, Borich M, Borstad A, **Stewart J**, Dukelow S, Cassidy J, Findlater S, Neva J, Cramer SC, Boyd LA. (2018). Severity of impairment is important when exploring biomarkers of upper limb outcome post-stroke. *American Society of NeuroRehabilitation Annual Meeting*. *Awarded Fletcher McDowell Award – Best Abstract in Clinical Science
35. Lewis AF, Myers M, Heiser J, Kolar MB, **Stewart JC**. (2018). Test-retest reliability of corticospinal tract integrity in chronic stroke. *Society for Neuroscience Abstracts*, 311.08.
36. Smith CR, Hetherington A, Silfies S, **Stewart JC**. (2018). Scaling of muscle activation during 3D reach actions. *Society for Neuroscience Abstracts*, 401.08.
37. Hayward K, Ferris J, Lohse K, Borich M, Cramer S, Borstad A, **Stewart J**, Cassidy J, Neva J, Boyd L. (2018). Biomarkers of upper limb outcome post-stroke: moving beyond one-size-fits-all. *11th World Stroke Congress*.
38. Goh HT, **Stewart JC**. (2018). Post-stroke fatigue is associated with cognitive function and information processing speed. *American College of Rehabilitation Medicine Annual Conference*.
39. Baird J, Gaughan ME, Saffer HM, Sarzynski MA, Herter TM, Fritz SL, Den Ouden DB, **Stewart JC**. (2018). The effect of exercise intensity on the kinematics of reach performance and brain-derived neurotrophic factor. *Annual Meeting of the American College of Sports Medicine*.
40. Baird JF, Gaughan ME, Saffer HM, Sarzynski MA, Herter TM, Fritz SL, Den Ouden DB, **Stewart JC**. (2018). Exercise intensity affects the kinematic approach used to improve performance of a 3-dimensional target task. *Annual Meeting of the Southeast Chapter of the American College of Sports Medicine*.
41. **Stewart JC**, Baird J, Foster A, Fritz SL, Fridriksson J. (2018). Targeted engagement of the premotor component of the motor network after stroke. *International Stroke Conference*.

42. Liuzzo DM, Plummer P, **Stewart JC**, Fritz SL. (2018). Chronological age and functional measurements predict dual task cost for postural sway while using a bimanual task in healthy adults across all ages. *Combined Sections Meeting of the APTA*.
43. Jordon M, Silfies SP, Beattie PF, Vendemia JM, **Stewart JC**. (2018). Brain activation during lumbopelvic exercises: an fMRI study. *Combined Sections Meeting of the APTA*.
44. Gunn L, Magnuson J, Iglowski N, Morgan B, **Stewart J**, Fritz S, Arnot C. (2018). Instrumented-assisted soft tissue mobilization and proprioceptive neuromuscular facilitation techniques improve hamstring flexibility better than static stretching. *Combined Sections Meeting of the APTA*.
45. Regan E, Fridriksson J, Schaefer SY, Rorden C, Bonilha L, Van Gilder JL, **Stewart JC**. (2017). Neural correlates of within session changes on a simulated feeding task in individuals with mild motor impairment after stroke. *American Society of Neurorehabilitation Annual Meeting*.
46. Baird JF, Gaughan ME, Saffer HM, Sarzynski MA, Herter TM, Fritz SL, Den Ouden DB, **Stewart JC**. (2017). The effect of energy-matched exercise intensity on brain-derived neurotrophic factor and motor learning. *Society for Neuroscience Abstracts*, 593.12.
47. Rizor EJ, Fridriksson J, Rorden C, Bonilha L, Yourganov G, Peters DM, Fritz SL, **Stewart JC**. (2017). Functional neural correlates of hand motor function differ based on level of motor severity in individuals post-stroke. *Society for Neuroscience Abstracts*, 62.07.
48. **Stewart JC**, Hetherington A, Bruemmer D, Ichiyanagi T, Rocktashel J, O'Donnell M, Simmons C, Herter TM. (2017). Effect of practice on the control of reach extent. *Society for Neuroscience Abstracts*, 405.03.
49. Hayward KS, Borich MR, Cramer SC, Borstad A, **Stewart JC**, Neva JL, Ferris JK, Cassidy J, Boyd LA. (2017). Regional diffusion differences in people with severe upper limb impairment post-stroke: a multicentre study. *Society for Neuroscience Abstracts*, 306.12.
50. Yazdani S, Yourganov G, Fridriksson J, Fritz S, **Stewart JC**, Herter TM. (2017). Cortical damage and disconnection independently contribute to stroke-induced deficits in limb-motor control and motor-task performance. *Society for Neuroscience Abstracts*, 62.01.
51. Baird JF, Pathak G, Cramer SC, **Stewart JC**. (2017). Segmentation of interhemispheric motor regions on the corpus callosum in stroke. *Annual Meeting of the Organization of Human Brain Mapping*.
52. Baird JF, **Stewart JC**. (2017). Development of a 3-dimensional motor learning task to investigate exercise-enhanced neuroplasticity. *Annual Meeting of the Southeast Chapter of the American College of Sports Medicine*.
53. Fritz SL, Handlery RA, Hainline G, Miller S, McManus A, Keown J, Horn C, Burke A, Purcell M, Liuzzo D, **Stewart J**. (2017). Taking the NExT step in promoting exercise after stroke: a community-based gym for survivors of stroke. *World Physical Therapy Conference*.
54. **Stewart JC**, Handlery K, Blanck E, Baird J, Pathak G, Fritz, SL. (2017). Targeted engagement of premotor cortex during task-oriented training after stroke: a case series. *Combined Sections Meeting of the APTA*.
55. Handlery R, Miller S, Hainline G, McManus A, Liuzzo D, **Stewart JC**, Fritz SL. (2017). The NExT step in promoting physical activity after stroke: a community-based gym for survivors of stroke. *Combined Sections Meeting of the APTA*.
56. Liuzzo DM, Plummer P, **Stewart JC**, Fritz SL. (2017). Functional reach, experience and age are weak predictors of walking speed while performing a bimanual task in healthy adults. *Combined Sections Meeting of the APTA*.

57. Baird J, **Stewart JC**. (2016). Sequence specific motor learning in an immersive virtual environment. *Society for Neuroscience Abstracts*, 332.23.
58. **Stewart JC**, Baird J, Pathak G, Cramer SC. (2016). Distribution of interhemispheric structural connections between motor regions on the corpus callosum in older adults. *Society for Neuroscience Abstracts*, 437.07.
59. Saba A, Baer J, Kolar M, O'Donnell M, Schaefer SY, **Stewart JC**. (2016). Effect of standing on Jebsen Taylor Hand Test performance. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*.
60. Peters DM, **Stewart JC**, Richardson JD, Middleton A, Fridriksson J, Rorden C, Bonhilha L, Gleichgerricht E, Herter TM, Newman-Norlund RD, Fritz SL. (2016). Cortical disconnection of the ipsilesional primary motor cortex is associated with gait speed and upper extremity motor impairment in chronic stroke. *Combined Sections Meeting of the APTA*.
61. Liuzzo D, **Stewart JC**, Fritz S. (2016). Walking speed during the Six Minute Walk Test should not be used as a surrogate for self-selected or fast walking speed in individuals with chronic stroke. *Combined Sections Meeting of the APTA*.
62. **Stewart JC**, O'Donnell M, Handlery K, Winstein CJ. (2015). Relationship between skilled reach performance and corpus callosum integrity in individuals with mild motor impairment after stroke. *Society for Neuroscience Abstracts*, 610.24.
63. Harper G, Cramer SC, **Stewart JC**. (2015). Premotor-prefrontal connectivity during motor action selection after stroke. *Neural Control of Movement Society Satellite Meeting*, S-7.
64. **Stewart JC**, Quinlan EB, Dodakian L, McKenzie A, See J, Cramer SC. (2015). Role of contralesional hemisphere during paretic hand movement differs based on level of motor impairment. *International Stroke Conference*, 5. *Selected as among the top 10% of accepted rehabilitation abstracts
65. Dewanjee P, Tran G, **Stewart JC**, Quinlan EB, Dodakian L, McKenzie A, See J, Cramer SC. (2015). Structural integrity of the corpus callosum correlates with sensorimotor impairment after stroke. *International Stroke Conference*, 2.
66. **Stewart JC**, Dewanjee P, Quinlan EB, Dodakian L, McKenzie A, See J, Cramer SC. (2014). Relationship between M1-M1 coupling during paretic hand movement and corpus callosum integrity after stroke. *Society for Neuroscience Abstracts*, 443.18.
67. **Stewart JC**, Burke E, Dodakian L, McKenzie A, See J, Cramer SC. (2014). Effective connectivity during paretic hand movements after stroke: effect of side of brain damage. *Annual Meeting of the Organization of Human Brain Mapping*, 3340.
68. Dodakian L, **Stewart JC**, Cramer SC. (2014). Motor imagery during movement activates the brain more than movement alone after stroke. *International Stroke Conference*, 153.
69. **Stewart JC**, Dewanjee P, Shariff U, Cramer SC. (2014). Action selection for paretic hand movements leads to increased activation in the contralesional hemisphere after stroke. *J Neurol Phys Ther*, 38, 24.
70. **Stewart JC**, Cramer SC. (2013). Increased activation in premotor and prefrontal cortices relates to poorer motor action selection performance after stroke. *Society for Neuroscience Abstracts*, 273.06.
71. **Stewart JC**, Shariff U, Dewanjee P, Cramer SC. (2013). Neural correlates of motor action selection after stroke. *Annual Meeting of the Organization for Human Brain Mapping*, 1246.
72. **Stewart JC**, Tran X, Cramer SC. (2013). Two distinct patterns of brain activation during motor action selection in older adults. *Neural Control of Movement Society Annual Meeting*.

73. **Stewart JC, Tran X, Cramer SC.** (2012). Neural correlates of motor action selection in older adults. *Society for Neuroscience Abstracts*, 381.18.
74. **Stewart JC, Wagner J, Gordon J, Winstein CJ.** (2011). Anticipatory planning and compensatory adjustments to control reach distance after stroke. *Annual Conference of the American Physical Therapy Association*. (Also presented at the 2011 *California Physical Therapy Association Annual Conference*)
75. **Stewart JC, Lewthwaite R, Winstein CJ.** (2010). Self-efficacy for reach actions after stroke: a pilot study. *J Sport Exercise Psych*, 32, S131.
76. Lee J-Y, Lee J, Choi Y, Goh H, **Stewart J**, Lewthwaite R, Winstein C, Schweighofer N. (2010). Simultaneous practice rather than sequential practice of multiple tasks facilitates long-term retention of motor memory in patients with stroke. *Neural Control of Movement Society Annual Meeting*.
77. **Stewart JC, Gordon J, Winstein CJ.** (2009). Is the scaling of reach kinematics to 3-D virtual targets preserved after stroke? *J Neurol Phys Ther*, 33, 231.
78. **Stewart JC, Gordon J, Winstein CJ.** (2009). Initial plan and compensatory adjustments of unconstrained reach actions after sensorimotor stroke. *Society for Neuroscience Abstracts*, 568.13.
79. **Stewart JC, Gordon J, Winstein CJ.** (2009). Movement endpoint variability for unconstrained reach actions to 3-D virtual targets. *Neural Control of Movement Society Annual Meeting*.
80. **Stewart JC, Gordon J, Winstein CJ.** (2008). Anticipatory scaling of reach kinematics to 3-D virtual targets. *J Neurol Phys Ther*, 32, 219.
81. **Stewart JC, Gordon J, Winstein CJ.** (2008). Initial plan and early adjustments of unconstrained reach actions to 3-D virtual targets. *Society for Neuroscience Abstracts*, 861.24.
82. **Stewart JC, Yoon, H, Yeh S, McLaughlin M, Rizzo A, Winstein CJ.** (2007). Training reach movements in individuals with hemiparesis: effect of a virtual environment. *J Neurol Phys Ther*, 31, 192.
83. Whitford M, Chen S, **Stewart J**, Winstein C, Yeh S, Rizzo A, Yoon H, Li L, Jung Y, McLaughlin M, Lewthwaite R. (2007). Personalized task practice: Effectiveness of a virtual reality system for upper extremity rehabilitation in persons with chronic hemiparesis. *World Physical Therapy Conference*.
84. Goh H, Choi YG, **Stewart JC**, Lewthwaite R, Winstein CJ, Schweighofer N. (2007). Learning grip force modulation after stroke: What is the optimal practice schedule? *World Physical Therapy Conference*.
85. **Stewart JC, Choi Y, Goh HT, Kantak S, Winstein CJ, Schweighofer N.** (2005). Practice schedules to enhance grasp function following stroke. *Society for Neuroscience Abstracts*, 333.9.
86. Domholdt E, **Stewart JC**, Barr JO, Melzer BA. (2001). Entry-level doctoral degrees in physical therapy: Status as of Spring 2000. *Combined Sections Meeting of the American Physical Therapy Association*.

Conference Symposia Presentations

- 2021 **Stewart JC, Goh HT, Kantak S, Peters S.** More than apraxia: role of motor planning in skilled movement after stroke
Combined Sections Meeting of the American Physical Therapy Association, Virtual
- 2019 **Stewart JC, Lewis A, Handlery K, Lockhart O.** Challenge and progression during task-oriented arm training after stroke: guiding principles and practical applications
South Carolina Physical Therapy Association Annual Conference, Greenville, SC
- 2018 Borich M, Cassidy J, Hayward K, **Stewart JC.** Neuroimaging biomarkers and predictors of motor recovery: Implications for PTs

- Combined Sections Meeting of the American Physical Therapy Association. New Orleans, LA
- 2016 **Stewart JC**. Task-oriented training after stroke: how do we optimize task practice?
South Carolina Physical Therapy Association Annual Conference, Charleston, SC
- 2016 Jain T, Smith D, **Stewart JC**, Swanson K, Tevald M. Getting your first academic job: a guide for students, post-docs and clinicians
Combined Sections Meeting of the American Physical Therapy Association, Anaheim, CA
- 2013 **Stewart JC**, Schaefer S. Altering task conditions to influence motor behavior after stroke
Combined Sections Meeting of the American Physical Therapy Association. San Diego, CA

Invited External Presentations

- 2022 Training arm function after stroke: more than executing movement
Behind the Science Seminar Series, Cleveland FES Center, Cleveland, OH
- 2022 Career Development Panel – Lessons Learned: Lab Leadership and Management
Annual Meeting of the American Society of Neurorehabilitation, St. Louis, MO
- 2020 Engagement of the action selection network during arm training after stroke
Shrier Family Visiting Scholar Lecture in Rehabilitation Science, Moss Rehabilitation Hospital, Philadelphia, PA
- 2017 Intensity and challenge in task-oriented training after stroke
Healthsouth Rehabilitation Hospital, Columbia, SC
- 2016 Individualizing rehabilitation after stroke: role of genetic variation
IV STEP: Prevention, Prediction, Plasticity, and Participation, Columbus, OH
- 2015 Motor rehabilitation after stroke: How do we optimize task practice?
12th Annual University of Utah Stroke Symposium, Salt Lake City, UT
- 2013 Role of motor planning in the performance and learning of skilled actions after stroke
Orange County Stroke Rehabilitation Network Workshop. Orange, CA
- 2013 Planning skilled motor actions: behavioral and neural changes after stroke
Department of Physical Therapy, The Ohio State University, Columbus, OH
- 2013 Planning skilled motor actions: behavioral and neural changes after stroke
Department of Physical Therapy, Indiana University-Purdue University Indianapolis, Indianapolis, IN
- 2013 Planning skilled motor actions: behavioral and neural changes after stroke
Department of Exercise Science, University of South Carolina, Columbia, SC
- 2012 Neural correlates of action selection after stroke: pilot results
Neurorehabilitation Research Laboratory, Washington University, St. Louis, MO
- 2011 Neuroplasticity: Theory to Practice
Association of Rehabilitation Nurses National Conference, Las Vegas, NV

Invited Internal Presentations

- 2020 Mentorship Panel, PhD Student and Postdoctoral Professional Development Seminar
Department of Communication Sciences and Disorders, University of South Carolina, Columbia, SC
- 2020 Preparing for a Faculty Position and Planning for Success Panel

Grad 801: Graduate Student as Scholar, Presidential Fellows, Graduate School, University of South Carolina, Columbia, SC

- 2019 Engagement of the action selection network during functional arm training after stroke
Institute of Mind and Brain Seminar Series, University of South Carolina, Columbia, SC
- 2017 Brain-behavior relationship after stroke: relevance to rehabilitation
Biomedical Sciences Seminar, School of Medicine, University of South Carolina, Columbia, SC
- 2015 Brain-behavior relationships and motor recovery after stroke
USC Neuroscience Retreat, University of South Carolina, Columbia, SC
- 2012 Neural correlates of action selection in older adults
Exercise and Rehabilitation Medicine Annual Retreat, University of California, Irvine, Irvine, CA
- 2011 Role of dorsal premotor cortex in motor preparation after stroke
Exercise and Rehabilitation Medicine Annual Retreat, University of California, Irvine, Irvine, CA

Ongoing Research Support

Co-Investigator

R15 HD109737 Goh (PI) 09/10/2023-09/09/2025
National Center for Medical Rehabilitation Research, National Institutes of Health \$372,827
Behavioral and neural correlates of post-stroke fatigue
Role: Co-Investigator
The aim of this study is to investigate the effects of a period of noninvasive brain stimulation on fatigue, perceived effort, and neural excitability and connectivity.

Excellence Initiative Fridriksson (PI) 2019-2024
Office of the Provost, University of South Carolina \$4,000,000
Aging brain cohort at the University of South Carolina (ABC@USC)
Role: Co-Investigator
The goal of this project is to develop a longitudinal and cross-sectional database that includes neuroimaging, neuropsychological, genetic, and biographical information to examine factors that influence brain health across the adult lifespan.

Completed Research Support

Principal Investigator

ASPIRE I Stewart (PI) 07/01/2019-09/30/2020
Office of Research, University of South Carolina \$14,929
Task-oriented training of arm function in standing after stroke: a pilot study
Role: Principal Investigator
One year no-cost extension due to COVID
The aim of this project is examine the feasibility and preliminary efficacy of arm training provided in a standing position in individuals with arm deficits due to stroke.

15SDG24970011 Stewart (PI) 07/01/2015-06/30/2019
Scientist Development Grant, American Heart Association National Affiliate \$308,000
Targeted engagement of the motor action selection network during arm rehabilitation after stroke
Role: Principal Investigator
The aim of this project is to investigate the feasibility of adding action selection demands to task-oriented training focused on the upper extremity in individuals with chronic stroke.
One year no-cost extension

R03 HD087481 Stewart (PI) 04/01/2016-03/31/2018
 National Center for Medical Rehabilitation Research, National Institutes of Health \$140,734
 Targeted engagement of the premotor-prefrontal motor circuit after stroke
 Role: Principal Investigator
 The aim of this project is to investigate the behavioral and neural effects of short term practice targeted at the premotor-prefrontal motor circuit after stroke.

ASPIRE I Stewart (PI) 05/16/2015-08/15/2016
 Office of Research, University of South Carolina \$15,000
 Deficits in planning reach distance after stroke: Motor capacity or learned non-use
 Role: Principal Investigator
 One year no-cost extension
 The aim of this study is to further explore deficits in the use of planning to control reach extent after stroke by examining how motor capacity to generate force quickly and arm non-use relate to the utilization of planning.

California Physical Therapy Fund Stewart (PI) 2009-2010
 Planning Reach Actions after Sensorimotor Stroke: Relationship between Behavioral \$5,000
 Performance and Lesion Characteristics
 Role: Principal Investigator
 The goal of this study was to examine the relationship between characteristics of the stroke lesion and corticospinal tract integrity and kinematic measures of skilled reaching after stroke.

Co-Investigator

R01 HD095959 Vendemia/Silfies (Co-PIs) 09/10/2018-05/31/2022
 National Center for Medical Rehabilitation Research, National Institutes of Health \$1,572,794
 Linking altered cortical sensorimotor integration with movement impairments in back pain
 Role: Co-Investigator
 The aim of this study is to examine brain activation during sensory and motor stimulation and how activation relates to trunk movement in individuals with low back pain.
 No-cost extension

Research Grant Goh (PI) 12/01/2021-12/31/2023
 Woodcock Institute \$15,000
 Neuro-efficiency: neural basis of perceived effort during movement
 Role: Co-Investigator
 The aim of this study is to exam the neural basis of perceived effort during reaching using functional near infrared spectrography (fNIRS) and how these variables relate to fatigue.

Research Enhancement Program Goh (PI) 09/01/2019-08/31/2021
 Office of Research and Sponsored Programs, Texas Women’s University \$9,833
 Post-stroke fatigue: a motor control deficit?
 Role: Co-Investigator
 The aim of this study is to determine the relationship between post-stroke fatigue, reach performance, and corticospinal excitability in individuals with chronic stroke.

17GRNT33670098 Herter (PI) 07/01/2017-06/30/2019
 Grant-in-Aid, American Heart Association \$154,000
 Abnormal visual search and motor function in stroke
 Role: Co-Investigator
 The aim of this project to determine the extent to which impaired visual search contributes to post-stroke deficits in functional motor performance.

Mentor

20PRE35180106 Lewis (PI) 01/01/2020-12/31/2021
 Predoctoral Fellowship, American Heart Association \$62,032

Effects of social comparative feedback during practice on motor sequence learning and resting state connectivity

Role: Mentor

The purpose of this study is to examine the effects of positive social comparative feedback during practice of a motor sequence task on learning, self-efficacy, and resting state functional connectivity of the reward neural network.

No-cost extension through March 2022

F31 AG062057 VanGilder (PI) 12/01/2018-11/30/2021
 National Institute on Aging, National Institutes of Health \$125,485

Using diffusion tensor imaging to identify the structural neural correlates of visuospatial and motor skill learning processes

Role: Co-Mentor (Primary Mentor: Sydney Schaefer, PhD, Arizona State University)

The aim of this project is to determine if the structural integrity of the superior longitudinal fasciculus predicts visuospatial function and motor skill learning in older adults. My specific mentorship role is in the analysis and interpretation of diffusion tensor imaging data for determining white matter tract integrity.

Chancellor's Research Fellows Program Goh (PI) 09/01/2018-08/31/2019
 Office of Research and Sponsored Programs, Texas Women's University \$8,000

Neurophysiological correlates of post-stroke fatigue

Role: Mentor

The aim of the project is to identify neurophysiological correlates of fatigue in chronic stroke and for the PI to develop neuroimaging skills for this and future projects.

Trainee

T32 NIAMS AR47752 Caiozzo (PI) 10/2010-10/2013
 Multidisciplinary Exercise Sciences Training Program

Role: Postdoctoral Trainee (Mentor: Steven C. Cramer)

The goal of the research project completed during this funding period was to determine the behavioral and neural correlates of motor action selection after stroke.

Promotion of Doctoral Studies II Scholarship Stewart (PI) 08/2009-07/2010
 Foundation for Physical Therapy \$15,000

Planning of Unconstrained Reach Actions after Unilateral Sensorimotor Stroke

Role: Trainee/Principal Investigator (Mentor: Carolee J. Winstein)

The goal of this study was to determine the utilization of anticipatory planning and feedback based adjustments to control reach extent after stroke.

Promotion of Doctoral Studies II Scholarship Stewart (PI) 08/2008-07/2009
 Foundation for Physical Therapy \$15,000

Planning of Unconstrained Reach Actions after Unilateral Sensorimotor Stroke

Role: Trainee/Principal Investigator (Mentor: Carolee J. Winstein)

The goal of this study was to determine the utilization of anticipatory planning and feedback based adjustments to control reach extent after stroke.

Mary McMillian Doctoral Scholarship Stewart (PI) 08/2003-07/2004
 Foundation for Physical Therapy \$5,000

Role: Trainee/Principal Investigator (Mentor: Carolee J. Winstein)

The purpose of this scholarship was to support doctoral studies in the first year of training.

Teaching

- 2021 – EXSC 775 Neural Basis of Skilled Motor Behavior
Department of Exercise Science, University of South Carolina
- 2020 – PHYT 807 Neuroplasticity and Genetics in Rehabilitation
Physical Therapy Program, Department of Exercise Science, University of South Carolina
- 2018 – 2019 PHYT 809 Neuromuscular Assessment and Treatment I, Assistant Instructor
Physical Therapy Program, Department of Exercise Science, University of South Carolina
- 2018 EXSC 755 Neural Basis of Skilled Motor Behavior
Department of Exercise Science, University of South Carolina
- 2017 – PHYT 731/EXSC 731 Mechanisms of Motor Skill Performance
Physical Therapy Program, Department of Exercise Science, University of South Carolina
- 2016 EXSC 755 Neural Basis of Skilled Motor Behavior
Department of Exercise Science, University of South Carolina
- 2014 – 2016 PHYT 810 Neuromuscular Assessment and Treatment II
Physical Therapy Program, Department of Exercise Science, University of South Carolina
- 2014 – 2017 PHYT 760 Orthotics and Prosthetics
Physical Therapy Program, Department of Exercise Science, University of South Carolina
- 2008 – 2016 PT 900 Motor Control and Motor Learning
Department of Physical Therapy, University of Tennessee Health Science Center-Memphis

Research Mentorship

Postdoctoral Research Fellows

Tarkesh Singh, PhD (2014 - 2015)
Co-mentored with Troy Herter, PhD

Doctor of Philosophy (PhD) Students

Dissertation Committee Chair

Rushali Pandya (2022 –)

Norman J. Arnold Doctoral Fellowship, Arnold School of Public Health, University of South Carolina 2022-2023 (\$20,000)

Charles Smith (2017 – 2022)

Dissertation: Using a multi-direction reaching approach to investigate Fitts' Law and the effect of attentional focus on motor learning

Norman J. Arnold Doctoral Fellowship, Arnold School of Public Health, University of South Carolina 2018-2019 (\$10,000)

2020-2021 SPARC Grant Recipient, Office of Research, University of South Carolina, (\$3,800); Title: Effect of attentional focus instructions on learning a whole-arm three-dimensional motor sequence task

Current Position: Instructor, Anatomy & Physiology, Biology Department, College of Arts & Sciences, University of South Carolina

Allison Foster Lewis (2017 – 2022)

Dissertation: Effects of social comparative feedback during practice on motor sequence learning, performance expectancies, and resting state connectivity

2022 Breakthrough Graduate Scholar Award, Office of the Vice President for Research,

University of South Carolina
Best Poster Award-Basic or Applied Research, Stroke Special Interest Group, Academy of Neurologic Physical Therapy, Combined Section Meeting of the APTA, 2019
Presidential Fellowship, Graduate School, University of South Carolina, 2017-2021 (\$32,000)
Norman J. Arnold Doctoral Fellowship, Arnold School of Public Health, University of South Carolina 2018-2019 (\$10,000)
2019-2020 SPARC Grant Recipient, Office of Research, University of South Carolina, (\$4,337); Title: Effects of social comparative feedback on motor sequence learning
Current Position: Postdoctoral Research Fellow, Medical University of South Carolina (Aiko Thompson, PhD)

Jessica Baird (2015 – 2017)

Dissertation: The effect of energy-matched exercise intensity on brain-derived neurotrophic factor and motor learning

PhD Student Poster Award Finalist, Annual Meeting of the Southeast Chapter of the American College of Sports Medicine, 2017

Norman J. Arnold Doctoral Fellowship, Arnold School of Public Health, University of South Carolina 2016-2017 (\$10,000)

Completed Postdoctoral Research Fellowship, University of Alabama at Birmingham (Robert Motl, PhD)

Current Position: Research Navigator, Division of Brain Injury Outcomes (BIOS), Johns Hopkins-Tufts Trial Innovation Center, Johns Hopkins School of Medicine

Dissertation Committee Member

John Gilliam (2022 – 2024)

Dissertation: Interface between cortical sensorimotor dynamics and trunk-hip movement control: implications for movement assessment in low back pain

Brett Gunn (2019 – 2021)

Dissertation: The influence of ADHD on concussion in NCAA college athletes

Reed Handlery (2019 – 2020)

Dissertation: Examination of daily steps in people with Parkinson's Disease and Stroke: two steps forward

Elizabeth Regan (2018 – 2020)

Dissertation: Integrating survivors of stroke into cardiac rehabilitation

Max Jordan (2016 – 2019)

Dissertation: Effects of spinal manipulation on brain activation in individuals with chronic low back pain

Kelly Anderson (2015 – 2017, Medical University of South Carolina)

Dissertation: Optimizing learning conditions in post-stroke rehabilitation: examining the role of challenge

Derek Liuzzo (2014 – 2017)

Dissertation: The addition of a concurrent bimanual task influences postural sway and walking speed performance and prioritization across all ages

Denise Peters (2014 – 2015)

Dissertation: Correlations between white matter integrity, structural connectivity, and upper and lower extremity motor function in individuals with chronic stroke

Doctor of Physical Therapy (DPT) Students

Research Committee Chair

Emily Pence, Eric Stull, & Allison Tracy (2024 –)

Project: Development of a paradigm to assess upper extremity reaching in standing

Jonathan Burns, Quinn Cignarale, & David James (2024 –)

Project: Survey of challenge level during task-oriented arm training

- Faith Schroers (2023 –)
Project: Effect of practice on the control of reach extent
- Macy Barclay, Carter Venancio, & Aaron Walker (2022 – 2024)
Project: Neural correlates of hand strength versus hand dexterity in older adults
- Jaclyn Altizio, Montana Swanson, & Shelby Waites (2021 – 2023)
Project: Effect of descending corticospinal tract integrity on brain activation in motor premotor brain regions after stroke
- Jeremy Bishop & Karah Sizemore (2020 – 2022)
Project: Effect of the BDNF polymorphism on learning of an action selection task after stroke
- Hannah Roark, Macie Watkins, & Joelle Via (2019 – 2021)
Project: Sequence-specific implicit motor learning using whole-arm three-dimensional reach movement of the non-dominant left arm
- Kyle Corley, Jenny Heiser, & Lynn Johnson (2019 – 2021)
Project: Effect of task-oriented arm training on corticospinal tract integrity in chronic stroke
- Sean Buitendorp, Rebecca Hamod, & Kelly Shepherd (2018 – 2020)
Project: Test-retest reliability of fractional anisotropy of the interhemispheric M1-M1 white matter tract in chronic stroke
- Sarah Padgett & Brian Kibler (2018 – 2019)
Project: Effect of action selection demands on the execution of a reach task with the nondominant left arm
- Daniel Cho & Seth Frutiger (2016 – 2018)
Project: Effect of action selection demands on the execution of a reach task
- Ashley Saba (2015 – 2016)
Project: Effect of position on upper extremity and hand function as measured by the Jebsen Taylor Hand Function Test
- Dylan Bruemmer & Takeo Ichiyanagi (2015 – 2016)
Project: The effect of practice on the use of motor planning during a skilled reaching task

Research Committee Member

- Class of 2025: Jordyn Mattison, Roxi Rikard, Kallie Faulker, Caitlin Lallier, Trystan Ruiz
- Class of 2023: Lucas Frazier, Cesar Ramirez
- Class of 2022: Robert Bayliss, Katie Cooper, Jake Turner, Jordan Bares, Dylan Davis, Jaylen Hiller
- Class of 2021: Sophie Cobb, Ethan Hayes, Olivia Maddox, Seth Morris, Kaitlyn Piel, Greigory Seitz, Jessica Kutcha, Chandler Powell, Owen Williams
- Class of 2020: Jeffrey Dannelley, Ivan Kolev, Walter Pecor
- Class of 2019: Anna Behnke, Susanne Shaw, Kayla Bishop
- Class of 2018: Jennifer Harper, Sarah Nester
- Class of 2017: Andrew Burke, Morgan Purcell, Jonathan Keown, Curtis Horn, Leanna Gunn
- Class of 2016: Tristan Faile, Coleman Young, Garrett Hainline, Reed Handlery, Abigail McManus, Shannie Miller, Justin Magnuson, Nicholas Iglowski
- Class of 2015: Peter O'Donnell

Masters Students

- Stephanie Caldero (2023 – 2024)
MS Outstanding Student Achievement Award, Department of Exercise Science, 2024
- James Riedy (2022 – 2023)
- Alexis Toomer (2019)
- Janelle Rocktashel (2015 – 2017)
- Gillian Harper (2014 – 2015)

Undergraduate Students

University of South Carolina

Hannah Kate Ammons (2023 –)

2023 Science Undergraduate Research Fellowship, South Carolina Honors College (\$3,000)

Taylor Norment (2022 – 2023)

Morgan Davis (2021)

Mary Evelyn Brown (2020 – 2022)

Rachel Bohnenkamp (2019 – 2022)

Honors Thesis: Effects of genetic variation on response to social comparative feedback when learning a motor task

Second place poster award, Heath Sciences, Discover USC 2022

2020 Science Undergraduate Research Fellowship, South Carolina Honors College (\$1,500)

2021 Magellan Scholar Research Grant, USC Office of Undergraduate Research (\$2,750)

Kathryn Maxwell (2019 – 2021)

Honors Thesis: The effect of standing capability on functional arm training in standing post-stroke

Sarah Bradley (2019 – 2020)

Kiariah Muller (2019 – 2020)

Senior Thesis (Claflin University): Test-retest reliability of a measure of structural integrity of interhemispheric motor pathways in chronic stroke

Summer research student from Claflin University

South Carolina-Advance Diversity in Aging Research (SC-ADAR) Program supported by the National Institute on Aging (R25 AG050484)

Katelyn Ramey (2017 – 2019)

Makenzie Myers (2017 – 2019)

Honors Thesis: Test-retest reliability of a measure of corticospinal tract integrity after stroke

Outstanding Exercise Science Student Award, Department of Exercise Science, 2019

2018 Science Undergraduate Research Fellowship, South Carolina Honors College (\$3,000)

2018 Magellan Voyager Award, USC Office of Undergraduate Research (\$280)

2018 Scholarly Research Presentation Travel Support Program, South Carolina Honors College (\$280)

Joshua Ray (2017 – 2018)

Jenny Heiser (2017 – 2018)

Second place poster award, Heath Sciences, Discover USC 2018

Mary Gaughen (2016 – 2018)

2017 Magellan Apprentice Grant Award, USC Office of Undergraduate Research (\$1000)

2017 Magellan Mini-Grant Award, USC Office of Undergraduate Research (\$750)

2018 Magellan Apprentice Grant Award, USC Office of Undergraduate Research (\$1000)

Elizabeth Rizor (2016 – 2018)

Honors Thesis: Functional neural correlates of hand motor function differ based on level of motor severity in individuals post-stroke

Finalist, William A. Mould Thesis Award, South Carolina Honors College, 2018

Outstanding Exercise Science Student Award, Department of Exercise Science, 2018

Second place poster award, Public Health, Discover USC 2017

First place poster award, Health Sciences, Discover USC 2018

2016 Science Undergraduate Research Fellowship, South Carolina Honors College (\$3,000)

2017 Science Undergraduate Research Fellowship, South Carolina Honors College (\$1,500)

2017 Magellan Voyager Award, USC Office of Undergraduate Research (\$435)

2017 Scholarly Research Presentation Travel Support Program, South Carolina Honors College (\$610)

Austin Hetherington (2016 – 2018)

First place poster award, Public Health, Discover USC 2017

2016 Science Undergraduate Research Fellowship, South Carolina Honors College (\$3,000)

2017 Magellan Scholar Research Grant, USC Office of Undergraduate Research (\$2,626)
2017 Magellan Voyager Award, USC Office of Undergraduate Research (\$450)
2017 Scholarly Research Presentation Travel Support Program, South Carolina Honors
College (\$450)

Heath Saffer (2016 – 2017)

Kelly Deangelis (2015 – 2017)

Second place poster award, Public Health, Discover USC 2017

John Pai (2015 – 2016)

Morgan Durand (2015 – 2016)

Second place poster award, Exercise Science and Physical Education, 2016 Undergraduate
Discovery Day

Abigail Sullivan (2014 – 2016)

Michael O'Donnell (2014 – 2015)

First place poster award, Exercise Science and Physical Education, 2015 Undergraduate
Discovery Day

University of California, Irvine

Pritha Dewanjee (2012 – 2014)

Undergraduate Research Opportunities Program Grant Recipient
Excellence in Undergraduate Research Poster Award

Umar Shariff (2012 – 2013)

Xuan Tran (2011 – 2012)

Undergraduate Research Opportunities Program Grant Recipient

Professional Licenses and Certifications

1995 – Licensed Physical Therapist, South Carolina License # 2660

1995 – 2024 Licensed Physical Therapist, Indiana License # 05004565A

2002 – 2014 Licensed Physical Therapist, California License # PT-27502

2003 – 2013 Board Certified in Neurologic Physical Therapy

American Board of Physical Therapy Specialties, American Physical Therapy Association

Professional Memberships

1995 – American Physical Therapy Association
Section Member: Research, Neurology, Education

2005 – Society for Neuroscience

2007 – North American Society for the Psychology of Sport and Physical Activity

2009 – 2018 Society for the Neural Control of Movement

2011 – Organization for Human Brain Mapping

2013 – American Heart Association

2015 – American Society for Neurorehabilitation

Professional and University Service

Journal Editorial Board

Journal of Neurologic Physical Therapy

2024 – Deputy Editor

2022 – 2024 Associate Editor

2021 Editorial Board Member

Frontiers in Rehabilitation Sciences
Section: Translational Research in Rehabilitation
2022 – Associate Editor

Experimental Brain Research
2021 – Editorial Board Member

Ad Hoc Manuscript Reviewer

Neurorehabilitation & Neural Repair
Physical Therapy
Journal of Neurologic Physical Therapy
Experimental Brain Research
Annals of Neurology
Human Brain Mapping
Neuroimage: Clinical
Neuroimage
Journal of NeuroEngineering & Rehabilitation
PLoS One
Scientific Reports
Neurobiology of Aging
Frontiers in Rehabilitation Sciences
Journal of Motor Behavior
Health and Quality of Life Outcomes
Neuroscience
Journal of the Neurological Sciences
Disability and Rehabilitation
Cerebral Cortex
Neural Plasticity
Physiotherapy Research International
Circulation: Cardiovascular Quality and Outcomes
IEEE Transactions on Neural Systems & Rehabilitation Engineering
JMIR Medical Informatics
Restorative Neurology and Neuroscience

Grant Review Panel

2022 – 2025 Standing Member, Rehabilitation Research and Development Service-Career Development Program Subcommittee, Department of Veteran's Affairs

Ad Hoc Grant Reviewer

National Institutes of Health
Neurological Sciences Training Review Group (NST-2), National Institute of Neurological Disorders and Stroke, March 2019, October 2019, November 2020, February 2021, March 2023, June 2023

Special Emphasis Panel (ZNS1 SRB-X (12)), National Institute of Neurological Disorders and Stroke, October 2020

Pilot Project Grants, National Center of Neuromodulation for Rehabilitation (NC NM4R), NIH, April 2019, April 2020, December 2022

American Heart Association
Health Equity Research Network (HERN) on Community-Driven Research Approaches, Phase I and
Phase II, June 2024

Fellowships-Clinical Committee, October 2019, February 2021, November 2021, November 2022

Department of Veteran's Affairs
Rehabilitation Research and Development Service-Career Development Program Panel,
February 2022

Professional Service

2024 External Reviewer, Tenure and Promotion File, Peer Institution

2024 External Reviewer, Promotion File, Peer Institution

2023 External Reviewer, Tenure and Promotion File, International Peer Institution

2023 External Reviewer, Tenure and Promotion File, Peer Institution

2023 – Committee Member, Program Committee
American Society of Neurorehabilitation

2022 – Abstract Reviewer, Combined Sections Meeting of the APTA
Academy of Neurologic Physical Therapy, American Physical Therapy Association

2022 Abstract Reviewer, World Physiotherapy Congress 2023
World Physiotherapy

2021 External Reviewer, Tenure and Promotion File, Peer Institution

2020 – Member, Research Workgroup
International Neurological Physical Therapy Association

2018 – 2021 Chair, Research Committee
Academy of Neurologic Physical Therapy, American Physical Therapy Association

2017 Strategic Planning Meeting, Academy of Neurologic Physical Therapy
American Physical Therapy Association

2015 Legislative Day, South Carolina Physical Therapy Association

2014 Abstract Reviewer, World Confederation for Physical Therapy Congress 2015
World Confederation for Physical Therapy

2014 Washington DC Legislative Fly-In, Section on Research
American Physical Therapy Association

2012 – 2017 Committee Member, Research Committee
Neurology Section, American Physical Therapy Association

2006 – 2010 Committee Member, Telecommunications Committee
Neurology Section, American Physical Therapy Association

2006 – 2009 Item Writer, Specialization of Content Experts Committee
Neurologic Certified Specialist Exam

University Service

University of South Carolina

2023 –	Brain Health and Human Anatomy Subcommittees, Health Sciences Campus Planning Committee
2022	Reviewer, Magellan Scholar Undergraduate Research Grant, Office of Research
2021	Reviewer, SPARC Graduate Research Grant, Office of Research
2020	Reviewer, SPARC Graduate Research Grant, Office of Research
2020	Reviewer, ASPIRE I Grant Award, Office of Research
2019	Reviewer, ASPIRE II Grant Award, Office of Research
2018	Member, Planning Committee, 2018 USC Neuroscience Retreat
2017 –	Judge, Poster Presentations, Discover USC
2017	Member, Planning Committee, 2017 USC Neuroscience Retreat
2016	Reviewer, ASPIRE I Grant Award, Office of Research
2015 – 2016	Judge, Undergraduate Discovery Day

Arnold School of Public Health

2020 –	Arnold School of Public Health Tenure & Promotion Committee
2019	Co-Chair, ASPH Team, Midlands Heart Walk, American Heart Association Received 'Top Recruiter' Award for recruiting the most walkers of any team at the University of South Carolina
2018	Co-Chair, ASPH Team, Midlands Heart Walk, American Heart Association Received 'Top Recruiter' Award for recruiting the most walkers of any team at the University of South Carolina
2015 – 2018	Scholastic Standards and Petitions Committee, Arnold School of Public Health

Department of Exercise Science

2024 –	Chair, Curriculum Committee, Physical Therapy Program, Department of Exercise Science
2022	Member, Clinical Faculty Search Committee, Physical Therapy Program, Department of Exercise Science
2020 – 2021	Chair, Tenure-Track Faculty Search Committee, Department of Exercise Science
2020 – 2021	Member, Director of Clinical Education Faculty Search Committee, Physical Therapy Program, Department of Exercise Science
2019 –	PhD Admissions and Curriculum Committee, Department of Exercise Science
2019 – 2021	Graduate Director, Rehabilitation Sciences Division, Department of Exercise Science
2018 – 2023	Awards Committee, Physical Therapy Program, Department of Exercise Science

- 2017 – 2018 Co-Chair, Tenure-Track Faculty Search Committee, Physical Therapy Program, Department of Exercise Science
- 2016 – 2018 Member, Committee for Doctor of Physical Therapy Program Reaccreditation, Physical Therapy Program, Department of Exercise Science
- 2016 – 2017 Member, Tenure-Track Faculty Search Committee, Department of Exercise Science
- 2016 – 2017 Member, Clinical Faculty Search Committee, Physical Therapy Program, Department of Exercise Science
- 2014 – 2023 Curriculum Committee, Physical Therapy Program, Department of Exercise Science
- 2014 – 2023 Admissions Committee, Physical Therapy Program, Department of Exercise Science

Community Service

- 2011 – 2013 Volunteer, Annual Stroke Boot Camp, Department of Physical Therapy, Chapman University, Orange, CA
- 2011 – 2013 Volunteer, Annual Stroke Awareness Picnic, Orange County Stroke Rehabilitation Network, Irvine, CA