

# Jasmine J. Cash

Postdoctoral Scholar

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Postdoctoral researcher with expertise in neurophysiology, psychometric assessment, neuromodulation, and exercise interventions aimed at improving stroke recovery and physical function. Experienced in clinical research coordination, data management, statistical analysis, and dissemination of findings through national and international presentations. Skilled in interdisciplinary collaboration across rehabilitation science, neuroscience, engineering, and biostatistics teams.

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<b>Education</b>	2020-2024	<b>Medical University of South Carolina</b> <b>PhD Health &amp; Rehabilitation Sciences</b> Dissertation: "Characterizing Neurophysiological Responses to Sensory Augmentation in Chronic Stroke" Advisor: Mark Bowden, PhD, PT & Chris Gregory, PhD, PT
	2018-2020	<b>Appalachian State University</b> <b>MS Exercise Science</b> Thesis: "The Effect of Three Days of Ankle Immobilization on Joint Motion and Neural Excitability" Advisor: Alan Needle, PhD, ATC
	2013-2017	<b>University of North Carolina at Chapel Hill</b> <b>BA Exercise &amp; Sport Science, Minor-Neuroscience</b>

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<b>Research Experience</b>	2024-Present	<b>Medical University of South Carolina</b> , Charleston, SC Position: Postdoctoral Scholar
	2020-2024	<b>Medical University of South Carolina</b> , Charleston, SC Position: Graduate Research Assistant
	2018-2020	<b>Appalachian State University</b> , Boone, NC Position: Graduate Research Assistant

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<b>Teaching Experience</b>	2024	<b>Medical University of South Carolina</b> , Charleston SC <b>Adjunct Instructor</b> , Department of Rehabilitation Sciences Course: OTD 815 – Evidence Based Practice 1
	2023-Present	<b>Southeastern College</b> , North Charleston, SC <b>Adjunct Instructor</b> , Department of General Studies Courses: BSC 205 – Anatomy and Physiology 1, BSC 206 – Anatomy and Physiology 2
	2022-Present	<b>Medical University of South Carolina</b> , Charleston SC <b>Guest Lecturer</b> , Department of Rehabilitation Sciences Course: PT 712 – Applied Physiology and Nutrition: "Principles of Neuromodulation"

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<b>Manuscripts (In Preparation)</b>	<b>Cash JJ</b> , French MA, Velozo CA, Seamon BA. Functional Balance Ability Measure Across in Community Dwelling Older Adults. <i>Arch Rehabil Res Clin Transl</i> . 2026.
	<b>Cash JJ</b> , Kindred JH, Heise K-F, Dias DE, Gregory CM, Bowden MG. Characteristics of Responses to Individualized Paired Associative Stimulation in Healthy and Chronic Stroke. <i>Journal of Neurophysiology</i> . 2026.

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<b>Peer Reviewed Manuscripts</b>	<b>Cash JJ</b> , Velozo CA, Bowden MG, Seamon BA. Measurement Properties of the Functional Balance Ability Measure Across Subacute Neurologic Diagnoses. <i>Arch Rehabil Res Clin Transl</i> . 2026;5(4):100583. Published 2026 Jan 02. doi:10.1016/j.arrct.2025.100583
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**Cash JJ**, Velozo CA, Bowden MG, Seamon BA. The Functional Balance Ability Measure: A Measure of Balance Across the Spectrum of Functional Mobility in Persons Post-Stroke. *Arch Rehabil Res Clin Transl*. 2023;5(4):100296. Published 2023 Sep 13. doi:10.1016/j.arrct.2023.100296

**Cash JJ**, Bowden MG, Boan AD, McTeague LM, Kindred JH. Systematic Evaluation of the Effects of Voluntary Activation on Lower Extremity Motor Thresholds. *Journal of Clinical Medicine*. 2023; 12(18):5993. <https://doi.org/10.3390/jcm12185993>

Needle AR, Tinsley JE, **Cash JJ**, Koeval BK, Barton JA, Howard JS. The effects of neuromuscular electrical stimulation to the ankle pronators on neural excitability & functional status in patients with chronic ankle instability. *Phys Ther Sport*. 2023;60:1-8. doi:10.1016/j.ptsp.2022.12.001

**Cash JJ**, van Werkhoven H, Cole KJ, Needle AR. The effects of 72 h of dynamic ankle immobilization on neural excitability and lower extremity kinematics. *Gait Posture*. 2022;93:198-204. doi: <https://doi.org/10.1016/j.gaitpost.2022.02.005>.

Kindred JH, Finetto C, **Cash JJ**, Bowden MG. Standing Neurophysiological Assessment of Lower Extremity Muscles Post-Stroke. *J Vis Exp*. 2021;(173):10.3791/62601. Published 2021 Jul 26. doi:10.3791/62601

Kindred JH, **Cash JJ**, Ergle JB, Charalambous CC, Wonsetler EC, Bowden MG. Comparing cortico-motor hotspot identification methods in the lower extremities post-stroke: MEP amplitude vs. latency. *Neurosci Lett*. 2021;754:135884. doi:10.1016/j.neulet.2021.135884

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**Accepted Abstracts**

**Cash JJ**, Kindred JH, Bowden MG, Kautz S, Riccardi N, Bonilha L, Gregory CA. Central Autonomic Network Integrity Is Associated with Mobility Performance After Stroke. 2026 Atlanta VA Research Day; Atlanta, GA.

**Cash JJ**, Williams EA, VanDerwerker CJ, Gregory CM, Ross, RE. Autonomic Reactivity in Chronic Stroke: A Multiscale Assessment of Heart Rate Variability with Exploratory Corticomotor Plasticity Measures. Joint Charleston and Columbia VA Research Day, 2026 Columbia, SC.

**Cash JJ**, French MA, Bowden MG, Dean J, Kautz SA, Velozo CD, Seamon BA. Quantifying An Explanatory Model For Balance Ability. American Society for Neurorehabilitation Meeting 2025, Atlanta, GA.

**Cash JJ**, Little K, Bowden MG, Lin C, McTeague L, Kautz SA, Kindred JH. Accelerated High-Frequency rTMS For Post-Stroke Fatigue: Protocol and Preliminary Findings. American Society for Neurorehabilitation Meeting 2025, Atlanta, GA.

**Cash JJ**, French MA, Velozo CD, Seamon BA. Validity of the Functional Balance Ability Measure across neurological diagnoses. American Physical Therapy Association-Combined Sections Meeting 2025, Houston, TX.

**Cash JJ**, Kindred JH, Heise K-F, Dias DE, Gregory CM, Bowden MG. The Effects of Paired Associative Stimulation Targeting the Lower Extremities in Healthy Controls and Chronic Stroke. 6<sup>TH</sup> International Brain Stimulation Conference 2025, Kobe, Japan.

**Cash JJ**, Kindred JH, Heise K-F, Dias DE, Gregory CM, Bowden MG. Paired associative stimulation: a tool to assay individual-level sensorimotor plasticity in the lower extremities of individuals in the chronic stage of stroke. 2024 Society for Neuroscience, Chicago, IL.

**Cash JJ**, Wakade C, Purohit S, Bowden MG, Kautz SA, Kindred JH. Can Electrical Current Reduce Post-Stroke Fatigue Severity? 2024 Atlanta VA Research Day, Atlanta, Georgia.

Feerst D, Lewan C, **Cash JJ**, Cokley M, Srivastava S, Kautz SA. Cranial-nerve non-invasive neuromodulation and dynamic balance in chronic stroke survivors. 2024 COBRE EAB Meeting, Charleston, SC.

**Cash JJ**, Bowden MG, Kautz SA, Kindred JH. Gait Analysis Considerations for Individuals Post-Stroke With Severe Hemiparesis. 2024 Annual Meeting of the Southeast Chapter of the American College of Sports Medicine, Greenville, SC.

**Cash JJ**, Heise K-F, Kindred JH, Bowden MG. Paired associative stimulation: a tool for assessing sensorimotor neural signaling and lower limb function post-stroke. ACTS Translational Science 2023, Washington D.C.

**Cash JJ**, Jimenez A, Bowden MG, Kindred JH. Muscle activation state does not alter paretic lower extremity motor threshold responses in individuals with chronic stroke. 5<sup>TH</sup> International Brain Stimulation Conference 2023, Lisbon, Portugal.

Srivastrata S, **Cash JJ**, Seamon BA, Kindred JH, Bowden, MG, Kautz SA. Contralesional cortical representation of paretic leg muscles in individuals with abnormal co-excitation post-stroke: a TMS based motor mapping study. 5<sup>TH</sup> International Brain Stimulation Conference 2023, Lisbon, Portugal.

**Cash JJ**, Velozo CA, Bowden, MG, Seamon BA. Development of a Comprehensive Measure for Balance Ability for Persons Post-Stroke. 2023 APTA Combined Sections Meeting, San Diego, CA.

**Cash JJ**, Velozo CA, Bowden, MG, Seamon BA. A combined measurement tool can better measure balance ability across the broad spectrum of functional mobility for persons post-stroke. Perry V Halushka MUSC Research Day 2022, Charleston, SC.

**Cash JJ**, Kindred JH, Bowden MG. Comparison of Gait Event Detection Methods in Severe Post-Stroke Hemiparesis: Rancho Los Amigos Observational Analysis and a Quantitative 6-Bin Method. 2022 Human Movement Science Symposium, Chapel Hill, NC.

**Cash JJ**, Srivastrata S, Seamon BA, Kindred JH, Bowden, MG, Kautz SA. Ankle Angular Velocity and Acceleration Are Reliable Measures With Positive Correlations to Post-Stroke Clinical Outcomes. 2022 Annual Meeting of the Southeast Chapter of the American College of Sports Medicine, Greenville, SC.

Needle AR, Tinsley JE, **Cash JJ**, Koeval BK, Barton JA, Howard JS. Neither the use of neuromuscular electrical stimulation nor transcutaneous electrical stimulation improves dynamic balance or function in patients with chronic ankle instability. *J Athl Train*. 2022; 57(6S): S-164.

Cash JJ, Kindred JH, Bowden, MG. Severe Post-Stroke Gait Impairments: Rancho Los Amigos Observational Gait Analysis vs. Quantitative Analyses. Perry V Halushka MUSC Research Day 2021, Virtual.

Cash JJ, Finetto C, Kindred JH, Bowden MG. Standing improves lower extremity responses to transcranial magnetic stimulation post-stroke. 4<sup>TH</sup> International Brain Stimulation Conference 2021, Charleston, SC.

Srivastava S, Kindred JH, Cash JJ, Seamon B, Bowden MG, Kautz SA. TMS based lower extremity multi-muscle motor mapping in persons post-stroke with impaired muscle coordination. 4<sup>TH</sup> International Brain Stimulation Conference 2021, Charleston, SC.

Cash JJ, Finetto C, Kindred JH, Bowden MG. Lower Extremity Responses to Transcranial Magnetic Stimulation Post-Stroke. 17<sup>TH</sup> Annual SC Upstate Research Symposium 2021, Virtual.

Cash JJ, van Werkhoven H, Cole K, Needle AR. The Effects of 72 Hours of Dynamic Ankle Immobilization on Neural Excitability. 2021 VNATA Clinical Symposia and Expo, Virtual.

Cash JJ, Ripic ZA, Bruce AS, Godoy EL, Triplett NT, Emery LJ, van Werkhoven H, Needle AR. Mental Fatigue Modifies Quadriceps Activation During an Unanticipated Jump Landing Task. 2020 VNATA Clinical Symposia and Expo, Virtual.

Ripic ZA, Cash JJ, Bruce AS, Godoy EL, Triplett NT, Emery LJ, van Werkhoven H, Needle AR. Anticipated of Jump Task Impacts Lower Extremity Biomechanics During a Jump-Cut Maneuver. 2020 VNATA Clinical Symposia and Expo, Virtual.

Godoy EL, Ripic ZA, Cash JJ, Bruce AS, Triplett NT, Emery LJ, van Werkhoven H, Needle AR. Mental Fatigue Impacts Ankle Joint Biomechanics During Anticipated and Unanticipated Jump-Stop Maneuvers. 2020 VNATA Clinical Symposia and Expo, Virtual.

Cash JJ, van Werkhoven H, Cole K, Needle AR. The Effects of 72 Hours of Dynamic Ankle Immobilization on Neural Excitability. Human Movement Science Research Symposium, Chapel Hill, NC.

Stanley L, Cash JJ, Frank B, Berkoff D, Padua D. Cumulative Training Load but not Pre-season Patellar Tendon Structure, is Associated with is Associated with Post-Season Self-Reported Knee Function in Division I Collegiate Female Volleyball Athletes. Physical Therapy in Sport. 2017 Nov 1;28:e11-2.

Stanley L, Cash JJ, Padua DA, DJ Berkoff. Pre-Season Patellar Tendon Structure and Self-Reported Function are not Associated in Division-I Collegiate Female Volleyball Athletes. Journal of Athletic Training. 2017 June 1; 52: S192-S193.

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<b>Conference Presentations</b>	2026	<b>Joint Charleston and Columbia VA Research Day</b> , Charleston, SC “Autonomic Reactivity in Chronic Stroke: A Multiscale Assessment of Heart Rate Variability with Exploratory Corticomotor Plasticity Measures”
	2025	<b>American Society for Neurorehabilitation</b> , Atlanta, GA “Accelerated High-Frequency rTMS For Post-Stroke Fatigue: Protocol and Preliminary Findings”
	2025	<b>6<sup>th</sup> International Brain Stimulation Conference</b> , Kobe, Japan

	2024	<p>“The Effects of Paired Associative Stimulation Targeting the Lower Extremities in Healthy Controls and Chronic Stroke”</p> <p><b>American Physical Therapy Association Combined Sections Meeting</b>, Houston, TX</p>
	2023	<p>“Validity of the Functional Balance Ability Measure across neurological diagnoses”</p> <p><b>Society for Neuroscience</b>, Chicago, IL</p> <p>“Paired associative stimulation: a tool for assessing sensorimotor plasticity in stroke?”</p>
	2023	<p><b>ACTS Translational Science</b>, Washington, DC</p> <p>“Paired associative stimulation: a tool for assessing sensorimotor neural signaling and lower limb function post-stroke.”</p>
	2023	<p><b>5<sup>th</sup> International Brain Stimulation Conference</b>, Lisbon, Portugal</p> <p>“Muscle activation state does not alter lower extremity motor threshold responses in individuals with chronic stroke.”</p>
	2022	<p><b>Perry V Halushka MUSC Research Day</b>, Charleston, SC</p> <p>“The Functional Balance Ability Measure: A tool to better measure balance across the spectrum of functional mobility in persons post-stroke”</p>
	2022	<p><b>Human Movement Science Symposium</b>, Chapel Hill, NC</p> <p>“Comparison of Gait Event Detection Methods in Severe Post-Stroke Hemiparesis: Rancho Los Amigos Observational Analysis and a Quantitative 6-Bin Method”</p>
	2022	<p><b>Southeast American College of Sports Medicine</b>, Greenville, SC</p> <p>“Ankle Angular Velocity and Acceleration are Reliable Measures with Positive Correlations to Post-Stroke Clinical Outcomes”</p>
	2022	<p><b>4<sup>th</sup> International Brain Stimulation Conference</b>, Charleston, SC</p> <p>“Standing improves lower extremity responses to transcranial magnetic stimulation post-stroke”</p>
	2021	<p><b>Perry V Halushka MUSC Research Day</b>, Charleston SC</p> <p>“Severe Post-Stroke Gait Impairments: Rancho Los Amigos Observational Gait Analysis vs. Quantitative Analyses”</p>
	2021	<p><b>National Athletic Trainers’ Association Clinical Symposia and AT Expo</b>, Virtual</p> <p>“The Effects of 72 Hours of Dynamic Ankle Immobilization on Neural Excitability”</p>
	2021	<p><b>17<sup>th</sup> Annual SC Upstate Research Symposium</b>, Virtual</p> <p>“Lower Extremity Responses to Transcranial Magnetic Stimulation Post-Stroke”</p>
	2020	<p><b>National Athletic Trainers’ Association Clinical Symposia and AT Expo</b>, Virtual</p> <p>“Mental Fatigue Modifies Quadricep Activation During an Unanticipated Jump Landing Task”</p>
<b>Invited Presentations/ Symposiums</b>	2025	<p><b>University of South Carolina Aging Brain Cohort</b></p> <p>“The Effects of Obesity on Brain Age”</p>
	2024	<p><b>DSPAN Braintrust Meeting</b></p> <p>“Characterizing Lower Extremity Neurophysiological Responses to Sensory Augmentation”</p>
	2024	<p><b>Southeast American College of Sports Medicine</b></p> <p>“Gait Analysis Considerations for Individuals Post-Stroke With Severe Hemiparesis”</p>

	2022-2023	<b>National Center of Neuromodulation for Rehabilitation (NM4R) Introductory Workshop</b> Neuronavigated Lower Extremity Transcranial Magnetic Stimulation: Lab Demonstration
<b>Grants Awarded</b>	2025-2027	L30NS145360 <b>NIH Loan Repayment Plan</b> <i>"The Effects of Obesity on Limiting Brain Health and Stroke Recovery"</i> Role: PI/Postdoctoral Scholar
	2025	<b>MUSC Emerging Scholars Travel Award</b> <i>"Validation of the Functional Balance Ability Measure Across Neurological Diagnoses"</i> Role: PI/Postdoctoral Scholar
	2024-2028	K00NS135810 <b>NIH (F99/K00) Blueprint and BRAIN Initiative D-SPAN Award</b> <i>"The Effects of Obesity on Limiting Brain Health and Stroke Recovery"</i> Role: PI/Postdoctoral Scholar
	2023-2024	F99NS135810 <b>NIH (F99/K00) Blueprint and BRAIN Initiative D-SPAN Award</b> <i>"Characterizing Lower Extremity Neurophysiologic Responses to Sensory Augmentation in Chronic Stroke"</i> Role: PI/Predocotrinal Trainee
	2022-2023	TL1 TR001451 & UL1 TR001450 <b>SCTR TL1 (T32) Predocotrinal Clinical &amp; Translational Research Award, MUSC &amp; NCATS of the NIH</b> <i>"Characterizing Lower Extremity Neurophysiologic Responses to Sensory Augmentation in Chronic Stroke"</i> Role: PI/Predocotrinal Trainee
	2020	<b>Domer Research Award, Office of Student Research, Appalachian State University</b> <i>"Effects of Ankle Immobilization on Neural Excitability and Joint Motion"</i> Role: PI/Graduate Student Trainee
<b>Honors/ Awards /Selections</b>	2026	<b>Washington University Compass Postdoc Track Scholar</b> Selected for a national leadership development program for postdoctoral researchers
	2025-2026	<b>Reproducible Rehabilitation (ReproRehab) Program Cohort</b> Selected as a trainee in an NIH funded program aiming to build a sustainable data science work-force and community, improving skills in MATLAB, rigor and reproducibility in clinical research
	2023	<b>ACTS Translational Research-Top Poster Presenter</b> Recognized for delivering an outstanding poster presentation at the ACTS Translational Science Conference
	2021-2023	<b>MUSC Fellowship in Clinical and Translational Research Ethics</b> Awarded certificate of competence in clinical and translational research ethics upon completing a faculty-led curriculum examining core ethical principles
	2020	<b>ASU Outstanding Graduate Student in Research</b> Awarded in recognition of exceptional excellence in graduate-level research
<b>Leadership &amp; Service</b>	2025-2026	<b>MUSC Postdoctoral Association</b> Executive Board, Treasurer
	2024	<b>Perry V. Halushka MUSC Research Day</b> Poster Presentation Judge
	2021-2023	<b>MUSC Black Student Union</b> Committee Chair Health Education
	2019-2020	<b>ASU Graduate Student Government Association</b> Senator-Health and Exercise Science Department Board Member-Philanthropy Committee

	2018-2020	<b>ASU Black Graduate Student Association</b> Student Member
	2018-2020	<b>ASU Biomechanics Journal Club</b> Moderator
<b>Community Engagement</b>	2024-Present	Educating students during yearly visits from Cane Bay High School Stroke Recovery Research Day
	2021-Present	Educating students during yearly visits from Orange Grove Elementary School Biomechanics Day
<b>Organizations</b>	2026-Present	National Strength and Conditioning Association
	2025-Present	National Postdoctoral Association
	2024-2025	Society for Neuroscience
	2023-2024	American College of Sports Medicine
<b>Manuscript Review</b>		Frontiers in Neuroscience Frontiers in Aging Neuroscience PLOS One Journal of Clinical Neuroscience Journal of Neuroengineering and Rehabilitation
<b>Certifications</b>	2026	National Strength and Conditioning Association- Certified Strength and Conditioning Association (CSCS)
	2023	IBM Applied Data Science Specialization Certificate Program