

# Jacob Robert Powell, MS, ATC

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## EDUCATION

<b>2019 – 2023 (Anticipated)</b>	<b>The University of North Carolina at Chapel Hill, Chapel Hill, NC</b> <i>School of Medicine, Department of Allied Health Sciences</i>
	Doctor of Philosophy      Interdisciplinary Curriculum in Human Movement Science
	<i>Dissertation</i> <i>The Neurophysiological Effects of Blast Exposure and Mild Traumatic Brain Injury in Special Operations Forces Soldiers</i>
<b>2017 - 2019</b>	<b>Temple University, Philadelphia, PA</b> <i>College of Public Health, Department of Kinesiology</i>
	Master of Science      Kinesiology
	<i>Thesis</i> <i>The Effects of Physical Activity on Serum Biomarkers for Brain Injury</i>
<b>2013 - 2017</b>	<b>Ithaca College, Ithaca, NY</b> Bachelor of Science      Athletic Training

## PROFESSIONAL EXPERIENCE

<b>Summer 2019 - Present</b>	<b>Research Assistant, Matthew Gfeller Center</b> <i>The University of North Carolina at Chapel Hill</i> <ul style="list-style-type: none"><li>Maintained a 25TB imaging database and processing pipeline for the Matthew Gfeller Center and the Center for the Study of Retired Athletes including military, athletes, and retired NFL players</li><li>Developed novel computational neuroimaging approaches to describe brain injury physiology</li><li>Conducted clinical data collection on military and athletes</li><li>Directed blood biomarker for brain injury research including protein selection and study design</li><li>Published articles and presented scientific research at leading international conferences in concussion and sports medicine</li></ul>
<b>Fall 2021 - Present</b>	<b>Research Computing Support Specialist</b> <i>The University of North Carolina at Chapel Hill, Information Technology Services</i> <ul style="list-style-type: none"><li>Supported utilization of high-performance computing resources</li><li>Advised research users on appropriate compute cluster usage</li><li>Collaborated with system administrators to optimize software and hardware effectiveness</li></ul>
<b>Summer 2022 - Present</b>	<b>Assistant Human Anatomy Lab Director</b> <i>The University of North Carolina at Chapel Hill, Department of Exercise and Sport Science</i> <ul style="list-style-type: none"><li>Develop cadaver anatomy lab policies and procedures</li><li>Train instructors on dissection and laboratory best practices</li></ul>

<b>Fall 2017 – Spring 2017</b>	<b>Graduate Assistant Athletic Trainer</b> <i>Temple University Men's Basketball, Philadelphia, PA</i> <i>Temple University Gymnastics, Philadelphia, PA</i>
<b>Spring 2017</b>	<b>Athletic Training Intern</b> <i>Cayuga Medical Center, Sports Medicine and Athletic Performance, Ithaca, NY</i>

## HONORS AND AWARDS

<b>June 2022</b>	<b>Charles M. Tipton National Student Research Award</b> Granted to the graduate student with the most outstanding research project at the international American College of Sports Medicine conference
<b>February 2020</b>	<b>Free Communication National Award Finalist</b> NATA Research & Education Foundation
<b>April 2017</b>	<b>Emerging Clinical Scholar Grant</b> Ithaca College Athletic Training Education Program, Ithaca, NY
<b>March 2017</b>	<b>Most Outstanding Research Presentation, School of HSHP</b> Whalen Academic Symposium, Ithaca College, Ithaca, NY
<b>March 2017</b>	<b>Empire Collegiate Wrestling Conference All-Academic Team</b> Empire Wrestling Conference Directors
<b>January 2017</b>	<b>Outstanding Undergraduate Research Poster Presentation Award</b> Eastern Athletic Trainers' Association Research Committee

## REFERRED PUBLICATIONS

**Powell JR**, Zong X, Weinstein JM, DeLellis SM, Depenbrock PJ, Kane SF, Means GE, & Mihalik JP. (2023). White Matter Perivascular Space Burden is Associated with Mild Traumatic Brain Injury History and Career Stage in Special Operations Forces Soldiers. *Frontiers in Neurology*. (In Review)

**Powell JR**, Hopfinger JB, Giovanello KS, Walton SR, DeLellis SM, Kane SF, Means GE, & Mihalik JP. (2023). Mild traumatic brain injury history is associated with lower brain network resilience in Soldiers. *Brain Communications*. (In Review).

McEvoy CB, Crabtree A, **Powell JR**, Meabon J, Mihalik JP. (2022) Cumulative blast exposure estimate model for Special Operations Forces combat Soldiers. *Journal of Neurotrauma*. (Published online) doi:10.1089/neu.2022.0075

Lauck BJ, Sinnott AM, Kiefer AW, Padua DA, **Powell JR**, Sledge HR, & Mihalik JP. (2022). Association between head impact biomechanics and physical load in college football. *Annals of Biomedical Engineering* (Published Online) <https://doi.org/10.1007/s10439-022-03042-8>

Walton SR, **Powell JR**, Brett BL, Yin W, Kerr ZY, Liu M, et al. (2022) Associations of lifetime concussion history and repetitive head impact exposure with resting-state functional connectivity in former collegiate American football players: An NCAA 15-year follow-up study. *PLoS ONE* 17(9): e0273918.

Castellano AK, **Powell JR**, Cools MJ, Walton SR, Barnett RR, DeLellis SM, Goldberg RL, Kane SF, Means GE, Zamora CA, Depenbrock PJ, Mihalik JP. (2022). Relationship between anterior pituitary volume and IGF-1 serum levels in Soldiers with mild traumatic brain injury history. *Medicine & Science in Sports & Exercise*

Brett BL, Walton S, Meier T, Nencka AS, **Powell JR**, Giovanello KS, Guskiewicz KK, McCrea M. (2022) Head impact exposure, grey matter volume, and moderating effects of estimated IQ and educational attainment in former athletes at midlife. *Journal of Neurotrauma*. 2022;10.1089/neu.2021.0449.

**Powell JR**, Boltz A, Robison HJ, Morris SN, Collins CL, Chandran A. Epidemiology of injuries in National Collegiate Athletic Association Men's Wrestling: 2014/15-2018/19. *Journal of Athletic Training*. 56(7):727-733.

Chandran A, Morris SN, **Powell JR**, Boltz A, Robison HJ, Collins CL. (2021). Epidemiology of injuries in National Collegiate Athletic Association Men's Football: 2014/15-2018/19. *Journal of Athletic Training*. 56(7):643-650.

Boltz A, **Powell JR**, Robison HJ, Morris SN, Collins CL, Chandran A. (2021). Epidemiology of injuries in National Collegiate Athletic Association Men's Baseball: 2014/15-2018/19. *Journal of Athletic Training*. 56(7):742-749

Mihalik JP, Chandran A, **Powell JR**, Roby PR, Guskiewicz KM, Stemper BD, Shah AS, Rowson S, Duma S, Harezlak J, Riggen LD, Broglio SP, McAllister TW, McCrea M, & CARE Consortium Investigators. (2020). Do head injury biomechanics predict clinical recovery in college American football players? *Annals of Biomedical Engineering*, 48(11), 2555-2565.

**Powell JR**, Boltz AJ, DeCicco JP, Chandran A, DeLellis SM, Healy ML, Kane SF, Lynch JH, Means GE, Hackney AC, & Mihalik JP. (2020). Neuroinflammatory biomarkers associated with mild traumatic brain injury history in Special Operations Forces combat Soldiers. *Journal of Head Trauma Rehabilitation*, 35(5), 300-307.

Booth MS, **Powell JR**, McKeon PO, Medina McKeon JM. (2018) Vestibular Rehabilitation for Management of Concussion: A Critically Appraised Topic. *International Journal of Athletic Training and Therapy*, 24(3), 100-107.

## REFERRED PRESENTATIONS AND ABSTRACTS

**Powell JR**, Walton SR, Kerr ZY, Giovanello KS, McCrea MA, Guskiewicz KM, Brett BL, Mihalik JP. Structural connectivity alterations are associated with greater concussion history in former collegiate football players at midlife. 6<sup>th</sup> International Consensus Conference on Concussion in Sport. Amsterdam, NL. October 2022

Walton SR, Kerr ZY, **Powell JR**, Giovanello KS, McCrea MA, Guskiewicz KM, Brett BL. Preliminary study of longitudinal changes in neurocognitive test performance and associations with head trauma among former collegiate American football players in early midlife. 6<sup>th</sup> International Consensus Conference on Concussion in Sport. Amsterdam, NL. October 2022

Dums EJ, **Powell JR**, DeLellis SM, Depenbrock PJ, Kane SF, Means GE, & Mihalik JP. Career Stage Moderates the Relationship Between Depression Severity and White Matter Integrity in Special Operations Forces combat Soldiers. 2022 Military Health System Research Symposium. Kissimmee, FL. September 2022

**Powell JR**, Hopfinger JB, Giovanello KS, Walton SR, DeLellis SM, Depenbrock PJ, Kane SF, Means GE, Mihalik JP. Greater Mild Traumatic Brain Injury Lifetime Incidence is Associated with Lower Brain Network Resilience but Not Efficiency in Special Operations Forces Combat Soldiers. National Athletic Trainers' Association Annual Symposium: Philadelphia, PA. June 2022.

Walton SR, Brett BL, **Powell JR**, Yin W, Kerr ZY, McCrea MA, Giovanello KS, Guskiewicz KM. Investigating the Associations of Concussion History and Repetitive Head Impact Exposures with BESS Test Performance and Sensorimotor Cortex Structure and Function in Former Football Players. National Athletic Trainers' Association Annual Symposium: Philadelphia, PA. June 2022.

Mihalik JP, **Powell JR**, Zong X, Weinstein JM, DeLellis SM, Depenbrock PJ, Means GE, & Kane SF. Perivascular space morphology is affected by career exposure in Special Operations Forces combat Soldiers. 2022 American College of Sports Medicine Annual Meeting, San Diego, CA. May 2022

**Powell JR**, Zong X, Weinstein JM, DeLellis SM, Depenbrock PJ, Kane SF, Means GE, & Mihalik JP. White matter perivascular space burden is associated with mild traumatic brain injury history in Soldiers. 2022 American College of Sports Medicine Annual Meeting, San Diego, CA. May 2022

C McEvoy, A Crabtree, **JR Powell**, JS Meabon, JP Mihalik. Cumulative blast exposure estimate model for Special Operations Forces Combat Soldiers. 6th International Forum on Blast Injury Countermeasures May 2022

Walton SR, **Powell JR**, Yin W, Brett BL, Lin W, Nencka AS, Liu M, Guan H, McCrea MA, Guskiewicz KM, Giovanello KS. Exploring associations between resting state functional connectivity and concussion history in relatively young former collegiate American football players. Society for Neuroscience 2021; Virtual.

Mihalik JP, **Powell JR**, Zong X, Weinstein JM, DeLellis SM, Depenbrock PJ, Means GE, & Kane SF. (2021). Brain glymphatic system health as measured by perivascular space morphology is affected by career exposure in Special Operations Forces combat Soldiers. 2021 Military Health System Research Symposium (MHSRS), Kissimmee, FL. *Accepted Cancelled Due to COVID-19*

**Powell JR**, Zong X, Weinstein JM, DeLellis SM, Depenbrock PJ, Kane SF, Means GE, & Mihalik JP. (2021). Mild traumatic brain injury history and lifetime incidence is associated with increased brain perivascular space frequency and volume in Special Operations Forces combat Soldiers. 2021 Military Health System Research Symposium (MHSRS), Kissimmee, FL. *Accepted Cancelled Due to COVID-19*

**Powell JR**, DeLellis SM, Kane SF, Lynch JH, Means GE, & Mihalik JP. (2020). The effects of mTBI lifetime incidence on cortical thickness in Special Operations Force combat Soldiers. 2021 National Athletic Trainers' Association Clinical Symposia & AT Expo, Virtual Meeting

Barczak-Scarboro NE, **Powell JR**, Walton SR, Giovanello KS, Barnett R, Piazza M, Bialar-Heath M, Burke R, DeLellis SM, Kane SF, Lynch JH, Means GE, Depenbrock PJ, & Mihalik JP. (2021). Cortical volumes did not associate with mental health symptoms in Special Operations Forces service members. 2021 American College of Sports Medicine Annual Meeting, Virtual Meeting

**Powell JR**, Barczak-Scarboro NE, Walton SR, Giovanello K, Barnett R, Piazza M, Bialar-Heath M, Burke R, DeLellis SM, Kane SF, Lynch JL, Means GE, Depenbrock PJ, & Mihalik JP. (2021). Associations among subcortical volumes with mental health in Special Operations Forces combat service members. 2021 American College of Sports Medicine Annual Meeting, Virtual Meeting.

Mihalik JP, **Powell JR**. Concussion: Intersecting Sport Vision and Injury Prevention/Rehabilitation Vision Training Lab (EBP Session). *Co-presented at the 2020 North Carolina Athletic Trainers' Association Clinical Symposium and Award Ceremony*.

**Powell JR**, Chandran A, Boltz AJ, DeLellis SM, Kane SF, Lynch JH, Means GE, Mihalik JP. The Relationship Between Neurofilament Light and White Matter Tract Microstructure in Special Operations Forces Combat Soldiers. 2020 Military Health System Research Symposium (MHSRS), Kissimmee, FL. *Accepted Cancelled Due to COVID-19*

Kane SF, **Powell JR**, Castellano AK, DeLellis SM, Larson SL, Lynch JH, Means GE, Mihalik JP. The Relationship Between Circulating Thyroid Stimulating Hormone Levels and Anterior Pituitary Volume in Special Operations Forces Combat Soldiers. 2020 Military Health System Research Symposium (MHSRS), Kissimmee, FL. *Accepted Cancelled Due to COVID-19*

Boltz AJ, **Powell JR**, DeCicco JP, Chandran A, DeLellis SM, Healy ML, Kane SF, Lynch JH, Means GE, & Mihalik JP. Neuron Specific Enolase and mTBI history in US Army Special Operation Forces Personnel.

*Oral Presentation Accepted to the 2020 Special Operations Medical Association Scientific Assembly  
Cancelled Due to COVID-19.*

DeCicco JP, Boltz AJ, **Powell JR**, Chandran A, DeLellis SM, Healy ML, Kane SF, Lynch JH, Means GE, & Mihalik JP. The Relationship Between Interleukin-6 and Cerebrovascular Reactivity Measures in Special Operations Forces Soldiers. *Oral Presentation Accepted to the 2020 Special Operations Medical Association Scientific Assembly Cancelled Due to COVID-19.*

**Powell JR**, Boltz, AJ, Chandran A, DeLellis SM, Healy ML, Kane SF, Lynch JH, Means GE, & Mihalik JP. Serum S100B is Increased in Special Operations Forces Combat Soldiers With Mild Traumatic Brain Injury History. *Finalist for Post-Professional Terminal Degree Oral Presentation Presented at the 2020 National Athletic Trainers' Association Clinical Symposia & AT Expo.*

DeCicco JP, Boltz AJ, **Powell JR**, Chandran A, DeLellis SM, Healy ML, Kane SF, Lynch JH, Means GE, & Mihalik JP. The Relationship Between Serum Interleukin-6 and Concussion History in Special Operations Forces Soldiers. *Poster Presentation Presented at the 2020 National Athletic Trainers' Association Clinical Symposia & AT Expo*

**Powell JR**, Boltz, AJ, DeCicco JP, Chandran A, DeLellis SM, Healy ML, Kane SF, Lynch JH, Means GE, & Mihalik JP. Neurofilament Light Not Associated with Concussion History or Recency in Special Operations Forces Combat Soldiers. *Oral Presentation Accepted to the 2020 American College of Sports Medicine Annual Meeting Cancelled Due to COVID-19.*

**Powell JR**, Tierney RT, Wesley LA, McGinnis IW, Langford TD, The Effect of Physical Activity on Clinical Measures and Blood Biomarkers for Brain Injury: *Poster Presentation at the 2019 College of Public Health Research Day, Temple University, Philadelphia, PA.*

**Powell JR**. The Role of Professional Organizations in Mentorship. *Oral Presentation and Session Moderator Can You Hear Me Now? Creating and Improving Relationships Between Mentors and Mentees: PATS YPC, Philadelphia, PA.*

Booth MS, **Powell JR**, McKeon PO, Medina McKeon JM Vestibular Rehabilitation for Management of Sport-Related Concussion: *Oral Presentation at the 2018 National Athletic Trainers' Association Clinical Symposia, New Orleans, LA.*

Booth MS, **Powell JR**, McKeon PO, Medina McKeon JM Vestibular Rehabilitation for Management of Sport-Related Concussion *Poster Presentation at the 2018 Eastern Athletic Trainers' Association, Boston, MA.*

**Powell JR**, McKeon PO. Branching Out from Alzheimer: The Cases that Shaped our Understanding of Chronic Traumatic Encephalopathy. *Most Outstanding Oral Presentation at 20th Whalen Academic Symposium, March 2017, Ithaca College, Ithaca NY.*

**Powell JR**, McKeon PO. The Role of Beta Amyloid Following Traumatic Brain Injury: A Critically Appraised Topic. *Free Communications Poster Presentation Award Winner at the 2017 Eastern Athletic Trainers' Association, Philadelphia, PA.*

## CERTIFICATIONS AND LICENSES

**June 2017 - 2019** **Licensed Athletic Trainer (RT006845)**

*Pennsylvania State Board of Medicine*

**June 2017 - Present** **Certified Athletic Trainer (#2000028626)**

*Board of Certification*

<b>2018 - Present</b>	<b>CPR and AED for the Health Care Provider</b> <i>Emergency Care and Safety Institute</i> <b>National Provider Identifier (#1487107231)</b> <i>National Plan and Provider Enumeration System</i>
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## PROFESSIONAL SERVICE

<b>2022- Present</b>	<b>The Journal of Athletic Training</b> Continuing Education Question Writer
<b>2020 - Present</b>	<b>International Journal of Athletic Training and Therapy</b> Reviewer
<b>Spring 2020</b>	<b>Human Movement Science Day, UNC Chapel Hill</b> Abstract Reviewer
<b>2020 - Present</b>	<b>Graduate and Professional Student Government Senate, UNC Chapel Hill</b> Human Movement Science Senator
<b>2018 - 2019</b>	<b>Pennsylvania Athletic Trainers' Society</b> Young Professionals Committee (Southeastern Representative) Mentorship Program Coordinator Logo Committee Member 2019 Clinical Symposium Moderator
<b>2018 - 2019</b>	<b>Temple University Graduate Students' Association AFT Local #6290</b> Kinesiology Department Representative

## MENTORED STUDENTS

### **Undergraduate Honors Thesis Projects, UNC Chapel Hill**

Emma Dums: Career Stage Moderates the Relationship Between Mental Health Severity and White Matter Integrity in Special Operations Combat Soldiers (*Graduated with Highest Honors Spring 2021*)  
Role: Committee Member

Anavish Madhavaram: Posttraumatic Migraine Characteristics Predict Extended Recovery Following Sport-Related Concussion in High School Athletes. (*Graduated with Highest Honors Spring 2020*)  
Role: Committee Member

Anna Castellano: The Relationship Between Pituitary Volume and IGF-1 Blood Serum Biomarker Levels in Combat Soldiers with Mild Traumatic Brain Injury History (*Graduated with Highest Honors Spring 2019*)  
Role: Committee Member

### **Master's Thesis Projects, UNC Chapel Hill**

Marissa Sciabarra: The Effects of Mild Traumatic Brain Injury History and Military Career Stage on Functional Balance Performance. (*Graduated Spring 2022*)  
Role: Committee Member

Haley Sledge: The Relationship Between Head Impact Biomechanics and Physical Load in Division 1 Collegiate Football Players. (*Graduated Spring 2021*)  
Role: Committee Member

Matthew Booth: Do Subconcussive Impacts cause Balance Deficits in Athletes? (*Graduated Spring 2020*)  
Role: Ex Officio Committee Member

## TEACHING RECORD

Spring 2023	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (16 students)
Fall 2022	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (15 students)
Summer II 2022	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (9 students)
Spring 2022	<b>Human Anatomy</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Teaching Assistant (238 Students)
Fall 2021	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (16 students)
Summer I 2021	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (15 students)
Spring 2021	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (15 students)
Fall 2020	<b>Biomechanics Teaching Assistant</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i>
Summer I 2020	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (20 students)
Spring 2020	<b>Human Cadaver Anatomy Lab</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Instructor of Record (15 students)
Fall 2019	<b>Human Anatomy</b> <i>The University of North Carolina at Chapel Hill, EXSS Department</i> Teaching Assistant (220 Students)
Fall 2017 – Spring 2017	<b>Human Anatomy and Physiology Teaching Assistant</b> <i>Temple University, Department of Kinesiology, Philadelphia, PA</i> <ul style="list-style-type: none"> <li>• Instructed weekly laboratory sections (20 students)</li> <li>• Presented supporting content to lecture classes (~400 students)</li> </ul>

## SOFTWARE PROFICIENCIES

<b>Computing and Statistics</b>	Bash/Linux, Shell Scripting, Slurm Workload Manager, macOS, R, SAS, SPSS, Matlab, Python
<b>Image Analysis</b>	Freesurfer, FSL, Slicer, Brain Connectivity Toolbox, Statistical Parametric Mapping, Advanced Normalization Tools
<b>Computer Applications</b>	Microsoft Office, Adobe Illustrator, Fusion 360, Ultimaker Cura

- Updated February 7, 2023