

Kody R. Campbell, PhD

CONTACT INFORMATION

Balance Disorders Laboratory
Richard Jones Hall Rm 4365
Mail Code L105
3222 S.W. Research Dr.
Portland, OR 97239
(503)-418-2602
campbeko@ohsu.edu

EDUCATION AND TRAINING

Oregon Health and Science University, Portland, OR, United States

Postdoctoral Research Fellow, August 2019 to Present
Department of Neurology
Focus: *Improving the diagnosis and rehabilitation of mobility in movement-impaired populations*
Advisor: Dr. Laurie A. King

The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

Doctor of Philosophy in Human Movement Sciences, Aug 2019
Department of Allied Health Sciences, School of Medicine
Dissertation: *A Biofidelic Evaluation of the Head Impact Telemetry System on Measuring Head Impact Location and Frequency Through Laboratory and On-Field Assessments*
Advisor: Dr. Jason P. Mihalik

The University of Western Ontario, London, ON, CA

Masters of Science in Kinesiology, Biomechanics, Aug 2014
Department of Kinesiology, School of Health Sciences
Thesis: *Quantifying and Comparing the Head Impact Biomechanics of Different Player Positions for Canadian University Football*
Advisor: Dr. James P. Dickey

The University of Western Ontario, London, ON, CA

Bachelor of Science, Honours Specialization in Kinesiology
Department of Kinesiology, School of Health Sciences

PROFESIONAL EXPERIENCE and WORK HISTORY

Oregon Health and Science University, Portland, OR, United States

Department of Neurology
Postdoctoral Research Scholar, Balance Disorders Laboratory, Aug 2019 to Present

US Department of Veteran Affairs Portland Health Care System, Portland, OR, United States

National Center for Rehabilitative Auditory Research Center
Research Associate – Without Compensation, Aug 2019 to October 2023

The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

Department of Allied Health Sciences, School of Medicine

Research Assistant, Matthew Gfeller Center, Aug 2014 to Dec 2018

Department of Exercise and Sport Science, College of Arts and Sciences

Instructor/ Teaching Assistant, Aug 2015 to May 2018

Academic Support Program for Student Athletes, Athletic Department

Academic Tutor, Jan 2015 to Jun 2016

The University of Western Ontario, London, ON., CA**Department of Kinesiology, School of Health Sciences**

Research Assistant, Joint Biomechanics Laboratory, Sept 2012 to Aug 2014

Department of Kinesiology, School of Health Sciences

Teaching Assistant, Sept 2012 to Aug 2014

SCHOLARSHIP**Articles in Review (1)**

1. Graham L, Powell, **Campbell KR**, Morris R, Vitorio R, Parrington L, Antonellis P, Godfrey A, King LA, & Stuart SS. iVOMS: Instrumented Vestibular Ocular Motor Screen in healthy controls and mild traumatic brain injury. *Medical Engineering and Physics*. (Submitted: Oct 19, 2023)

Articles in Press (1)

1. Antonellis P, **Campbell KR**, Wilhelm JL, Shaw JD, Chesnutt JC, & King LA. Exercise intolerance after mild traumatic brain injury occurs in all subtypes in the adult population. *Journal of Neurotrauma*. <https://doi.org/10.1089/neu.2023.0168> *Impact Factor: 4.2*

Refereed Articles (19)

1. **Campbell KR**, Wilhelm JL, Prokopios A, Scanlan KT, Pettigrew NC, Martini DN, Chesnutt JC & King LA. (2023) Assessing the Effects of Mild Traumatic Brain Injury on Vestibular Home Exercise Performance with Wearable Sensors. *Sensors (Basel)*. 2023;23(24):9860. *Impact Factor: 3.9*
2. Martini DN, Gera G, Bumbach BH, **Campbell KR**, Parrington L, Chesnutt J, & King LA. (2023) Symptoms and central sensory integration in people with chronic mTBI; clinical implications. *Mil Med*. 2023;188(11-12):3553-3560. *Impact Factor: 1.563*.
3. **Campbell KR**, Scanlan KT, Wilhelm JL, Brumbach BH, Pettigrew NC, Neilson A, Parrington L, & King LA (2023). Assessment of balance in people with mild traumatic brain injury using a balance systems model approach. *Gait & Posture*, 100, 107-113. <https://doi.org/10.1016/j.gaitpost.2022.12.005> *Impact Factor: 2.746*
4. **Campbell KR**, King LA, Parrington L, Fino PC, Antonellis P, & Peterka RJ. (2022a) Central sensorimotor Integration Assessment Reveals Deficits in Standing Balance Control in People with Chronic Mild Traumatic Brain Injury. *Front Neurol*, 13, 897454. <https://doi.org/10.3389/fneur.2022.897454> *Impact Factor: 4.003*
5. **Campbell KR**, Peterka RJ, Fino PC, Parrington L, Wilhelm JL, Pettigrew NC, & King, LA (2022b). The effects of augmenting traditional rehabilitation with audio biofeedback in people with persistent imbalance following mild traumatic brain injury. *Front Neurol y*, 13. <https://doi.org/10.3389/fneur.2022.926691> *Impact Factor: 4.003*
6. **Campbell KR**, Wilhelm JL, Pettigrew NC, Scanlan KT, Chesnutt JC, & King LA. (2022) Implementation and Adoption of Tele-Rehabilitation for Treating Mild Traumatic Brain Injury.

Journal of Neurologic Physical Therapy, 46(4), E1-E10.
<https://doi.org/10.1097/npt.0000000000000409> Impact Factor: 4.655

7. Powell D, Godfrey A, Parrington L, **Campbell KR**, King LA, & Stuart S. (2022). Free-living gait does not differentiate chronic mTBI patients compared to healthy controls. *J Neuroeng Rehabil*, 19(1), 49. <https://doi.org/10.1186/s12984-022-01030-6> Impact Factor: 5.12
8. Brooks JS, **Campbell KR**, Allison W, Johnson AM, & Dickey JP. (2022) Career Head Impact Exposure Profile of Canadian University Football Players. *J Appl Biomech*. 2022;38(1):47-57. doi: 10.1123/jab.2020-0228 Impact Factor: 1.606
9. Lirani-Silva E, Stuart S, Parrington L, **Campbell KR**, King L. (2021). Saccade and Fixation Eye Movements During Walking in People With Mild Traumatic Brain Injury. *Front Bioeng Biotechnol*. 2021;9:701712. doi: 10.3389/fbioe.2021.701712 Impact Factor: 5.89
10. **Campbell KR**, Parrington L, Peterka RJ, Martini DN, Hullar TE, Horak FB, Chesnutt JC, Fino PC, & King LA. (2021). Exploring Persistent Complaints of Imbalance After Mtbi: Oculomotor, Peripheral Vestibular And Central Sensory Integration Function. *J Vestib Res*. 2021;31(6):519-530. doi: 10.3233/ves-201590 Impact Factor: 2.435
11. **Campbell KR**, Marshall SW, Luck JF, Pinton GF, Stitzel JD, Boone JS, Guskiewicz KM, & Mihalik JP. (2020). The Head Impact Telemetry System's Impact Detection and Location Accuracy Using Video. *Medicine & Science in Sports & Exercise*. 52(10), 2198-2206. doi:10.1249/MSS.0000000000002371 Impact Factor: 6.289
12. Lynall RC, **Campbell KR**, Mauntel TC, Blackburn JT, & Mihalik JP. (2019) Single leg hop and single leg squat balance performance in recreational athletes with a concussion history. *Journal of Athletic Training*; 55(5):488–93. doi:10.4085/1062-6050-185-19 Impact Factor: 2.86
13. Combs PR, Ford CB, **Campbell KR**, Carneiro KA, & Mihalik JP (2019). Influence of Self-reported Fatigue and Sex on Baseline Concussion Assessment Scores. *Orthopaedic Journal of Sports Medicine*. 2019;7(1):2325967118817515. doi:10.1177/2325967118817515. Impact Factor: 2.538
14. Ford JM, **Campbell KR**, Ford CB, Boyd KE, Padua DA, & Mihalik JP. (2017). Can functional movement assessment predict football head impact biomechanics? *Medicine & Science in Sports & Exercise*, 50(6), 1233–1240. doi: 10.1249/MSS.0000000000001538 Impact Factor: 6.289
15. Kerr Z, **Campbell KR**, Fraser MA, Currie DW, Pierpoint LA, Kaminski T, & Mihalik JP. (2017). Head impact locations in US high school boys' and girls' soccer concussions, 2012/13-2015/16. *Journal of Neurotrauma*, 36(13), 2073–2082. doi:10.1089/neu.2017.5319 Impact Factor: 5.269
16. Lynall RC, **Campbell KR**, Wasserman EB, Dompier TP, & Kerr ZY. (2017). Concussion Mechanisms and Activities in Youth, High School, and College Football. *Journal of Neurotrauma*, 34(19), 2684–2690. doi:10.1089/neu.2017.5032 Impact Factor: 5.269
17. Kuo C, Wu, LC, Hammor BT, Luck JF, Cutcliffe HC, Lynall RC, Kait JR, **Campbell KR**, Mihalik JP, Bass CR, & Camarillo DB. (2016). Effect of the mandible on mouthguard measurements of head kinematics. *J Biomech*, 49(9), 1845–53. doi:10.1016/j.jbiomech.2016.04.017 Impact Factor: 2.78
18. **Campbell KR**, Warnica MJ, Levine IC, Brooks JS, Laing AC, Burkhart TA, & Dickey JP. (2016). Laboratory Evaluation of the gForce Tracker, a Head Impact Kinematic Measuring Device for Use

in Football Helmets. *Ann Biomed Eng*, 44(4), 1246–56. doi:10.1007/s10439-015-1391-7 *Impact Factor*: 4.310

19. Kelleher LK, **Campbell KR**, & Dickey JP. (2013). Biomechanical research on bowed string musicians: a scoping study. *Med Probl Perform Art*, 28(4), 212–8. *Impact Factor*: 1.106

Articles in Preparation (2)

1. **Campbell KR**, Prokopios A, Wilhelm JL, Mancini M, & King LA. Wearable Technology To Measure Change In Turn Quality After Rehabilitation In People With mTBI. Target Journal: *Neurotrauma*
2. **Campbell KR**, Prokopios A, Peterka RJ, Wilhelm JL, Scanlan KT, Pettigrew NC, Chen S, Parrington L, Fino PC, Chestnutt JC, Horak FB, Hullar TE, & King LA. Randomized controlled trial demonstrating how the timing of physical therapy initiation influences outcomes in people with subacute mTBI. Target Journal: *Phys Ther*

Book Chapters in Press

1. King LA, Gray V, **Campbell KR**, Antonellis P. Balance Dysfunction. In: Encyclopedia of the Human Brain, 2nd Edition. Elsevier (*In Press: Dec 7, 2023*)

Refereed Presentations and Published Abstracts (69)

1. Scanlan KT, Wilhelm JL, **Campbell KR**, Antonellis P, Chesnutt JC, & King LA. (2024) Gaze Stabilization Exercises for Mild Traumatic Brain Injury: Does HeadVelocity Matter?. *2024 Combined Sections Meeting – American Physical Therapy Association*. Boston, MA, US. (Feb 15 – 17, 2024) Accepted – Poster Presentation
2. Wilhelm JL, Antonellis P, **Campbell KR**, Scanlan KT, Chesnutt JC, & King LA. (2024) Exercise Intolerance after Mild Traumatic Brain Injury: Do Vestibular-OcularDeficits Effect Rehabilitation Outcomes?. *2024 Combined Sections Meeting – American Physical Therapy Association*. Boston, MA, US. (Feb 15 – 17, 2024) Accepted – Podium Presentation
3. **Campbell KR**, Antonellis P, Peterka RJ, & King LA. (2023) Reaction Times After Mild Traumatic Brain Injury: A Comparison Across Multiple Domains. *2023 Military Health Systems Research Symposium*. Orlando, FL. (Aug 14 – 17, 2023) (Aug 14 - 17, 2023) Poster Presentation
4. Antonellis P, **Campbell KR**, Wilhelm JL, Shaw JD, Chesnutt JC, & King LA. (2023) Exercise Intolerance After Mild Traumatic Brain Injury: Subtypes and Rehabilitation. *2023 Military Health Systems Research Symposium*. Orlando, FL. (Aug 14 - 17, 2023) Poster Presentation
5. Stojak M, **Campbell KR**, Fino PC, Wilhelm JL, Scanlan KT, Chesnutt JC, & King LK. (2023) Exploring Turning Lap Time in Mild Traumatic Brain Injury. *2023 American College of Sports Medicine Annual Meeting*. Salt Lake City, UT. (May 30 - June 2, 2023) Poster Presentation
6. Stojak M, **Campbell KR**, Fino PC, Wilhelm JL, Scanlan KT, Chesnutt JC, & King LK. (2023) Exploring Turning Lap Time in Mild Traumatic Brain Injury. *2023 OHSU Research Week*. Portland, OR. (May 1, 2022) Poster Presentation
7. **Campbell KR**, Garcia de la Huerta TN, Antonellis P, Peterka RJ, & King LA. (2023) Reaction Times After Mild Traumatic Brain Injury: A Comparison Across Multiple Domains. *2023 OHSU Research Week*. Portland, OR. (May 1, 2022) Poster Presentation

8. King LA, **Campbell KR**, & Peterka RJ. (2022) Possible Physiological Explanation for 'Aphysiologic' Sway Pattern on Sensory Organization Tests. *15th American Balance Society Meeting*, Scottsdale, AZ. (Feb 28 – Mar 1, 2023) Podium Presentation
9. Stojak M, **Campbell KR**, Ghammachi J, Shimabukuro T, & King LK. (2023) Physical Therapy After Mild Traumatic Brain Injury Does Not Improve Eye Movement Function During Walking. *2023 ACSM Northwest Annual Meeting*. Portland, OR. (Feb 24-25, 2023) Podium Presentation
10. Wilhelm JL, Antonellis P, **Campbell KR**, & King LA. (2022) Buffalo Concussion Treadmill Test: Is it Relevant in an Adult, Non-Sports Population. *2023 Combined Sections Meeting – American Physical Therapy Association*. San Diego, CA, US. (Feb 23 – 25, 2023) Poster Presentation
11. Antonellis P, Liu W, **Campbell KR**, Wilhelm JL, Pettigrew NC, Mancini M, & King LA. (2022) Effects of exercise intolerance on prefrontal cortex activity after mild traumatic brain injury. *2022 Society for Neuroscience Annual Meeting*. San Diego, CA. (November 12 -16, 2022) Poster Presentation
12. **Campbell KR**, Mancini M, & King LA. (2022) Concussion Rehabilitation can Improve Turning. *6th International Consensus Conference on Concussion in Sport.*, Amsterdam, Netherlands. (Oct 27 – 28, 2022) Podium Presentation (Selected as Top 2 abstract of Rehabilitation topic section)
13. Wilhelm JL, **Campbell KR**, Peterka RJ, Pettigrew N, & King LA. (2022). Balance deficits after mild Traumatic Brain Injury differ across timeframes of recovery. *International Conference of Vestibular Rehabilitation*. Minneapolis, MN. (October 13-17, 2022) Poster Presentation
14. Wilhelm JL, Antonellis P, **Campbell KR**, Chesnutt JC, Pettigrew N, & King LA. (2022) Could vestibular-ocular dysfunction contribute to exercise intolerance after mild Traumatic Brain Injury? *2022 ANPT Annual Conference*. Minneapolis, MN. (Oct 13 – 15, 2022) Poster Presentation
15. **Campbell KR**, Antonellis P, & King LA. (2022) Do Subjective and Objective Measures of Function Change Similarly in People with Persistent Mild Traumatic Brain Injury Symptoms? *2022 Military Health Systems Research Symposium*. Orlando, FL. (Sept 12- 15, 2022) Podium Presentation
16. Antonellis P, **Campbell KR**, Wilhelm JL, Pettigrew N, Chesnutt JC, & King LA. (2022) Effects of exercise intolerance after mild traumatic brain injury. *2022 Military Health Systems Research Symposium*. Orlando, FL. (Sept 12- 15, 2022) Poster Presentation
17. Antonellis P, **Campbell KR**, Wilhelm JL, Pettigrew NC, and King LA. (2022) Are instrumented measures of gait and balance different in people with exercise intolerance after mild Traumatic Brain Injury? *Academy of Physical Therapy Research 2022 Retreat Advances in Rehabilitation Technology*. Beverly, MA. (July 11-14, 2022) Poster Presentation
18. **Campbell KR**, Peterka RJ, & King LA. (2022) Does a multi-modal mild traumatic brain injury rehabilitation program facilitate standing balance improvements relative to natural recovery. *International Society for Posture and Gait Research World Congress 2022*, Montreal, QC, CAN. (July 3- 7, 2022) Poster Presentation
19. Peterka RJ, **Campbell KR**, Parrington L, & King LA. (2022) Deficits in Standing Balance Control in mTBI Subjects with Chronic Balance Complaints. *International Society for Posture and Gait Research World Congress 2022*, Montreal, QC, CAN. (July 3- 7, 2022) Poster Presentation

20. **Campbell KR**, Peterka RJ, & King LA. (2022) Does a multi-modal mild traumatic brain injury rehabilitation program facilitate standing balance improvements relative to natural recovery? *2022 OHSU Neurology Research Day*. Portland, OR. (May 5, 2022) Poster Presentation
21. Antonellis P, **Campbell KR**, Parrington L, Fino PC, Peterka RJ, & King LA. (2022). Sensory, motor and time delay deficits during standing balance after mild traumatic brain injury. *2022 OHSU Neurology Research Day*. Portland, OR. (May 5, 2022) Poster Presentation
22. Stojak M, Antonellis P, Wilhelm JL, **Campbell KR**, Chesnutt JC, Pettigrew N, & King LA. (2022) Exercise intolerance after mild traumatic brain injury: the role of heart rate, symptom provocation and rehabilitation. *2022 OHSU Research Week – mTBI Symposium*. Portland, OR. (May 3, 2022) Podium Presentation
23. **Campbell KR**, Antonellis P, & King LA. (2022) Do Subjective and Objective Measures of Function Change Similarly in People with Persistent Mild Traumatic Brain Injury Symptoms? *2022 OHSU Research Week – mTBI Symposium*. Portland, OR. (May 3, 2022) Podium Presentation
24. Antonellis P, **Campbell KR**, Wilhelm JL, Pettigrew N, Chesnutt JC, & King LA. (2022) Do Exploring rehabilitation for exercise intolerance and symptom resolution in people with mild traumatic brain injury. *2022 ACSM Northwest Annual Meeting*. Portland, OR. (Feb 26) Podium Presentation
25. Mabry J, **Campbell KR**, & King LA. (2022) Does Dual Task Gait Relate to Cognitive Deficits in People with Mild Traumatic Brain Injury. *2022 Combined Sections Meeting – American Physical Therapy Association*. San Antonio, TX, US. (Feb 2 -5) Poster Presentation
26. Wilhelm JL, Koch J, Pettigrew NC, **Campbell KR**, & King LA. (2022) Exploring Vestibular/Ocular Motor Screen (VOMS) in Adults As a Potential Outcome after Concussion Vestibular Rehabilitation. *2022 Combined Sections Meeting – American Physical Therapy Association*. San Antonio, TX, US. (Feb 2 -5) Podium Presentation
27. Pettigrew NC, **Campbell KR**, Parrington L, Peterka RJ, Wilhelm JL, Scanlan KT, & King LA. (2022) Vestibular Rehabilitation Is Facilitated By Audio Biofeedback after Mild Traumatic Brain Injury. *2022 Combined Sections Meeting – American Physical Therapy Association*. San Antonio, TX, US. (Feb 2 -5) Poster Presentation
28. **Campbell KR**, Peterka RJ, & King LA. (2021) Deficits in Standing Balance Control Following Mild Traumatic Brain Injury. *2021 National Center for Rehabilitative Auditory Research: Vestibular Disorders; From Cause to Cure (Virtual)*, Portland, OR, US. (Sept 29 – Oct 1, 2021) Poster Presentation
29. Wilhelm JL, **Campbell KR**, Pettigrew NC, Kempel SD, Putterman DB, Peterka RJ, & King LA. (2021). Exploring the relationship between vestibular and oculomotor deficits and responsiveness to rehabilitation after concussion. *2021 National Center for Rehabilitative Auditory Research: Vestibular Disorders; From Cause to Cure (Virtual)*, Portland, OR, US. (Sept 29 – Oct 1, 2021) Poster Presentation
30. Lirani Silva E, Stuart SS, Parrington L, **Campbell KR**, & King LA. (2021) Saccade and Fixation Eye Movements during Walking in Mild Traumatic Brain Injury and Healthy Controls. *International Conference on Ambulatory Monitoring of Physical Activity and Movement (Virtual)*, (June 23-24, 2021) Poster Presentation

31. **Campbell KR**, Mancini M, & King LA. (2021) Identifying Digital Biomarkers of Mobility During Daily Living in People Recovering from Mild Traumatic Brain Injury. *International Conference on Ambulatory Monitoring of Physical Activity and Movement (Virtual)*, (June 23-24, 2021) Poster Presentation
32. Gallun F, **Campbell KR**, Kampel S, Chesnutt JC, Mabry J, & King LA. (2021). Auditory processing after mild Traumatic Brain Injury. *2021 OHSU Research Week (Virtual)*, Portland OR, (May 4-6, 2021) Podium Presentation
33. **Campbell KR**, Peterka RJ, Hullar TE, & King LA. (2021) Are We Measuring What We Say We are Measuring? Subjective and Objective Assessment of Vestibular and Ocular Motor Function in People with Mild Traumatic Brain Injury. Podium Presentation. *2021 OHSU Research Week (Virtual)*, Portland, OR. (May 4-6, 2021). Podium Presentation
34. Peterka RJ, **Campbell KR**, Parrington L, & King LA. (2021) Deficits in Standing Balance Control Following Mild Traumatic Brain Injury. *2021 Military Health Systems Research Symposium*. Orlando, FL, US. (August 23-26, 2021) Poster Not Presented due to COVID-19 Cancellation
35. **Campbell KR**, Peterka RJ, Hullar TE, & King LA. (2021) Are We Measuring What We Say We are Measuring? Subjective and Objective Assessment of Vestibular and Ocular Motor Function in People with Mild Traumatic Brain Injury. *2021 Military Health Systems Research Symposium*. Orlando, FL, (August 23-26, 2021) Poster Not Presented due to COVID-19 Cancellation
36. **Campbell KR**, Gallun F, Kampel S, Chesnutt JC, Mabry J, & King LA. (2021) Auditory spatial processing in civilians with mild Traumatic Brain Injury. *2021 Military Health Systems Research Symposium*. Orlando, FL. (August 23-26, 2021) Poster Not Presented due to COVID-19 Cancellation
37. Peterka RJ, **Campbell KR**, Parrington L, & King LA. (2021) Deficits in Standing Balance Control in mTBI Subjects with Chronic Balance Complaints. *2021 Vestibular Oriented Research Meeting (Virtual)*. (Feb 16-17, 2021) Podium Presentation
38. Parrington L, Fino PC, **Campbell KR**, & King LA. (2021). Effects of Vestibular Rehabilitation on Sensory Integration and Turning in People with Chronic mTBI. *2021 Combined Sections Meeting – American Physical Therapy Association (Virtual)*. Orlando, FL, US. (Feb 24- 27) Poster Presentation
39. **Campbell KR**, Parrington L, Martini DN, Wilhelm JL, Pettigrew N, Koch J, & King LA. (2020). Using the Vestibular/Oculo-Motor Screening (VOMS) Tool as an Outcome Measure after Rehabilitation for Mild Traumatic Brain Injury. *2020 Military Health Systems Research Symposium*. Orlando, FL, US. (Aug 24- 27) Canceled due to COVID – 19
40. Martini DN, Parrington L, **Campbell KR**, Chesnutt J, & King LA. (2020). Gait variability and cognition in people with a mild traumatic brain injury. *2020 Military Health Systems Research Symposium*. Orlando, FL, US. (Aug 24- 27) Canceled due to COVID – 19
41. Brooks JS, Allison W, **Campbell KC**, & Dickey JP (2020) The Career Head Impact Exposure Profile of a Canadian Varsity Football Player. *2020 21st Biennial Canadian Society of Biomechanics Meeting*. Montreal, QC, CAN. (Aug 11 – 14, 2020) Canceled due to COVID-19
42. **Campbell KR**, Parrington L, Hullar TE, Peterka RJ, Horak FB, & King LA. (2020). Quantifying Peripheral Vestibular and Balance Abnormalities in People with Chronic Dizziness and Imbalance

Following Mild Traumatic Brain Injury. *2020 Vestibular Oriented Research Meeting*. Toronto, ON, CAN. (May 1 – 3, 2020) Canceled due to COVID-19

43. **Campbell KR**, Parrington L, Martini DM, Hullar TE, Peterka RJ, & King LA. (2020). Does Vestibular and Visuomotor Performance Relate to Gait in People Recovering Sub-Acutely from Concussion? *2020 Big Sky Athletic Training and Sport Medicine Conference*. Big Sky, MT, US. (Feb 2 – 6, 2019) Poster Presentation
44. Combs PR, Ford CB, Nocera M, **Campbell KR**, Marshall SW, Mihalik JP, Register-Mihalik JK, & Guskiewicz, KM. (2019). Biomechanic Data-Driven Behavior Modification To Reduce Concussion Risk In High School Football Athletes. *6th Annual Pediatric Research in Sport Medicine Annual Meeting*, Atlanta, GA., US, *Orthop J Sports Med*. 2019;7(1):2325967118817515. doi:10.1177/2325967118817515. (January 17 – 19, 2019) Poster Presentation
45. **Campbell KR**, Ranapurwala SI, Ford CB, Combs PR, Cabell GH, Nocera MA, Guskiewicz KM, Marshall SW, Register-Mihalik JK & Mihalik JP. (2018). Evaluating the Effectiveness of a Safe Playing Techniques Program on Head Impact Biomechanics in High School Football Players. *2018 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, New Orleans, LA. *Journal of Athletic Training*. Vol 53. ; 2018:S-1. doi:10.4085/1062-6050-53.6s.s1. (June 26 - 30, 2018) Podium Presentation
46. Cabel GH, **Campbell KR**, Kroshus LE, Lee JG, Dompier TP & Kerr ZY. (2018). The Difference in Heads Up Football App Usage in Player Safety Coaches and Coaches in Youth and Adolescent Football. *2018 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, New Orleans, LA. *Journal of Athletic Training*. Vol 53. ; 2018:S-1. doi:10.4085/1062-6050-53.6s.s1. (June 26 - 30, 2018) Poster Presentation
47. Vander Vegt CB, Register – Mihalik JK, Kostogiannes VT, **Campbell KR**, Guskiewicz KM, & Mihalik JP. (2018). Baseline Visual Measures in High School Football Players With and Without Previous Concussion. *2018 American College of Sports Medicine Annual Meeting*, Minneapolis, MN. *Medicine & Science in Sports & Exercise*. Vol 50.; 2018. doi:10.1249/01.mss.0000535842.76458.28 (May 29 – June 2, 2018) Poster Presentation
48. Boone J, **Campbell KR**, & Mihalik JP. (2018) The Effect of a Helmet on a Head Impact Sensor's Accuracy to Measure Peak Angular Acceleration During Laboratory Controlled Drops to a Cadaver Head. *19th Annual Celebration of Undergraduate Research at UNC-Chapel Hill*, Chapel Hill, NC, (April 12, 2018) Poster Presentation
49. **Campbell KR**, Ranapurwala SI, Ford CB, Combs PR, Cabell GH, Nocera MA, Guskiewicz KM, Marshall SW, Register-Mihalik JK & Mihalik JP. (2018). Evaluating the Effectiveness of a Safe Playing Techniques Program on Head Impact Biomechanics in High School Football Players. *Human Movement Science and Biomechanics Research Symposium – Regional American Society of Biomechanics Meeting*, Chapel Hill, NC, US, (March 9, 2018). Podium Presentation
50. Kerr ZY, **Campbell KR**, Fraser MA, Currie DW, Pierpoint LA, Kaminski TW, & Mihalik JP. (2017). Head impact locations in US high school boys' and girls' soccer concussions, 2012/13 – 2015. *APHA 2017 Annual Meeting & Expo*, Atlanta, GA, (November 4, 2017). Podium Presentation
51. Ford CB, Nocera M, Wasserman EB, **Campbell KR**, Combs PR, Fraser MA, Grand EE, Marshall SW, Mihalik JP, Register-Mihalik JK, Traugot P, & Guskiewicz KM. (2017). Biomechanic data-driven behavior modification to reduce concussion risk in high school football athletes. *2017 6th SAVIR National Conference*, Ann Arbor, MI. (September 18, 2017). Podium Presentation

52. **Campbell KR**, Lynall RC, Luck JF, Cutcliffe HC, Kait JR, Kuo C, Camarillo DB, Bass CR, & Mihalik JP. (2017). Peak resultant linear acceleration agreement between common head impact sensor devices. *2017 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, Houston, TX. *Journal of Athletic Training*, 52(6), S68 (June 28, 2017). Podium Presentation
53. Combs PR, **Campbell KR**, Ford CB, Guskiewicz KM, & Mihalik JP. (2017). Influence of Self-Reported Fatigue and Sex on Concussion Baseline Assessment Scores. *2017 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, Houston, TX. *Journal of Athletic Training*, 52(6), S239 (June 28, 2017). Poster Presentation
54. Lynall RC, **Campbell KR**, Blackburn JT, Guskiewicz KM, Marshall SW, Plummer P, & Mihalik JP. (2017). Dynamic balance deficits following concussion. *2017 American College of Sports Medicine Annual Meeting*, Denver, CO. *Medicine & Science in Sports & Exercise*, 49(5S):547 (June 1, 2017). Poster Presentation
55. Wasserman EB, Mihalik JP, **Campbell, KR**, Combs, PR, Fraser MA, Grand EE, Nocera, M, Register–Mihalik JK, Guskiewicz KM, & Marshall SW. (2016). Innovative Behavior Modification Strategies to Reduce Concussion Risk in High School American Football Athletes. *2016 American Public Health Association Annual Meeting and Expo*, Denver, CO, US (October 29 – Nov 2, 2016). Podium Presentation
56. Wasserman EB, Mihalik JP, **Campbell, KR**, Combs, PR, Fraser MA, Grand EE, Nocera, M, Register–Mihalik JK, Guskiewicz KM, & Marshall SW. (2016). Innovative Behavior Modification Strategies to Reduce Concussion Risk in High School American Football Athletes. *5th International Consensus Conference on Concussion in Sport*, Berlin, Germany. *Br J Sports Med*, 51(11), A67–A67 (October 27 – 28, 2016). Poster Presentation
57. **Campbell, KR**, Mihalik JP, Tripathi, BB, Espindola D, & Pinton GF. (2016). Simulations of recently observed shear shock wave physics amplify local brain acceleration by a factor of 40 in head drop experiments – future implications for concussion. *5th International Consensus Conference on Concussion in Sport*, Berlin, Germany. *Br J Sports Med*, 51(11), A10–A10 (October 27 – 28, 2016). Poster Presentation
58. Kuo C, Wu L, Fanton M, Luck JF, Cutcliffe HC, Lynall RC, **Campbell KR**, Mihalik JP, Bass CR, & Camarillo DB. (2016). Strain-based validation of an instrumented mouthguard. *2016 Biomedical Engineering Society Annual Meeting*, Minneapolis, MN., US (October 5 - 8, 2016). Podium Presentation
59. **Campbell KR**, Lynall RC, Luck JF, Cutcliffe HC, Kait JR, Kuo C, Wu L, Camarillo DB, Bass CR, & Mihalik JP. (2016). Impact detection rate analysis on four head impact sensors. *2016 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, Baltimore, MD, US. *Journal of Athletic Training*, 51(6), S239 (June 25, 2016). Podium Presentation
60. Lynall RC, Wasserman EB, **Campbell KR**, Dompier TP, Kerr ZY. (2016). Comparison of concussion injury mechanisms and contact type between youth, high school, and college football players. *2016 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, Baltimore, MD, US. *Journal of Athletic Training*, 51(6), S202 (June 25, 2016). Poster Presentation
61. **Campbell KR**, Lynall RC, Luck JF, Cutcliffe HC, Kait JR, Kuo C, Wu L, Camarillo DB, Bass CR, & Mihalik JP. (2016). Impact detection rate analysis on four head impact sensors. *Human Movement*

Science and Biomechanics Research Symposium – Regional American Society of Biomechanics Meeting, Chapel Hill, NC, US, (February 26, 2016). Podium Presentation

62. Cutcliffe HC, Luck JF, Kait JR, Kuo C, Wu L, Lynall RC, **Campbell KR**, Camarillo DB, Mihalik JP, & Bass CR. (2015). Validation of an ear-based measurement system for head impact. *2015 Biomedical Engineering Society Annual Meeting*, Tampa, FL., US (October 8, 2015). Podium Presentation
63. Kuo C, Wu L, Luck JF, Cutcliffe HC, Lynall RC, Kait JR, **Campbell KR**, Mihalik JP, Bass CR, & Camarillo DB. (2015). Ex vivo evaluation of an instrumented mouthguard. *2015 Biomedical Engineering Society Annual Meeting*, Tampa, FL., US (October 8, 2015). Podium Presentation
64. **Campbell KR**, Lynall RC, Luck JF, Cutcliffe HC, Kait JR, Kuo C, Wu L, Camarillo DB, Bass CR, & Mihalik JP. (2015). Laboratory evaluation of the xPatch: Differences in outputs between the left and right patch in helmeted head impacts. *2015 Biomedical Engineering Society Annual Meeting*, Tampa, FL., US (October 8, 2015). Podium Presentation
65. **Campbell KR**, & Mihalik JP. (2015). The effect of cervical muscle strength and head impact location on impact biomechanics in youth ice hockey players. *2015 National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, St. Louis, MO, US. *Journal of Athletic Training*, 50(6), S70. (June 25, 2015). Podium Presentation
66. **Campbell KR**, Lynall RC, Luck JF, Cutcliffe HC, Kait JR, Kuo C, Camarillo D, Bass CR, Mihalik JP. (2015). Laboratory evaluation of the xPatch: Differences in outputs between the left and right patch in helmeted head impacts. *Human Movement Science and Biomechanics Research Symposium – Regional American Society of Biomechanics Meeting*, Chapel Hill, NC, US, (April 17, 2015). Podium Presentation
67. **Campbell, KR** and Dickey, JP. (2014) Quantifying and Comparing the Head Impact Biomechanics of Different Player Positions for Canadian University Football. *2014 Faculty of Health Sciences Research Day*. London, ON, CA, (March 25, 2014). Poster Presentation
68. **Campbell, KR**, Kelleher, LK, and Dickey, JP. (2013) Biomechanical Research on Bowed String Musicians: A Scoping Study. 31st Annual Symposium of Medical Problems in Performing Artists, Snowmass, CO, US, *Medical Problems in Performing Artists Symposium Proceedings* p.109-111. (July 23, 2013). Podium Presentation
69. **Campbell, KR** and Dickey, JP Biomechanical. (2013) Analysis of Head Impacts on Canadian University Football Players of Different Positions. *2013 Ontario Biomechanics Conference*. Barrie, ON, CA, (March 15-17, 2013). Poster Presentation

Invited Scholarly Presentations (7)

1. **Campbell KR**, “Central sensory motor integration: Is motor or sensory more impaired after mTBI?” *2023 Oregon Health and Science University Brain Institute Mild Traumatic Brain Injury Symposium*, Portland, OR (October 21-22, 2023)
2. King LA, Fino PC, **Campbell KR**, & Wilhelm JL. “Motor Versus Sensory Dysfunction for Balance Control after Mild Traumatic Brain Injury; Implications for Rehabilitation”. *2024 Combined Sections Meeting – American Physical Therapy Association*. Boston, MA, US. (Feb 15 – 17, 2024) Educational Platform
3. **Campbell KR**, “Should You Check Their Head When the Light Blinks Red? The Clinical Utility of Head Impact Sensors for Diagnosing Sport-Related Concussion” *Oregon Health and Science*

University Brain Institute Mild Traumatic Brain Injury Symposium, Portland, OR (December 13, 2019)

4. **Campbell KR**, "Balance Assessments in the Chronic Mild Traumatic Brain Injury Population" *VA Portland Health Care System - National Center for Rehabilitative Auditory Research Monthly Seminar Series*, Portland, OR (November 15, 2019)
5. **Campbell KR**, "Should You Check Their Head When the Light Blinks Red? The Clinical Utility of Head Impact Sensors For Diagnosing Sport-Related Concussion" *Oregon Athletic Trainers' Society Annual Summer Symposium*, Portland, OR (June 8, 2019)
6. **Campbell KR**, "BeMod: Tackling Concussions" *4th Matthew Gfeller Sport-Related Neurotrauma Symposium*, Chapel Hill, NC (March 4, 2017)
7. Lynall RC & **Campbell KR**. "When the Lights Turn On, You Have a Concussion: Is it that Simple?" *National Athletic Trainers' Association Annual Meeting and Clinical Symposium*, Baltimore, MD (June 22, 2016).

Research and Academic Service

Journal Peer Reviewer (Average of 1 review per month)

American Journal of Sports Medicine
 BMC Sports Science, Medicine and Rehabilitation
 Digital Health
 Frontiers in Neurology
 International Journal of Athletic Therapy and Training
 Journal of Athletic Training
 Journal of Biomechanics
 Journal of Functional Morphology and Kinesiology
 Journal of Neurotrauma
 PLOS One
 Sports Medicine – Open

Oregon Health and Science University Brain Institute Mild Traumatic Brain Injury Symposium
 Planning Committee Leader (2022)

Human Movement Science Curriculum – The University of North Carolina at Chapel Hill
 Human Movement Science Symposium Planning Committee Co-Chair (2017)
 Vice President - Interdisciplinary Health and Occupational Professionals Student Organization
 (2017 – 2018)

Symposium and Conference Moderator

Human Movement Science Symposium (March 2017) – Moderator
 4th Matthew Gfeller Sport-Related Neurotrauma Symposium (March 2017) – Moderator
 3rd Matthew Gfeller Sport-Related Neurotrauma Symposium (March 2015) – Moderator

Community Engagement

2022 Oregon Museum of Science and Industry Brain Fair. Portland, OR, USA (March 2022) –
 Cancelled due to COVID-19

2021 Oregon Museum of Science and Industry Brain Fair. Portland, OR, USA (March 2021) –
 Cancelled due to COVID-19

2020 Oregon Museum of Science and Industry Brain Fair. Portland, OR, USA (March, 8 2020)

- Led interactive booth demonstrating changes to postural sway when manipulating sensory information measured with a wearable sensor

GRANT ACTIVITY

Current Support (1)

09/30/23 – 09/29/27

King LA

US Army Department of Defense (HT9425-23-1-0845)

Sensory Integration Balance Deficits in Complex mTBI: Can Early Initiation of Rehabilitation With Wearable Sensor Technology Improve Outcomes?

Goal: to determine if multidimensional real-time biofeedback using novel wearable technology that measures head/trunk and balance improves outcomes after rehabilitation compared to standard care.

Role: Sr. Post-Doctoral Fellow

Total Amount: \$2,396,078

Previous Support (4)

09/30/17 – 09/30/23

King LA

US Army Department of Defense (W81XWH-17-1-0424)

Sensory Integration Balance Deficits in Complex mTBI: Can Early Initiation of Rehabilitation With Wearable Sensor Technology Improve Outcomes?

Goal: to determine how the timing of rehabilitation affects outcomes after mTBI and if home monitoring of balance exercises using wearable sensors improves outcomes. We will develop a novel feedback system using wearable sensors to provide the physical therapist information about quality of head and trunk movements during prescribed exercises.

Role: Post-Doctoral Fellow

Total Amount: \$ 4,652,124

11/01/20 – 10/31/22

Campbell KR

Medical Research Foundation of Oregon (1019137)

Can continuous monitoring of mobility with wearable sensors measure recovery after mTBI with and without rehabilitation?

Goal: The primary goals of this study are to utilize a novel wearable sensor system (Instrumented Socks) during daily life to 1) characterize recovery of walking and turning after mTBI, and 2) to determine the effects of early rehabilitation on walking and turning after mTBI

Role: Principle Investigator

Total Amount: \$29,568

09/30/15 – 12/30/20

King LA

US Army Department of Defense (W81XWH-15-1-0620)

Assessment and Rehabilitation of Central Sensory Impairments for Balance in mTBI

Goal: to characterize balance deficits in people with mTBI, and to use a novel auditory biofeedback device to improve measures central sensorimotor integration and balance control

Role: Post-Doctoral Fellow

Total Amount: \$ 1,993,522

02/01/14 – 07/31/14

Dickey JP & Campbell KR

Natural Sciences and Engineering Research Council (NSERC) Engage Grant (EGP 461013 – 13)

Validation of a New System Measuring Head Impact Biomechanics

Goal: To determine the reliability and validity of a new inertial measurement system mounted in a football helmet for measuring head impact biomechanics.

Role: Co-Investigator

Total Amount: \$20,466

Support Not Funded (2)

05/01/17 – 07/31/18

Campbell KR & Mihalik JP

Canadian Institutes of Health Research Doctoral Foreign Student Award

Exploring the Effects of Repeated Subconcussive Head Impacts on Cerebral Blood Flow in High School Football Players

Goal: To quantify changes to cerebral blood flow as a result of the repeated subconcussive head impacts experienced in a season of competition by high school football players in the absence of a diagnosed concussion.

Role: Principal Investigator

Total Amount: \$30,000

01/01/15 – 12/31/15 Lynall RC, Cutcliffe HC, **Campbell KR**, Mihalik JP, Bass CR, & Luck JF
Kenan-Biddle Partnership (Duke University and the University of North Carolina at Chapel Hill)

Head impact: How do we determine 'bad'?

Goal: To determine the reliability and validity of commercially available head impact sensors at measuring head impact biomechanics in a biofidelic testing setup.

Role: Co-Investigator

Total Amount: \$5,000

TEACHING RECORD

Curricular Experience

The University of North Carolina at Chapel Hill, Chapel Hill, NC., US

Department of Exercise and Sport Science

Instructor, Emergency Care of Injuries and Illness (EXSS 288), Fall 2016 (39 students), Fall 2017 (40 students), Spring 2018 (39 students),

Instructor, Human Anatomy Lab (EXSS 275L), Spring 2016 (16 students), Spring 2017 (16 students), Summer Session 1 2018 (12 students)

Teaching Assistant, Biomechanics of Sport (EXSS 385), Fall 2015

- Guest lectured when required, held office hours, graded and supplied feedback on assignments and exams

The University of Western Ontario, London, ON., CA

Department of Kinesiology

Teaching Assistant, Functional Human Anatomy (Kin 2221), Fall 2012, Spring 2013, Fall 2013, Spring 2014

- Guest lectured when required, taught anatomical relationships and dissection technique during laboratory sessions, graded and supplied feedback on assignments and exams

Invited Guest Lectures (6)

Instrumented Assessments and Rehabilitation of Balance Deficits. Pacific University. Department of Physical Therapy. Forest Grove, OR, USA. (May 2, 2022).

More than Standing Still: An Overview of Postural Control. Pacific University. Department of Physical Therapy. Forest Grove, OR, USA. (April 19, 2021).

Balance and Postural Control. Pacific University. Department of Physical Therapy. Forest Grove, OR, USA. (April 29, 2020). Canceled due to COVID-19

Calculating Moments and Torques: Biomechanics of Sport (EXSS 385) University of North Carolina at Chapel Hill. Department of Exercise and Sport Science. Chapel Hill, NC, USA. (June 16, 2016)

Analysis of Human Motion – Moments and Torques: Biomechanical Analysis of Physical Activity (KIN 3341A) Western University. School of Kinesiology. London, ON, CAN. (April 2, 2014)

Gluteal and Posterior Thigh Anatomy: Functional Human Anatomy for Kinesiology (KIN 2221). Western University. School of Kinesiology. London ON, CAN. (Nov 12, 2013)

Graduate Thesis Committees (3)

Kostogiannes V. Relationships between movement dysfunction, visual sensory performance and head impact biomechanics in high school American football players. May 2018. *Primary doctoral student committee member.*

Ford JM. Functional movement assessments as a predictor for head impact biomechanics. May 2017. *Primary doctoral student committee member.*

Langton M. Comparing ankle range of motion, arthrokinematic posterior glide motion, and muscular stiffness of the triceps surae in division 1 female gymnasts to division 1 female non-jumping athletes. May 2016. *Primary doctoral student committee member.*

Honors Undergraduate Thesis Committees (1)

Mabry J. Testing for Cognitive Deficits after Mild Traumatic Brain Injury using the Automated Neuropsychological Assessment Metric and Dual-Task Assessments. December 2021. *Co-advisor*

Undergraduate Mentoring (7)

Ghammachi, J. 2022. Analysis of eye movements during walking after concussion. *Primary Advisor*

Shimanbujuro, T. 2022. Analysis of head movement during walking after concussion. *Primary Advisor*

Mabry J. 2020 - 2021 Testing for Cognitive Deficits after Mild Traumatic Brain Injury. *Primary Advisor*

Gilstrap, A. 2020. Analysis of body segmental turning coordination after concussion. *Primary Advisor*

Popa, B. 2020. Instrumenting balance and eye tracking after concussion. *Laboratory Mentor*

Boone JS. 2016 – 2018. Chancellor's Science Scholar Program – Accuracy and validity of wearable head impact sensors for use in lacrosse helmets. *Primary Advisor*

Atwater JL. 2015 – 2017. Chancellor's Science Scholar Program – The hammer and the nail: Analysis of head impact biomechanics from 2 competing high school football teams. *Primary Advisor*

High School Mentoring (4)

Fischer M. 2021 Partnership for Science Inquiry Internship. *Primary Advisor*

Duvdevany J. 2021 Partnership for Science Inquiry Internship. *Primary Advisor*

Kuo C. 2020 Partnership for Science Inquiry Internship. *Primary Advisor*

Nedialkova M. 2020. Partnership for Science Inquiry Internship. *Primary Advisor*

HONORS, AWARDS and SCHOLARSHIPS

2022	N.L. Tartar Trust Fellowship, School of Medicine, Oregon Health and Science University
2017	Department of Allied Health Sciences Research Ambassador Award, Allied Health Sciences, University of North Carolina
2017	Departmental Travel Award, Exercise and Sport Science, University of North Carolina
2016	NFL Head Health Tech Symposium Student Scholarship, National Football League
2016	Graduate School Transportation Grant, Graduate School, University of North Carolina
2015	Departmental Travel Award, Exercise and Sport Science, University of North Carolina
2014	Doctoral Merit Assistantship, Graduate School, University of North Carolina
2012-2014	Western Graduate Research Scholarship, University of Western Ontario
2012-2013	Graduate Teaching Assistant Award Nomination, University of Western Ontario
2012	Academic All-Canadian, University of Western Ontario
2012	Dean's Honour List, University of Western Ontario
2011	Dorothy Thompson Bursary, University of Western Ontario
2011	J.C. Hawlik Award, University of Western Ontario

2007-2010 Jack Cowin Football Scholarship, University of Western Ontario

PROFESSIONAL ORGANIZATIONS/CERTIFICATIONS

American College of Sports Medicine

Aug 2015 – present

Membership #761973

American Red Cross Instructor of CPR/AED for Professional Rescuers and Health Care Providers

Aug 2014 – 2020

SELECTED MEDIA APPEARANCES

Augmenting rehabilitation with biofeedback may improve efficacy of TBI treatment, December 2, 2022 (Print – Online)

OHSU Inside SoM

<https://now.ohsu.edu/member/post/augmenting-rehabilitation-biofeedback-may-improve-efficacy-tbi-treatment/4af698d0-2119-4fd1-ac3f-5d0895c4efc0>

Active Voice: Head Impact Monitoring—Is It a Perfect Science?, October 6, 202 (Print – online) Sport Medicine Bulletin American College of Sports Medicine

<https://www.multibriefs.com/briefs/acsm/Active100620.htm>

Concussion research at UNC, November 14, 2015 (Television)

Time Warner Cable News

<http://mms.tveyes.com/transcript.asp?StationID=8165&DateTime=11/14/2015%209:28:13%20PM&playclip=true>

New football helmet sensors monitor brain injuries, November 14, 2013 (Print)

The Globe and Mail

<https://www.theglobeandmail.com/sports/football/helmet-sensors-monitor-brain-injuries/article15453952/>

Tracking devices explore concussions on the playing field, September 27, 2013 (Print – online)

Western News

<https://news.westernu.ca/2013/09/tracking-devices-explore-concussions-on-the-playing-field/>