Adam W. Kiefer, Ph. D.

Curriculum Vita

Department of Exercise and Sport Science
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EDUCATION

2009	Ph.D., Experimental Psychology	University of Cincinnati
2005	M.S., Movement Science	Barry University
2003	B.S., Exercise and Sport Science	University of Wisconsin at La Crosse

ACADEMIC APPOINTMENTS

2019-Present	Assistant Professor	Department of Exercise and Sport Science, University of North Carolina at Chapel Hill
2020-Present	Volunteer Faculty	Division of Sports Medicine, Cincinnati Children's Hospital Medical Center
2019-2020	Adjunct Assistant Professor	Division of Sports Medicine, Cincinnati Children's Hospital Medical Center
2013-2019	Assistant Professor of Pediatrics	College of Medicine, University of Cincinnati
2013-2019	Director of Research Education	Division of Sports Medicine, Cincinnati Children's Hospital Medical Center
2009-2013	Post-Doctoral Research Associate	Department of Cognitive, Linguistic & Psychological Sciences, Brown University

AWARDS AND HONORS

2019 *Oded Bar award for top conference abstract:* **Kiefer, A. W.**, Walker, G., Aamir-Khan, H., Reed, C., Mersha, T., Gubanich, P. & Logan, K. (2019). Examining the effects of atopic disease on concussion recovery: A preliminary investigation to inform personalized care. American Academy of Pediatrics Council on Sports Medicine and Fitness, New Orleans, LA.

2019 Sigma Xi Young Investigator Award, University of Cincinnati Chapter, Cincinnati, OH

2018 *Oded Bar award for top conference abstract*: Walker, G., Richards, N., Klug, E., Reed, C., Silva, P. L., Cohen, K. & **Kiefer, A. W.** (2018). Machine learning for concussion recovery prognosis: A novel tool to empower proactive physician treatments. American Academy of Pediatrics Council on Sports Medicine and Fitness, Orlando, FL.

2017 *Oded Bar award for top conference abstract*: **Kiefer, A. W.**, Walker, G., Silva, P., DiCesare, C., Klug, E. & Myer, G. D. (2017). Oculomotor performance is associated with unanticipated player-to-player collisions and impact force exposure in high school soccer. American Academy of Pediatrics Council on Sports Medicine and Fitness, Chicago, IL.

2016 *T. David Sisk Award for Best Review Paper for the manuscript*: Myer G. D., Jayanthi, N. Difiori, J. P., Faigenbaum, A. D., **Kiefer, A. W.**, Logerstedt D. & Micheli, L. J. (2015). Sport specialization, part II: Alternative solutions to early sport specialization in youth athletes. *Sports Health*, *8*, 65-73.

2016 *Toby Long Pediatric Physical Therapy Journal Paper of the Year Award for the manuscript*: Quatman-Yates, C. C., Bonnette, S., Hugentobler, J. A., Betovens, M., **Kiefer, A. W.**, Kurowski, B. G., & Riley, M. A. (2015). Post-concussion postural sway changes in young athletes: Postural sway variability is important. *Pediatric Physical Therapy*, *27*, 316-327.

2012 *National Institutes of Health Loan Repayment Award*: Mobility Deficits in Patients with Retinitis Pigmentosa.

PEER REVIEWED/REFEREED JOURNAL ARTICLES

**Underline signifies primary/co-primary mentorship of author on project*

Lauck B. J., Sinnott A. M., **Kiefer A. W.**, Padua D. A., Powell J. R., Sledge H. R., & Mihalik J. P. (In Press). Association between head impact biomechanics and physical load in college football. *Annals of Biomedical Engineering*.

Riehm, C., Bonnette, S., Riley, M. A., Diekfuss, J., DiCesare, C. Schille, A., Kiefer, A. W., Jayanthi, N. A., Kliethermes, S., Lloyd, R., Pombo, M. W., Myer, G. D. (In Press). Movement regulatiry differentiates specialized and non-specialized athletes in a virtual reality soccer header task. *Journal of Sport Rehabilitation*.

Grooms, D., Diekfuss, J., Slutsky-Ganesh, A., DiCesare, C., Bonnette, S., Riley, M. A., **Kiefer, A. W.**, Wohl, T., Criss, C., Lamplot, J., Thomas, S., Barber Foss, K., Faigenbaum, A., Wong, P., Simon, J. & Myer, G. D. (In Press). Preliminary report on the Train the Brain project: Neuroplasticity of Augmented Neuromuscular Training and Improved Injury Risk Biomechanics – Part II. Journal of Athletic Training.

Barczak-Scarboro, N. E., Cole, W. R., DeFreese, J. D., Fredrickson, B. L., **Kiefer, A. W.**, Bailar-Heath, M., Burke, R. J., DeLellis, S. M., Kane, S. F., Lynch, J. H., Means, G. E., Depenbrock, P. J. & Mihalik, J. P. (In Press). Active warfighter resilience: A descriptive analysis. *Journal of Special Operations Medicine*.

Armitano-Lago, C. N., Pietrosimone, B., Evans-Pickett, A., Davis-Wilson, H., Franz, J. R., Blackburn, T. & **Kiefer, A. W.** (2022). Cueing changes in peak vertical ground reaction force to improve coordination dynamics in walking. *Journal of Motor Behavior*, *54*, 125-134.

Armitano-Lago, C., Willoughby, D. & **Kiefer, A. W.** (2022). A SWOT analysis of portable and low-cost markerless motion capture systems to assess lower-limb musculoskeltal kinematics in sport. *Frontiers in Sports and Active Living*, 405.

Heffernan, K., Stoner, L., Meyer, M., **Kiefer, A. W.**, Bates, L., Pagan, P., Hanson, E., Horiuchi, M, Michos, E., Kucharska-Newton, A., Matsushita, K., Huges, T. & Tanaka, H. (2022). Associations between estimated and measured carotid-femoral pulse wave velocity in older African American and white adults: The atherosclerosis risk in communities (ARIC) study. *The Journal of Cardiovascular Aging*, *2*, 7.

Alt, J. M., **Kiefer, A. W.**, MacPherson, R., Davis, T. J. & Silva, P. L. (2021). The effect of navigation demand on decision making in a dynamic, sport-inspired virtual environment. *Journal of Sport & Exercise Psychology*, *43*, 375-386.

Chaaban, C. R., Berry, N. T., Armitano-Lago, C. N., **Kiefer, A. W.**, Mazzoleni, M. J. & Padua, D. A. (2021). Combining inertial sensors and machine learning to predict vGRF and knee biomechanics during a double limb jump landing task. *Sensors*, 21, 4383.

Kiefer, A. W., Armitano-Lago, C. N., Cone, B., Bonnette, S., Rhea, C. K., Cummins-Sebree, S. & Riley, M. A. (2021). Postural control development from late childhood through young adulthood. *Gait & Posture*, *86*, 169-173.

Barczak-Scarboro, N. E., Roby, P. R., **Kiefer, A. W.**, Bailar-Heath, M., Burke, R. J., DeLellis, S. M., Kane, S. F., Lynch, J. H., Means, G. E., Depenbrock, P. J. & Mihalik, J. P. (2021). The relationship between resilience and neurophysiological stress in Special operations Forces combat service members. European Journal of Neuroscience. DOI: 10.1111/ejh.15109

Armitano-Lago, C. N., Pietrosimone, B., Davis-Wilson, H., Evans-Pickett, A., Franz, J. R., Blackburn, T. & **Kiefer, A. W.** (2020). Biofeedback augmenting lower limb loading alters the underlying temporal structure of gait following anterior cruciate ligament reconstruction. *Human Movement Science*. DOI: 10.1016/j.humov.2020.102685

Kerrey, B. T., Boyd, S., Geis, G., MacPherson, R., Cooper, E. & **Kiefer, A. W.** (2020). Developing a profile of procedural expertise – A simulation study of tracheal intubation using 3D motion capture. *Simulation in Healthcare*. DOI: 10.1097/SIH.0000000000000423

Adams, K., **Kiefer, A. W.**, Panchuk, D., Hunter, A., MacPherson, R. & Spratford, W. (2020). From the field of play to the laboratory: Recreating the demands of competition with augmented reality simulated sport. *Journal of Sports Sciences*, *38*, 486-493. DOI: 10.1080/02640414.2019.1706872

Hill, Y., **Kiefer, A. W.**, Silva, P. L., Van Yperen, N. W., Meijer, R. R., Fischer, N. & Den Hartigh, R. J. R. (2020). Antifragility in climbing: Determining optimal stress loads for athletic performance training. *Frontiers in Psychology*. DOI: 10.3389/fpsyg.2020.00272

Diekfuss, J. A., Grooms, D. R., Bonnette, S., DiCesare, C. A., Thomas, S., MacPherson, R. P., Ellis, J. D., **Kiefer, A. W.**, Riley, M. A., Schneider, M. A., Gadd, B., Kitchen, K., Barber Foss, K. D., Dudley, J. A., Yuan, W. & Myer, G. D. (2020). Real-time biofeedback integrated into neuromuscular training reduces high-risk knee biomechanics and increases functional brain connectivity: A preliminary longitudinal investigation. *Psychophysiology*. DOI: 10.1111/psyp.13545

Bonnette, S., Diekfuss, J. A., Grooms, D. R., **Kiefer, A. W.**, Riley, M. A., Riehm, C., Moore, C., Barber Foss, K. D., DiCesare, C. A., Baumeister, J. & Myer, G. D. (2020). Electrocortical dynamics differentiate athletes exhibiting low- and high-ACL injury risk biomechanics. *Psychophysiology*, 57, e13530. Doi: 10.1111/psyp.13530.

Bonnette, S., DiCesare, C. A., **Kiefer, A. W.**, Riley, M. A., Barber Foss, K. D., Thomas, S., Diekfuss, J. A. & Myer, G. D. (2020). A technical report on the development of a real-time visual biofeedback system to optimize

motor learning and movement deficit correction. *Journal of Sports Sciences and Medicine*, *19*, 84-94.

Fleuchaus, E., Kloos, H., **Kiefer, A. W.**, & Silva, P. L. (2019). Complexity in science learning: Measuring the underlying dynamics of persistent mistakes. *The Journal of Experimental Education*, DOI: 10.1080/00220973.2019.1660603

DiCesare, C., Bonnette, S., Myer, G. D. & **Kiefer, A. W.** (2019). Differentiating successful and unsuccessful single-leg drop landing performance using uncontrolled manifold analysis. *Motor Control*. DOI: 10.1123/mc.2017-0076

DiCesare, C. A., **Kiefer, A. W.**, Bonnette, S. & Myer, G. D. (2019). Realistic soccer-specific virtual environment exposes high-risk lower extremity biomechanics. *Journal of Sport Rehabilitation*. DOI: 10.1123/jsr.2018-0237

Bonnette, S., DiCesare, C. A., **Kiefer, A. W.**, Riley, M. A., Barber Foss, K. D., Thomas, S., Kitchen, K., Diekfuss, J. A. & Myer, G. D. (2019). Injury risk factors integrated into self-guided real-time biofeedback improves high-risk biomechanics. *Journal of Sport Rehabilitation*. DOI: 10.1123/jsr.2017-0391

Kiefer, A. W., Silva, P. L., Harrison, H. & Araujo, D. (2018). Antifragility in sport: Leveraging adversity to enhance performance. *Sport, Exercise, and Performance Psychology*, *7*, 342-350.

Galloway, R. T., Xu, Y., Hewett, T. E., Barber Foss, K., **Kiefer, A. W.**, DiCesare, C., Magnussen, R. A., Khoury, J., Ford, K., Diekfuss, J. A., Grooms, D. R., Montalvo, A. M. & Myer, G. D. (2018). Age-dependent patellofemoral pain: Hip and knee risk landing profiles in prepubescent and postpubescent female athletes. *American Journal of Sports Medicine*, *46*, 2761-2771.

Grooms, D. R., **Kiefer, A. W.**, Riley, M. A., Ellis, J. D., Thomas, S., Kitchen, K., DiCesare, D., Bonnette, S., Gadd, B., Barber Foss, K. D., Yuan, W., Silva, P., Galloway, R., Diekfuss, J., Leach, J., Berz, K., Myer, G. D. (2018). Brain-behavior mechanisms for the transfer of neuromuscular training adaptions to simulated sport: Initial findings from the Train the Brain project. *Journal of Sport Rehabilitation*, *27*, 1-5.

Horowitz-Kraus, T., DiCesare, C. & **Kiefer, A. W.** (2018). Longer fixation times during reading are correlated with decreased connectivity in cognitive-control regions during rest in children. *Mind, Brain and Education*, *12*, 49-60.

Bonnette, S., Diekfuss, J. A., **Kiefer, A. W.**, Riley, M. A., Barber Foss, K. D., Thomas, S., DiCesare, C. A., Yuan, W., Dudley, J., Reches, A. & Myer, G. D. (2018). A jugular vein compression collar prevents alterations of endogenous electrocortical dynamics following blast exposure during special weapons and tactical (SWAT) breacher training. *Experimental Brain Research*, *236*, 2691-2701.

Montalvo, A. M., Schneider, D. K., Silva, P. L., Yut, L., Webster, K. E., Riley, M. A., **Kiefer, A. W.**, Doherty-Restrepo, J. L., & Myer, G. D. (2018). 'What's my risk of sustaining an ACL injury while playing football (soccer)?' A systematic review with meta-analysis. *British Journal of Sports Medicine*. Doi: 10.1136/bjsports-2016-097261

Kiefer, A. W., Pincus, D., Richardson, M. J. & Myer, G. D. (2017). Virtual reality as a training tool to treat physical inactivity in children. *Frontiers in Public Health*, *5*, 349.

Kiefer, A. W., DiCesare, C., Nalepka, P., Barber-Foss, K., Thomas, S. & Myer, G. D. (2017). Less efficient oculomotor performance is associated with increased incidence of head impacts in high school ice hockey. *Journal of Science and Medicine in Sport*, *21*, 4-9.

Kiefer, A. W., Rio, K., Bonneaud, S., Walton, A. & Warren, W. H. (2017). Quantifying and modeling coordination and coherence in pedestrian groups. *Frontiers in Psychology*, *8*, 949.

Davis, T. J., Pinto, G. B., & **Kiefer, A. W.** (2017). The stance leads the dance: The emergence of role in a joint supra-postural task. *Frontiers in Psychology*, *8*, 718.

Pincus, D., **Kiefer, A. W.**, & Beyer, J. I. (2017). Nonlinear dynamical systems and humanistic psychology. *Journal of Humanistic Psychology*, *58*, 343-366.

Yuan, W., Leach, J., Maloney, T., Altaye, M., Smith, D., Gubanich, P. J., Barber-Foss, K. D., Thomas, S., DiCesare, C., **Kiefer, A. W.**, & Myer, G. D. (2017). Neck collar with mild jugular vein compression ameliorates brain activation changes during a working memory task after a season of high school football. *Journal of Neurotrauma*, 34, 2432-2444.

Fort-Vanmeerhaeghe, A., Romero-Rodriguez, D., Montalvo, A. M., **Kiefer, A. W.**, Lloyd, R.S., Myer, G.D. (2016). Integrative Neuromuscular Training and Injury Prevention in Youth Athletes. Part I: Identifying Risk Factors. *Strength Conditioning Journal*, 38, 36-48.

Myer, G. D., Yuan, W., Barber Foss, K. D., Thomas, S., Smith, D., Leach, J., **Kiefer, A. W.**, DiCesare, C., Adams, J., Gubanich, P. J., Kitchen, K., Schneider, D. K., Braswell, D., Krueger, D. & Altaye, M. (2016). Analysis of head impact exposure and brain microstructure response in a season-long application of a jugular vein compression collar: A prospective neuroimaging investigation in American football. *British Journal of Sports Medicine*, *50*, 1276-1285.

Myer, G. D., Yuan, W., Barber Foss K.D., Smith, D., Altaye, M., Reches, A., Leach, J., **Kiefer, A. W.**, Khoury, J. C., Weiss, M., Thomas, S., DiCesare, C., Adams, J., Gubanich, P. J., Geva, A., Clark, J. F., Meehan, W. P., Mihalik, J. P., Krueger, D. (2016). The Effects of External Jugular Compression Applied during Head Impact Exposure on Longitudinal Changes in Brain Neuroanatomical and Neurophysiological Biomarkers: A Preliminary Investigation. *Frontiers in Neurology*, *7*, 74.

Stracciolini, A., Hanson, E., **Kiefer, A. W.**, Myer, G. D., Faigenbaum, A. (2016). Resistance training for young female dancers: Dispelling the myths and advocating the benefits. *The Journal of Dance Medicine and Science*, *20,* 64-71.

DiCesare, C. A., **Kiefer, A. W.**, Nalepka, P. & Myer, G. D. (2015). Quantification and analysis of saccadic and smooth pursuit eye movements and fixations to detect oculomotor deficits. *Behavior Research Methods*, *49*, 258-266.

DiCesare, C. A., Bates, N. A., Barber Foss, K. D., Thomas, S. M., Wordeman, S. C., Sugimoto, D., Roewer, B. D., Medina McKeon, J. M., Di Stasi, S., Noehren, B. W., Ford, K. R., **Kiefer, A. W.**, Hewett, T. H. & Myer, G. D. (2015). Reliability of 3-dimensional measures of single-leg cross drop landing across 3 different institutions: Implications for multicenter biomechanical and epidemiological research on ACL injury prevention. *The Orthopaedic Journal of Sports Medicine,* 3, 2325967115617905.

Paterno, M. V., **Kiefer, A. W.**, Bonnette, S, Riley, M. A., Schmitt, L. C., Ford, K. R., Myer, G. D., Shockley, K. & Hewett, T. E. (2015). Prospectively identified deficits in hip-ankle coordination in female athletes who

sustain a second anterior cruciate ligament injury after anterior cruciate ligament reconstruction and return to sport. *Clinical Biomechanics, 30*, 1094-1101.

Kiefer, A. W. & Myer, G. D. (2015). Training the antifragile athlete: A preliminary analysis of neuromuscular training effects on muscle activation dynamics. *Nonlinear Dynamics, Psychology, and Life Sciences*, *19*, 489-510.

Kiefer, A. W., Barber Foss, K., Reches, A., Gadd, B., Gordon, M. Rushford, K., Laufer, I., Weiss, M. & Myer, G. D. (2015). Brain network activation as a novel biomarker for the return-to-play pathway following sport-related brain injury. *Frontiers in Neurology*, *6*, 3-5.

Myer G. D., Jayanthi, N. Difiori, J. P., Faigenbaum, A. D., **Kiefer, A. W.**, Logerstedt D. & Micheli, L. J. (2015). Sport specialization, part I: Does early sports specialization increase negative outcomes and reduce the opportunity for success in young athletes? *Sports Health*, 7, 437-442.

Myer G. D., Jayanthi, N. Difiori, J. P., Faigenbaum, A. D., **Kiefer, A. W.**, Logerstedt D. & Micheli, L. J. (2015). Sport specialization, part II: Alternative solutions to early sport specialization in youth athletes. *Sports Health*, *8*, 65-73.

Hewett, TE, Myer, GD, Kiefer, AW, & Ford, KR. (2015). Longitudinal increases in knee abduction moments in females during adolescent growth. *Medicine & Science in Sports & Exercise*, *47*, 2579-2585.

Quatman-Yates, C. C., Bonnette, S., Hugentobler, J. A., Betovens, M., **Kiefer, A. W.**, Kurowski, B. G., & Riley, M. A. (2015). Post-concussion postural sway changes in young athletes: Postural sway variability is important. *Pediatric Physical Therapy*, *27*, 316-327.

Fort-Vanmeerhaeghe, A., Montalvo, A. M., Sitja-Rabert, M., **Kiefer, A. W.**, & Myer, G. D. (2015). Neuromuscular asymmetries in the lower limbs of elite female youth basketball players and the application of the skillful limb model of comparison. *Physical Therapy in Sport*, *16*, 317-323.

Rhea, C. K., **Kiefer, A. W.**, Wright, W. G., Raisbeck, L. & Haran, F. J. (2015). Interpretation of postural control may change due to data processing techniques. *Gait & Posture*, *41*, 731-735.

Myer, G. D., Bates, N. A., DiCesare, C. A., Barber-Foss, K. D., Thomas, S. M., Wordeman, S. C., Sugimoto, D., Roewer, B. D., Medina-McKeon, J. M., Di Stasi, S. L., Noehren, B. W., McNally, M., Ford, K. R., **Kiefer, A. W.**, & Hewett, T. E. (2015). Reliability of 3-dimensional measures of single leg landing across three different institutions: Implications for multi-center biomechanical and epidemiological research for secondary ACL injury prevention. *Journal of Sport Rehabilitation*, *24*, 198-209.

Kushner, A. M., **Kiefer, A. W.**, Lesnick, S., Faigenbaum, A. D., Kashikar-Zuck, S., Clark, J. & Myer, G. D. (2015). Training the developing brain part II: Cognitive developmental considerations of youth for integrative instruction and feedback. *Current Sports Medicine Reports*, *14*, 235-243.

Kiefer, A. W., Kushner, A. M., Groene, J., Williams, C., Riley, M. A., & Myer, G. D. (2015). A commentary on real-time biofeedback to augment neuromuscular training for ACL injury prevention in adolescent athletes. *Journal of Sports Science and Medicine*, *14*, 1-8.

Rhea, C. K., **Kiefer, A. W.**, Wittstein, M. W., Leonard, K. B., MacPherson, R. P., Wright, W. G., & Haran, F. J. (2014). Fractal gait patterns are retained after entrainment to a fractal stimulus. *PLOS ONE*, *9*, e106755.

Rhea, C. K., **Kiefer, A. W.**, Haran, F. J., Glass, S. M., & Warren, W. H. (2014). A new measure of the CoP trajectory in postural sway: Dynamics of heading change. *Medical Engineering and Physics*, *36*, 1473-1479.

Rhea, C. K., **Kiefer, A. W.**, D'Andrea, S. E., Warren, W. H., & Aaron, R. K. (2014). Entrainment to a real time fractal visual stimulus modulates fractal gait dynamics. *Human Movement Science*, *36*, 20-34.

Kiefer, A. W., Cremades, J. G., & Myer, G. D. (2014). Train the brain: Novel electroencephalography data indicate links between motor learning and brain adaptations. *Journal of Novel Physiotherapies*, *4*, doi: 10.417/2165-7025.1000198.

Kiefer, A. W., Wallot, S., Gresham, L. J., Kloos, H., Riley, M. A., Shockley, K., & Van Orden, G. (2014). Development of coordination in time estimation. *Developmental Psychology*, 50, 393-401.

Myer, G. D., Smith, D., Barber Foss, K. D., DiCesare, C. A., **Kiefer, A. W.**, Kushner, A. M., … Khoury, J. C. (2014). Response to commentary on 'Rates of concussion are lower in National Football League games played at higher altitudes'. *Journal of Orthopaedic and Sports Physical Therapy*, *44*, 459-460.

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Myer, G. D., Kushner, A. M., Faigenbaum, A. D., **Kiefer, A. W.**, Kashikar-Zuck, S., & Clark, J. F. (2013). Training the developing brain Part I: Cognitive developmental considerations for training youth. *Current Sports Medicine Reports*, *12*, 304-310.

Kiefer, A. W., Riley, M. A., Shockley, K., Sitton, C. A., Hewett, T. E., Cummins-Sebree, S., & Haas, J. G. (2013). Lower-limb proprioceptive awareness in professional ballet dancers. *Journal of Dance Medicine & Science*, *17*, 126-132.

Kiefer, A. W., Ford, K. R., Paterno, M. V., Schmitt, L. C., Myer, G. D., Riley, M. A., Shockley, K., & Hewett, T. E. (2013). Intersegmental postural coordination measures differentiate ACL reconstructed athletes from healthy controls. *Gait & Posture*, *37*, 149-153.

Riley, M. A., Mitra, S., Saunders, N., **Kiefer, A. W.**, & Wallot, S. (2012). The interplay between posture control and memory for spatial locations. *Experimental Brain Research*, *217*, 43-52.

Kiefer, A. W., Riley, M. A., Shockley, K., Sitton, C. A., Hewett, T. E., Cummins-Sebree, S., & Haas, J. G. (2011). Multi-segmental postural coordination in professional ballet dancers. *Gait & Posture*, *34*, 76-80.

Kiefer, A. W., Riley, M. A., Shockley, K., Villard, S., & Van Orden, G. C. (2009). Walking changes the dynamics of cognitive estimates of time intervals. *Journal of Experimental Psychology*: *Human Perception and Performance*, *35*, 1532-1541.

BOOK CHAPTERS

Kiefer, A. W., Armitano-Lago, C. N., Sathyan, A., MacPherson, R., Cohen, K. & Silva, P. L. (2021). The intelligent phenotypic plasticity platform (IP^3) for precision medicine-based injury prevention in sport. In A. Rassoly & M. Ossandon (Eds.), *Methods in Molecular Biology*. Springer, Cham.

Sathyan, A., Harrison, H. S., **Kiefer, A. W.**, Silva, P. L., MacPherson, R., & Cohen, K. (2019). Genetic fuzzy system for anticipating athlete decision making in virtual reality. In R. Kearfott, I. Batyrshin, M. Reformat, M. Ceberio, & V. Kreinovich (Eds.), *Fuzzy Techniques: Theory and Applications*. IFSA/NAFIPS 2019. Advances in Intelligent Systems and Computing, Volume 1000. Springer, Cham.

Silva, P., **Kiefer, A. W.**, Riley, M. A., & Chemero, A. (2019). Trading perception and action for complex cognition: Application of theoretical principles from ecological psychology to the design of interventions for skill learning. In M. L. Cappuccio (Ed.), *Handbook of Embodied Cognition and Sport Psychology*. MIT Press.

Rhea, C. K. & **Kiefer, A. W.** (2014). Patterned variability in gait behavior: How can it be measured and what does it mean? In L. Li (Ed.), *Gait Biometrics*: *Basic Patterns, Role of Neurological Disorders and Effects of Physical Activity*. Nova Science Publishers, Inc.

Kiefer, A. W., Rhea, C. K., & Warren, W. H. (2013). VR-based assessment and rehabilitation of functional mobility. In J. Campos, A. Lécuyer, F. Steinicke & Y. Visell (Eds.), *Human walking in virtual environments: Perception, technology and applications*. Springer.

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Sathyan, A., Harrison, H. S., **Kiefer, A. W.**, Silva, P. L., MacPherson, R. & Cohen, K. (2019). Genetic fuzzy system for anticipating athlete decision making in virtual reality. *18th World Congress of the IFSA/38th NAFIPS annual conference*. Lafayette, LA. International Fuzzy Systems Association & North American Fuzzy Information Processing Society.

Patil, G., Rigoli, L., Richardson, M. J., Kumar, M., **Kiefer, A. W.** & Lorenz, T. (2019). Joint angle variation in intentional sit-to-stand transitions. *2nd IFAC Conference on Cyber-Physical & Human Systems.* Miami, FL. International Federation of Automatic Control.

Patil, G., Rigoli, L. M., Chamnikar, A., Miller, A., Ralescu, A., **Kiefer, A. W.**, Richardson, M. J., Lorenz, T. & Kumar, M. (2017). Control strategy for an assistive exoskeleton for sit-to-stand transition. In *ASME* 2017 *Dynamic Systems and Control Conference* (pp. V001T30A005-V001T30A005). Tysons Corner, VA. American Society of Mechanical Engineers.

Kiefer, A. W., DiCesare, C., Bonnette, S., Kitchen, K., Gadd, B., Thomas, S., Riley, M. A., Barber Foss, K. D., Silva, P., & Myer, G. D. (2017). Sport-specific virtual reality to identify profiles of anterior cruciate ligament injury risk curing unanticipated cutting. In *2017 International Conference on Virtual Rehabilitation*. (pp. 1-8). Montreal CD: International Society for Virtual Rehabilitation, IEEE.

Kiefer, A. W., Bonneaud, S., Rio, K. & Warren, W. H. (2013). Quantifying the coherence of pedestrian groups. In *Proceedings of the Annual Meeting of the Cognitive Science Society*, *35*, (pp. 2710-2715). Berlin DE: Cognitive Science Society.

Cummins-Sebree, S. E., **Kiefer, A. W.**, Weast, J. A., Riley, M. A., Shockley, K., & Haas, J. (2011). Postural expertise and development: A comparison of ballet dancers to non-dancers. In E. Charles & J. Smart (Eds.), *Studies in Perception and Action XI (pp.177-181)*. New York: Lawrence Erlbaum Associates.

Kiefer, A. W., Christopher, B., Shockley, K., & Riley, M. A. (2008). Mutual influences of interlimb coordination dynamics and semantic retrieval dynamics parameters during dual-task performance. In B. C. Love, K.

McRae, & V. M. Sloutsky (Eds.), *Proceedings of the Annual Meeting of the Cognitive Science Society, 30,* (pp. 1486-1491). Washington DC: Cognitive Science Society.

Kiefer, A. W., White, E. J., Shockley, K., & Riley, M. A. (2007). Semantic retrieval and interlimb coordination dynamics. In S. Cummins-Sebree, M. A. Riley, & K. Shockley (Eds.), *Studies in Perception and Action IX* (pp. 32-35). New York: Lawrence Erlbaum Associates.

Kiefer, A. W., Cummins-Sebree, S., Riley, M. A., Shockley, K., & Haas, J. G. (2007). Control of posture in professional level ballet dancers. In S. Cummins-Sebree, M. A. Riley, & K. Shockley (Eds.), *Studies in Perception and Action IX* (pp. 123-126). New York: Lawrence Erlbaum Associates.

CONFERENCE PRESENTATIONS

Chaaban, C. R., Berry, N. T., Armitano-Lago, C., Cain, M. S., **Kiefer, A. W.**, Mazzoleni, M. J., Wikstrom, E. A. & Padua, D. A. (2021). Application of machine learning to improve vertical ground reaction force prediction accuracy using inertial sensors. American Physical Therapy Association Combined Sections Meeting, Online due to COVID-19.

Grooms, D. R., Diekfuss, J. A., Slutsky-Ganesh, A. B., Criss, C. R., Anand, M., DiCesare, C. A., **Kiefer, A. W.**, Riley, M. A., Thomas, S., Kitchen, K., Riehm, C., Bonnette, S., Gadd, B., Barber Foss, K. D. & Myer, G. D. (2021). Neural activity profiles associated with ACL injury-risk mechanics in ecological sport specific virtual reality. *Pediatric Research in Sports Medicine*, Houston, TX.

Armitano-Lago, C. N., Pietrosimone, B., Evans-Pickett, A., Davis-Wilson, H., Franz, J. R., Blackburn, T. & **Kiefer, A. W.** (2020). Feedback cueing changes in lower limb loading during gait alters underlying stride interval dynamics and intralimb coordination dynamics in individuals following anterior cruciate ligament reconstruction. Society for Chaos Theory in Psychology and Life Sciences, Toronto, CD.

Kiefer, A. W., Walker, G., Aamir-Khan, H., Reed, C., Mersha, T., Gubanich, P. & Logan, K. (2019). Examining the effects of atopic disease on concussion recovery: A preliminary investigation to inform personalized care. American Academy of Pediatrics Council on Sports Medicine and Fitness, New Orleans, LA.

Kiefer, A. W., Harrison, H., Sathyan, A., MacPherson, R., Cohen, K., Facciolo, J., Gadd, B., & Silva, P. L. (2019). Predicting athlete decision making in simulated sport via a genetic fuzzy inference system. Society for Chaos Theory in Psychology and Life Sciences, Orange, CA.

MacPherson, R., Grooms, D. R., **Kiefer, A. W.**, Riley, M. A., Diekfuss, J. A., Ellis, J. D., Thomas, S., DiCesare, C. A., Bonnette, S., Silva, P. L., Yuan, W., Zhong, W., Schneider, D. K., Berz, K. & Myer, G. D. (2019). Deveopment of delivery methods for augmented biofeedback neuromuscular training for biomechanical injury risk reduction. ACL Research Retreat VIII. Greensboro, NC.

Diekfuss, J. A., Grooms, D. R., Barber Foss, K. D., Bonnette, S., DiCesare, C. A., Dudley, J. A., Ellis, J. D., Gadd, B., **Kiefer, A. W.**, Kitchen, K., Leach, J., MacPherson, R. P., Schneider, D. K., Riley, M. A., Thomas, S., Yuan, W., & Myer, G. D. (2019). Real-time biofeedback integrated into neuromuscular training increases brain functional connectivity and reduces high-risk knee biomechanics. *Pediatric Research in Sports Medicine,* Atlanta, GA.

Walker, G., Richards, N., Klug, E., Reed, C., Silva, P. L., Cohen, K. & **Kiefer, A. W.** (2018). Machine learning for concussion recovery prognosis: A novel tool to empower proactive physician treatments. American Academy of Pediatrics Council on Sports Medicine and Fitness, Orlando, FL.

Kiefer, A. W., Richards, N., Harrison, H., Walker, G., MacPherson, R., Facciolo, J., Cohen, K. & Silva, P. L. (2018). The perceptual-motor behavior of athletes predicts their navigation efficiency in unpredictable environments. North American Meeting of the International Society for Ecological Psychology, Bloomington-Normal, IL.

Grooms, D., **Kiefer, A. W.**, Riley, M. A., Diekfuss, J., Ellis, J., Kitchen, K., Thomas, S., DiCesare, C., Gadd, B., Bonnette, S., Barber Foss, K., Silva, P., Galloway, R., Yuan, W., Leach, J., Berz, K., Cortes, N., Gokeler, A., & Myer, G. D. (2018). Neuroplasticity of neuromuscular training with augmented biofeedback and injury risk reduction. European College of Sport Science, Dublin, Ireland.

Kiefer, A. W., Walker, G., Silva, P., DiCesare, C., Klug, E. & Myer, G. D. (2017). Oculomotor performance is associated with unanticipated player-to-player collisions and impact force exposure in high school soccer. American Academy of Pediatrics Council on Sports Medicine and Fitness, Chicago, IL.

Walker, G., Nalepka, P., DiCesare, C., Gubanich, P. & **Kiefer, A. W.** (2017). Oculomotor Function in Pediatric Patients with Concussion vs. Age-Matched Healthy Controls: An Argument for Eye Tracking as an Objective Measure of Function. American Medical Society for Sports Medicine, San Diego, CA.

Kiefer, A. W. (2017). The four rules of NPT: Catalyzing the conceptualization of resiliency training in sport. Society for Chaos Theory in Psychology and Life Sciences, Cincinnati, OH.

Silva, P., **Kiefer, A. W.**, Figueiredo, P., Avelar, B., & Fonseca, S. (2017). Reduced adaptability of upper limb performance in teenagers with cerebral palsy: Evidence for a dynamical account. Society for Chaos Theory in Psychology and Life Sciences, Cincinnati, OH.

Fleuchaus, E., Kloos, H, Silva, P., & **Kiefer, A. W.** (2017). The antifragile mind: Reconceptualizing mistake belief in early science learning. Society for Chaos Theory in Psychology and Life Sciences, Cincinnati, OH.

Ware, T., **Kiefer, A. W.**, Ross, S. N., & Ware, K. (2016). NeuroPhysics Therapy as a potential approach for prevention of epileptic seizure: A preliminary analysis. Society for Chaos Theory in Psychology and Life Sciences, Salt Lake City, UT.

Kiefer, A. W., DiCesare, C., Barber Foss, K., Nalepka, P., Riley, M. A., Ware, K., Silva, P. & Myer, G. D. (2016). The antifragile athlete: A preliminary analysis of the association between neuromotor dynamics and G-force impacts sustained during sport. Society for Chaos Theory in Psychology and Life Sciences, Salt Lake City, UT.

Kiefer, A. W., DiCesare, C., Nalepka, P. & Myer, G. D. (2016). The answer to primary and secondary prevention for sport traumatic brain injury is in front of our eyes: Examining the link between oculomotor performance and head impacts. North American Society for the Psychology of Sport and Physical Activity, Montreal, CD.

Horowitz-Kraus, T., **Kiefer, A. W.**, & Dorrmann, D. (2016). Altered eye movement during reading associated with decreased functional connectivity in brain regions during rest. 22nd Annual Meeting of the Organization for Human Brain Mapping, Geneva, Switzerland.

DiCesare, C., **Kiefer, A. W.**, Baxter, J. R., Sugimoto, D., Ganley, T. J. & Myer, G. D. (2016). Characterizing neuromuscular control processes that underlie postural stabilization via a forced harmonic oscillator model: A comparison of athletes returning to play after anterior cruciate ligament reconstruction and healthy athletes. North American Society for the Psychology of Sport and Physical Activity, Montreal, CD.

Kiefer, A. W., Barber Foss, K. D., Reches, A., Gadd, B., Thomas, S., Gordon, M. Rushfor, K., Laufer, I. Stern, M. & Myer, G. D. (2015). Brain network activation as a novel biomarker for the return-to-play pathway following sport-related brain injury: A prospective case study. American Academy of Neurology Sport Concussion Conference, Denver, CO.

Cone, B. L., Babik, I., Wittstein, M. W., Michel, G. F., **Kiefer, A. W.** & Rhea, C. K. (2015). Can complexity of gait dynamics affect immediate trip recovery? Human Movement Science Research Symposium, Chapel Hill, NC.

Cone, B. L., Babik, I., Wittstein, M. W., Michel, G. F., **Kiefer, A. W.** & Rhea, C. K. (2015). Recovery from an unexpected trip is related to gait dynamics. International Society for Posture and Gait Research, Seville, ESP.

Kiefer, A. W. & Myer, G. D. (2014). Training the antifragile athlete: a preliminary analysis. Society for Chaos Theory in Psychology and Life Sciences, Marquette University, Milwaukee, WI.

Paterno, M. V., **Kiefer, A. W.**, Bonnette, S., Riley, M. A., Schmitt, L. C., Ford, K. R., Myer, G. D., Shockley, K., & Hewett, TE. (2014). Hip-Ankle coordination is altered in female athletes who suffer a second anterior cruciate ligament (ACL) injury after ACL reconstruction and return to sport. American Orthopaedic Society for Sports Medicine, Portland, OR.

Warren, W. H., **Kiefer, A. W.**, & Bonneaud, S. (2013). A dynamical model of collective behavior in human crowds. Vision Sciences Society, Naples FL.

Rhea, C. K., **Kiefer, A. W.**, & Leonard, K. B. (2013). Using fractal stimuli to restore adaptive gait. North American Society for the Psychology of Sport and Physical Activity, New Orleans, LA.

Kiefer, A. W. (2012). A behavioral dynamics approach to perceptual-motor dysfunction. Society for Chaos Theory in Psychology and Life Sciences, The Johns Hopkins University, Baltimore, MD.

Kiefer, A. W., Rhea, C. K., Warren, W. H., D'Andrea, S. E., & Aaron, R. K. (2011). 1/*f* noise signatures for component process interactions during quiet standing provide evidence for interaction-dominant dynamics. North American Society for the Psychology of Sport and Physical Activity, Burlington, VT.

Rhea, C. K., **Kiefer, A. W.**, Warren, W. H., D'Andrea, S. E., & Aaron, R. K. (2011). Synchronizing to a "noisy" metronome induces corresponding shifts in fractal gait dynamics. North American Society for the Psychology of Sport and Physical Activity, Burlington, VT.

Rhea, C. K., **Kiefer, A. W.**, D'Andrea, S. E., Warren, W. H., & Aaron, R. K. (2011). Dynamic structure of postural variability following an ACL injury. Gait and Clinical Movement Analysis Society Conference, Bethesda, MD.

Kiefer, A. W., Fajen, B. R., & Warren, W. H. (2010). Recurrence quantification analysis as a tool for characterizing human path dynamics in cluttered environments. North American Society for the Psychology of Sport and Physical Activity, Tucson, AZ.

Kiefer, A. W., Shockley, K., Hewett, T. E., Cummins-Sebree, S., Haas, J. G., & Riley, M. A. (2010). The role of lower-limb proprioception in the multi-segmental postural coordination of professional ballet dancers. North American Society for the Psychology of Sport and Physical Activity, Tucson, AZ.

Rhea, C. K., **Kiefer, A. W.**, D'Andrea, S. E., Warren, W. H., & Aaron, R. K. (2010). Approximate entropy of stride-to-stride intervals following ACL injury. American Society for Biomechanics, Providence, RI.

Riley, M. A., **Kiefer, A. W.**, Gresham, L., Wallot, S., Kloos, H., & Van Orden, G. (2010). A developmental trajectory to cognitive complexity. 5th Annual Cognition & Dynamics Workshop, Storrs, CT.

Kiefer, A. W., Ford, K. R., Paterno, M. V., Schmitt, L. C., Myer, G. D., Riley, M. A., Shockley, K., & Hewett, T. E. (2009). Dynamic postural coordination measures differentiate ACL reconstructed and healthy athletes. International Conference on Perception and Action, Minneapolis, MN.

Kiefer, A. W., Cummins-Sebree, S., Riley, M. A., Shockley, K., & Haas, J. G. (2009). Dynamics of postural control development in ballet dancers. International Conference on Perception and Action, Minneapolis, MN.

Van Orden, G. C., **Kiefer, A. W.**, Gresham, L., Kloos, H., Shockley, K., & Riley, M. A. (2009). Response time dynamics of children and adults. International Conference on Perception and Action, Minneapolis, MN.

Kiefer, A. W., Cummins-Sebree, S., Riley, M. A., Shockley, K., & Haas, J. G. (2009). Development of postural control in ballet dancers. North American Society for the Psychology of Sport and Physical Activity, Austin, TX.

Kiefer, A. W., Ford, K. R., Paterno, M. V., Myer, G. D., Riley, M. A., Shockley, K., & Hewett, T. E. (2008). Decreased stability of multisegmental postural coordination in ACL-injured female athletes. North American Congress on Biomechanics, Ann Arbor, MI.

Riley, M. A., Kiefer, A., Shockley, K., & Van Orden, G. (2008). Coupling between cognition and locomotion. XXIX International Congress of Psychology, Berlin, DE.

Kiefer, A. W., Christopher, B., Shockley, K., (2008). Influences of coordination dynamics and semantic retrieval parameters during dual-task performance. North American Society for the Psychology of Sport and Physical Activity, Niagara Falls, CN.

Kiefer, A. W., Riley, M. A., Shockley, K., & Van Orden, G. C. (2007). Dynamics of coordinated cognitive-locomotor performance. International Conference on Perception and Action, Yokohama, Japan.

Kiefer, A. W., Riley, M. A., Shockley, K. & Van Orden, G. C. (2007). Random thoughts while walking: Dynamics of concurrent cognitive-locomotor performance. North American Society for the Psychology of Sport and Physical Activity, San Diego, CA.

INVITED PRESENTATIONS

Kiefer, A. W. (2022). A Cloud-driven Sport Analytics Use Case. Amazon Web Services Immersion Day sponsored by the Eshelman Institute for Innovation, University of North Carolina at Chapel Hill.

Kiefer, A. W. (2022). Precision phenomics: The next frontier of digital health. Digital NeuroHealth: Optimizing Phenomics, Performance and Patient Outcomes. Chapel Hill, NC.

Kiefer, A. W. (2021). An introduction to markerless motion capture: Where we are and where it can take us. UNC-G Motor Behavior Research Network Speaker Series, University of North Carolina at Greensboro, Greensboro, NC.

Kiefer, A. W. (2021). Precision phenomics: The future of injury prevention in a complex world. In *Sports injury symposium* at 6th International Congress on Complex Systems in Sport, Virtual due to COVID-19.

Kiefer, A. W. (2021). A phenotypic plasticity platform for the assessment of resilient decision-making in XR simulated sport. In *Real world applications of XR to assess and improve performance symposium* at 23rd International Conference on Human-Computer Interaction, Virtual due to COVID-19.

Kiefer, A. W. (2020). Leveraging the power of fuzzy eXplainable AI (Fuzzy Bolt®) to pioneer a pathway for precision sports medicine. In *Fuzzy logic based eXplainable AI—An adopter's perspective* panel at North American Fuzzy Information Processing Society Annual Meeting, Redmond, WA.

Kiefer, A. W. (2018). Gazing into the future of sports medicine and performance: Pioneering a pathway for precision training and care. Tobii Pro Corporate Training Meeting at Tobii Pro North America Headquarters, Reston, VA.

Kiefer, A. W. (2018). Genetic fuzzy AI in sports medicine: Pioneering a pathway for concussion diagnostics and prognostics. Industrial Artificial Intelligence Center Planning Meeting at the IBM TJ Watson Research Center, Ossining, NY.

Kiefer, A. W. (2018). Leveraging behavioral control laws for resilient learning in sport. HB Sports & Entertainment Science, Training, Technology, Analytics and Rehabilitation (STTAR) Summit at the Philadelphia 76ers Training Complex, Philadelphia, PA.

Kiefer, A. W. (2018). Novel ways to enhance skill learning: Evolution of a personal perspective. HB Sports & Entertainment Science, Training, Technology, Analytics and Rehabilitation (STTAR) Summit at the Philadelphia 76ers Training Complex, Philadelphia, PA.

Kiefer, A. W. (2018). Quantifying resiliency in sport: Leveraging behavioral control laws for performance prediction and enhancement. UNC-G Motor Behavior Research Network Speaker Series, University of North Carolina at Greensboro, Greensboro, NC.

Kiefer, A. W. (2017). From biology to behavioral dynamics: A systems approach to injury prevention in sport. Department of Physical Therapy, Temple University, Philadelphia, PA.

Kiefer, A. W. (2017). Moving from biology to behavior I: Leveraging phenotypic plasticity to train beyond resiliency and toward antifragility in sport. International Congress on Complex Systems in Sport, Barcelona, Spain.

Kiefer, A. W. (2016). NeuroPhysics and thermal imaging: Innovative methods for uncovering informative physiological transitions during recovery from injury. American Academy of Thermology, Greenville, SC.

Kiefer, A. W. (2015). How my search for Australian waterfowl led me to a NeuroPhysics partnership. Keynote address at the NeuroPhysics Functional Performance Institute, Robina, Australia.

Kiefer, A. W. (2015). Concussion prevention is right in front of our eyes: Examining the link between oculomotor performance and head injury. Keynote address at the Tobii Pro Users Meeting at the Society for Neuroscience, Chicago, IL.

Kiefer, A. W. (2015). Cross-recurrence quantification indexes global synchronization dynamics that differentiate between happy and distressed couples: An interaction-dominance approach to romantic emotion co-regulation. Society for Experimental Social Psychology, Denver, CO.

Kiefer, A. W. (2015). Embrace the unpredictable: How an American tradition, Australian waterfowl, and Greek mythology are changing the way we consider injury prevention. UNC-G Motor Behavior Research Network Speaker Series, University of North Carolina at Greensboro, Greensboro, NC.

Kiefer, A. W. (2015). ACL injury prevention: Training antifragility. Combined Sections Meeting of the American Physical Therapy Association, Indianapolis, IN.

Kiefer, A. W. (2015). Recurrence quantification analysis: A method for examining patterns in behavioral data. Nonlinear Datapalooza Conference, Chapman University, Orange, CA.

Kiefer, A. W. (2014). Training the antifragile athlete: Embracing the unpredictability of injury. ACL Workshop, Cincinnati Children's Hospital Medical Center, Cincinnati, OH.

Kiefer, A. W. (2014). From dial-up to ecological fiber optics: The power of vision for pediatric injury prevention. Tobii Eye Track Behavior Conference, Washington, DC.

Kiefer, A. W. (2013). Quantifying the coherence of pedestrian groups during goal-directed locomotion. Center for Cognition, Action & Perception, University of Cincinnati, Cincinnati, OH.

Kiefer, A. W. (2012). Behavioral dynamics of group coherence during goal-directed locomotion. Center for the Ecological Study of Perception and Action, University of Connecticut, Storrs, CT.

Kiefer, A. W. (2012). A behavioral dynamics approach to obstacle detection and avoidance by patients with tunnel vision. Schepens Eye Research Institute at Harvard Medical School, Boston, MA.

Kiefer, A. W. (2011). Proprioception as an informational medium for the coordination of postural synergies. UNC-G Motor Behavior Research Network Speaker Series, University of North Carolina at Greensboro, Greensboro, NC.

Kiefer, A. W., Ford, K. R., Paterno, M. V., Schmitt, L. C., Myer, G. D., Riley, M. A., Shockley, K., & Hewett, T. E. (2009). Examining the stability of multisegmental postural coordination in ACL-injured female athletes. Human Factors and Ergonomic Society TriState Chapter Meeting, Cincinnati, OH.

Kiefer, A. W., Riley, M. A., Shockley, K. & Van Orden, G. C. (2007). Walking to a different beat: Dynamics of concurrent cognitive-locomotor performance. Movement and Sports Science Seminar, Purdue University, West Lafayette, IN.

ORGANIZED SYMPOSIA

Rhea, C. K. & **Kiefer, A. W.** (2018). From fractal to behavioral dynamics Application of nonlinear analyses to probe the control of locomotion. Society for Chaos Theory in Psychology and Life Sciences, Raleigh, NC.

Kiefer, A. W., Silva, P. L., & McCraty, R. (2017). Developing resilience in athletes and teams. Complex Systems in Sport International Congress, Barcelona, ES.

Kiefer, A. W., & Ware, K. (2016). Innovative nonlinear analysis methods for uncovering informative physiological transitions during NeuroPhysics therapy: An empirical journey from Datapalooza to SCTPLS 2016. Society for Chaos Theory in Psychology and Life Sciences, Salt Lake City, UT.

Myer, G. D., **Kiefer, A. W.**, & Riley, M. A. (2015). Perception-action model of injury prevention: New frontiers in biofeedback. American College of Sports Medicine Annual Meeting, San Diego, CA.

Quatman-Yates, C., Schmit, J., Riley, M. A., **Kiefer, A. W.** (2015). Metrics that capture motor system dynamics to transform knowledge and care. Combined Sections Meeting of the American Physical Therapy Association, Indianapolis, IN.

Warren, W. H. & **Kiefer, A. W.** (2013). Multi-agent coordination: analyzing and modeling collective behavior – part I. International Conference on Perception and Action, Lisbon, PT.

Kiefer, A. W. & Rhea, C. K. (2010). Recurrence quantification analysis: overview and applications of a nonlinear analysis for human behavior dynamics. North American Society for the Psychology of Sport and Physical Activity, Tucson, AZ.

POSTER PRESENTATIONS

Aitcheson-Huehn, N., Silva, P., MacPherson, R., Sathyan, A., Cohen, K., & **Kiefer, A. W.** (2022). Altering task complexity in sport-like virtual reaility to promote true-to-life changes in athlete behavior. Human Movement Science Curriculum Day, Chapel Hill, NC.

Kiefer, A. W., Armitano-Lago, C., Sathyan, A., Longobardi, L., Loeser, R., Spang, J., Cohen, K. & Pietrosimone, B. (2021). Predicting posttraumatic osteoarthritis related-symptomology using serum biomarkers: A novel explainable machine learning modeling approach. American College of Sports Medicine, Virtual due to COVID-19.

Armitano-Lago, C., Chaaban, C., Cain, M. S., MacPherson, R., Elpers, J. R., Padua, D., Silva, P., Wikstrom, E. A. & **Kiefer, A. W.** (2021). Novel portable markerless motion capture system accurately captures lower limb kinematics during functional locomotor tasks: A validation study. American College of Sports Medicine, Virtual due to COVID-19.

Morison, M., **Kiefer, A. W.**, Hurd, J., Hale, T. & Benight, C. (2020). The dynamics of trauma survivors' physiological adaptation. International Society for Traumatic Stress Studies 36th Annual Meeting, Virtual due to COVID-19.

Kiefer, A. W., Sathyan, A., Reed, C., Walker, G., Elpers, J., Gubanich, P., Cohen, K. & Logan, K. (2020). Predicting protracted concussion recovery to inform proactive care: A genetic fuzzy machine learning approach. American College of Sports Medicine, San Francisco, CA (Virtual due to COVID-19).

Armitano-Lago, C. N., Pietrosimone, B., Evans-Pickett, A., Davis-Wilson, H., Franz, J., Blackburn, T. & **Kiefer, A. W.** (2020). Decreased loading during gait alters intralimb coordination in anterior cruciate ligament reconstructed individuals. American College of Sports Medicine, San Francisco, CA (Virtual due to COVID-19).

Alt, J. M, **Kiefer, A. W.**, Harrison, H. S., MacPherson, R. & Silva, P. L. (2018). Designing challenges for a virtual reality collision-avoidance task: presentation and intitial evaluation of a novel task dynamic approach. North American Meeting of the International Society for Ecological Psychology, Bloomington-Normal, IL.

Grooms, D. R., **Kiefer, A. W.**, Riley, M. A., Diekfuss, J., Ellis, J. D., Kitchen, K., Thomas, S., DiCesare, C. A., Gadd, B., Bonnette, S., Barber Foss, K. D., Silva, P. L., Galloway, R., Yuan, W., Leach, J., Berz, K. & Myer, G. D. (2018). Neuroplasticity of neuromuscular training and injury risk reduction transfer to simulated sport. 8th World Congress of Biomechanics, Dublin, IE.

Grooms, D. R., Ellis, J. D., Diekfuss, J., Kitchen, K., Thomas, S., **Kiefer, A. W.**, DiCesare, C., Gadd, B., Bonnette, S., Barber Foss, K. D., Weihong, Y., Leach, J., Berz, K., Riley, M. A., Cortes, N., Gokeler, A., & Myer, G. D. (2018). Sensory, visual spatial, and motor planning activity supports motor cortex efficiency after neuromuscular training. International Society of Electrophysiology and Kinesiology, Dublin, IE.

Diekfuss, J. A., Grooms, D. R., **Kiefer, A. W.**, Bonnette S., MacPherson, R., DiCesare, C. A., Thomas, S., Riley, M. A., & Myer, G. D. (2018). The effects of real-time biofeedback integrated into neuromuscular training on knee motor resting-state connectivity. Winter Conference on Brain Research, Whistler, B.C., CD.

Walton, A., Quiroz, J., Crosby, L., Richardson, M., **Kiefer, A. W.**, Chemero, A., & Murphy S. (2018). Multi-scaled measurements of pain experience in young adults with sickle cell disease. Annual Society of Behavioral Medicine Meeting, New Orleans, LA.

Grooms, D. R., Ellis, J. D., Kitchen, K., Thomas, K., **Kiefer, A. W.**, DiCesare, C., Gadd, B., Bonnette, S., Barber Foss, K. D., Yuan, W., Leach, J., Berz, K., Riley, M. A., & Myer, G. D. (2017). Sensorimotor cortex neuroplasticity following neuromuscular training augmented with real time biofeedback. American College of Sports Medicine Annual Meeting, Denver, CO.

DiCesare, C., Myer, G. D. & **Kiefer, A. W.** (2017). Extending classical biomechanical analysis to assess injury risk using the uncontrolled manifold approach. Progress in Motor Control 17, Miami, FL.

Riley, M. A., Bonnette, S., DiCesare, C., **Kiefer, A. W.**, Shockley, K., Richardson, M. & Myer, G. (2017). Modifying Anterior Cruciate Ligament Injury Risk Factors in Female Athletes Through Real-Time Biofeedback. American College of Sports Medicine Annual Meeting, Denver, CO.

Myer, G. D., Yuan, W., Barber Foss K.D., Smith, D., Altaye, M., Reches, A., Leach, J., **Kiefer, A. W.**, Khoury, J. C., Weiss, M., Thomas, S., DiCesare, C., Adams, J., Gubanich, P. J., Geva, A., Clark, J. F., Meehan, W. P., Mihalik, J. P., & Krueger, D. (2016). Promising new protection against brain injury during collision sport: A randomized clinical trial. American College of Sports Medicine Annual Meeting, Boston, MA.

Curtis, A., Slattery, E., **Kiefer, A. W.**, & Gubanich, P. (2016). The effect of cognitive and physical rest on concussion recovery: An observational case series. American Medical Society for Sports Medicine, Dallas, TX.

Hege, M. A., Cone, B. L., Babik, I., Wittstein, M. W., **Kiefer, A. W.**, & Rhea, C. K. (2016). Association between trunk motion and individual characteristics before and after trip-training. American Society for Biomechanics, Raleigh, NC.

Kiefer, A. W., DiCesare, D., Nalepka, P., Altaye, M., Barber Foss, K. D., Thomas, S. & Myer, G. D. (2015). Oculomotor performance predicts collision incidence in varsity high school hockey athletes. American Academy of Neurology Sport Concussion Conference, Denver, CO.

Kiefer, A. W., DiCesare, C. A., Riley, M. A., & Myer, G. D. (2015). A preliminary analysis of functional reaction time assessment to identify the antifragile athlete. American College of Sports Medicine Annual Meeting, San Diego, CA.

Cone, B. L., **Kiefer, A. W.**, Rhea, C. K., Quatman-Yates, K. & riley, M. A. (2015). Postural control development through early adulthood. North American Society for the Psychology of Sport and Physical Activity, Portland, OR.

Kiefer, A. W., Woods, R. L., & Warren, W. H. (2013). A behavioral dynamics approach to obstacle detection and avoidance by patients with tunnel vision. Vision Sciences Society, Naples FL.

Kiefer A. W., Bruggeman, H., Woods, R. L. & Warren, W. H. (2012). Obstacle detection by patients with retinitis pigmentosa. Vision Sciences Society, Naples FL.

Wittstein, M. W., **Kiefer, A. W.**, & Rhea, C. K. (2012). Long-range correlations in young, healthy gait: Trial-to-trial consistency and influence of sample frequency. North American Society for the Psychology of Sport and Physical Activity, Honolulu, HI.

Rhea, C. K., **Kiefer, A. W.**, Warren, W. H., D'Andrea, S. E., & Aaron, R. K. (2011). A variable to describe the overall dynamic behavior of postural sway. Progress in Motor control VIII, Cincinnati, OH.

Rhea, C. K., **Kiefer, A. W.**, Warren, W. H., D'Andrea, S. E., & Aaron, R. K. (2011). A variable to describe the overall dynamic behavior of postural sway. Progress in Motor control VIII, Cincinnati, OH.

Kiefer, A. W., Rhea, C. K., Warren, W. H., D'Andrea, S. E., & Aaron, R. K. (2011). 1/*f* noise signatures for component process interactions during quiet standing provide evidence for interaction-dominant dynamics. North American Society for the Psychology of Sport and Physical Activity, Burlington, VT.

Kiefer, A. W., Weast, J. A., Teredesai, S., Cummins-Sebree, S., Shockley, K., Riley, M. A., & Haas, J. (2009). Young ballet dancers exhibit different postural sway dynamics than untrained controls. 3rd International Symposium on Recurrence Plots, Montreal, CAN.

Rhea, C. K., **Kiefer, A. W.**, Weast, J. A., Cummins-Sebree, S., Shockley, K., & Riley, M. A. (2009). Global vs. individual input parameter selection: impacts on analyzing human postural time series. 3rd International Symposium on Recurrence Plots, Montreal, CAN.

Kiefer, A. W., Cummins-Sebree, S., Riley, M. A., & Haas, J. G. (2007). Postural control in professional ballet dancers. North American Society for the Psychology of Sport and Physical Activity, San Diego, CA.

Kiefer, A. W., Christopher, B., Shockley, K., & Riley, M. A. (2006). Cognitive load and interlimb coordination dynamics. North American Meeting of the International Society for Ecological Psychology, Cincinnati, OH.

Kiefer, A. W., Cremades, J. G., Poczwardowski, A., Rosenberg, D., & Starratt, C. (2006). EEG recordings during the learning of a novel motor task using whole/part practice techniques. North American Society for the Psychology of Sport and Physical Activity, Denver, CO.

Cremades, J. G., **Kiefer, A. W.**, Poczwardowski, A., (2006). Do alpha and beta frequencies display a concomitant behavior when learning a motor task with whole/part practice techniques? North American Society for the Psychology of Sport and Physical Activity, Denver, CO.

Williams, R., Cremades, J. G., & Kiefer, A. C. (2005). The effects of imagery training on bench press kinematics. North American Society for the Psychology of Sport and Physical Activity, St. Pete Beach, FL.

TEACHING/MENTORSHIP EXPERIENCE

2019-Present University of North Carolina at Chapel Hill

Mentorship (indicates primary)*

Post-Doctoral Advisor

2019-2021 Cortney Armitano, PhD,* Dept of Exercise and Sport Science (UNC)

Doctoral Student Advisor

2022-Present Dominic Willoughby,* Human Movement Science Curriculum (UNC)
2020-Present Nikki Aitcheson-Huehn,* MS, Human Movement Science Curriculum (UNC)

Thesis/Dissertation Committee Member

2021-Present Connor Oates*, Dept of Exercise and Sport Science (UNC)
2021-Present Christine Callahan, Human Movement Science Curriculum (UNC)
2022-Present Ricky Pimental, Biomed Engineering (UNC)
2021-2022 Clara Soligon, Dept of Health, Kinesiology and Applied Physiology (Concordia U)
2021-2022 Heather Deatherage, Dept of Exercise and Sport Science (UNC)
2021-2022 Jillian Poles, Dept of Exercise and Sport Science (UNC)
2021-2022 Nathan Adams, Dept of Exercise and Sport Science (UNC)
2020-2021 Alexander Pomeroy, Dept of Exercise and Sport Science (UNC)
2020-2021 Katie Stanford, Dept of Exercise and Sport Science (UNC)
2020-Present Krista Meder, Dept of Kinesiology (UNC-Greensboro)
2019-2021 Kou Yang,* Dept of Exercise and Sport Science (UNC)
2019-2020 Nikki Barczak-Scarboro, Dept of Exercise and Sport Science (UNC)
2018-2020 Chanel LoJacono, Dept of Kinesiology (UNC-Greensboro)
2019-2020 Christina Vander Vegt, Dept of Exercise and Sport Science (UNC)
2018-2020 Jeromy Ault, Dept of Psychology (UC)

Honors Thesis Committee Member

2021-2022 Kat Sublett,* Dept of Exercise and Sport Science (UNC)
2021-2022 Bradley Lauck, Dept of Exercise and Sport Science (UNC)
2020-2021 Abby Dennis, Dept of Exercise and Sport Science (UNC)
2020-2021 Taylor Pitsinger, Dept of Exercise and Sport Science (UNC)

Supervisor

2019-Present Ryan MacPherson, MS, Dept of Exercise and Sport Science (UNC)

Undergraduate Co-operative Education Mentor

2020 Jackson Elpers,* Dept of Aerospace Engineering (UC)

Undergraduate/Post-Undergraduate Research Mentorship

2022 Q Towns*, Dept of Exercise and Sport Science (UNC)
2022 Jada Burroughs*, Dept of Exercise and Sport Science (UNC)
2021-2022 Alysia Figueroa*, Dept of Exercise and Sport Science (UNC)
2021 Andrew Bounds*, Dept of Exercise and Sport Science (UNC)
2021 Logan Baggett*, Dept of Exercise and Sport Science (UNC)
2020 Hui Sui,* Dept of Statistics and Operations Research (UNC)
2020 Sahith Desham,* Dept of Computer Science (UNC)

Instructor of Record

EXSS 273: Research in Exercise and Sport Science
EXSS 580: Human Neuromechanics
HMSC 877: Independent Study
HMSC 395: Independent Study

Invited Lecturer

HMSC 701: Motor Control
EXSS 705: Research Design and Methods
IHMS 870: Doctoral Seminar

Teaching Proposals

2019-Present Co-Principle Educator (Co-PE: L. Bonotti, Romance Studies), *Smart and Connected Teams: Futbol Club Barcelona as a Model & The History of Urbanity and Urbanism in Spain: From the Middle Ages to the 21st Century*, Study Abroad Proposal (Accepted) for Summer I 2023, University of North Carolina at Chapel Hill

2020 **Datapalooza 2.0 sponsored by the Society for Chaos Theory in Psychological and Life Sciences**

Invited Method Expert

Recurrence Quantification Analysis

2013-2019 **University of Cincinnati (UC)/Cincinnati Children's Hospital (CCH)**

Mentorship (indicates primary)*

Post-Doctoral Advisor

2018-2019 Anoop Sathyan, PhD, Division of Aerospace Engineering (UC)
2017-2019 Henry Harrison, PhD,* Division of Sports Medicine (CCH)

Supervisor

2016-2019 Ryan MacPherson, MS,* Division of Sports Medicine (CCH)

Thesis/Dissertation Committee Member

2017-2019 Guarav Patil, Dept of Mechanical Engineering (UC)
2017-2018 Nathaniel Richards, Dept of Aerospace Engineering (UC)
2016-2017 Ashley Walton, Dept of Psychology (UC)
2014-2016 Scott Bonnette, Dept of Psychology (UC)

Graduate Research Advisor Committee Member:

2017-2019 Jeromy Alt, Dept of Psychology (UC)
2017-2019 Sierra Corbin, Dept of Psychology (UC)
2016-2018 Ethan Fleuchaus, Dept of Psychology (UC)

Undergraduate Capstone/Honors Project Mentor

2018-2019 Humza Aamir-Khan*, Dept of Neuroscience (UC)
2018 Kahlee Adams, Dept of Sport & Exercise Science (University of Canberra, AU)
2017-2018 Joey Facciolo,* Dept of Biomedical Engineering (UC)

Undergraduate Co-operative Education Mentor
2018-2019 Jackson Elpers,* Dept of Aerospace Engineering (UC)
2018-2019 Adam Beebe,* Dept of Electrical Engineering and Computer Science (UC)

Undergraduate Summer Research Fellowship
2018 Essenam Lamewona,* Division of Sports Medicine (CCH)
2016-2017 Emma Klug,* Division of Sports Medicine (CCH)
2017 Sofia Nieto,* Division of Sports Medicine (CCH)

Undergraduate/Post-Undergraduate Research Internship
2016 Casey McCall,* Exercise Science (UC)
Danielle Reddington,* Exercise Science (UC)
Jacob Snyder,* Exercise Science (UC)
Preston Heath,* Exercise Science (UC)
2014-2016 Samantha Weber,* DAAP School of Design (UC)
2014-2016 Alexis Bertram,* Biomedical Engineering (Clemson University)
2014 Brooke Gadd,* Department of Psychology (UC)
Jeffrey Ludwig,* Biomedical Engineering (Rose-Hulman Inst of Tech)
Taylor Clark,* Exercise Science (Northern Kentucky University)
Johnny Groene,* College of Medicine (UC)

Invited Lecturer
DSGN 7011 (UC): Industrial Design Translational Research (co-instructor)
HLSC 4024C (UC): Applied Biomechanics
Wood Hudson Cancer Research Laboratory: Statistics in biomedical research
Fellows Seminar (CCH): Statistics in clinical practice: From theory to application
Fellows Seminar (CCH): From dial-up to ecological fiber optics: The power of vision for pediatric injury prevention

2016-2022 **Nonlinear Methods Pre-Conference Workshop at Society for Chaos Theory in Psychological and Life Sciences International Conference**

Invited Lecturer
Recurrence Quantification Analysis: A Tutorial
Nonlinear Dynamical Systems Applications in Biomedical and Rehabilitation Science
Applications of Recurrence Quantification Analysis in Psychology and Health Science

2016 **Datapalooza 1.0 sponsored by the Society for Chaos Theory in Psychological and Life Sciences**

Invited Method Expert
Recurrence Quantification Analysis

2015-2016 **NeuroPhysics Functional Performance Institute Neurotricionist Training**

Invited Lecturer
Chaos and Health: Using the Former to Redefine the Latter for System-wide Health

2009-2013 **Brown University (BU)**

Mentorship (indicates co-primary)*

Undergraduate Capstone Project Mentor

2012-2013 Nat Rosenzweig,* Dept of Cognitive, Linguistic and Psychological Sciences (BU)

Invited Lecturer

COGS 1380: Ecological Approach to Perception and Action

2005-2009 **University of Cincinnati (UC)**

Mentorship (indicates co-primary)*

McNair Scholar Research Supervision

2007-2008 Anna Barrett,* Department of Psychology (UC)

Undergraduate Research Supervision

2008-2009 Sailee Teredesai,* Department of Psychology (UC)
Myra Cotton,* Department of Psychology (UC)
Michael Tolston,* Department of Psychology (UC)
Candace Sitton,* Department of Psychology (UC)
2007 Erin Grimes,* Department of Psychology (UC)
2006 Bonny Christopher,* Department of Psychology (UC)

Instructor of Record

PS 276: Intermediate Psychology Statistics
PS 350: Introduction to Sport Psychology

Teaching Assistant

PS 383: Research Methods in Perception & Action
PS 276: Intermediate Psychology Statistics

Invited Lecturer

PS 379: Research Methods in Cognition

RESEARCH GRANTS/CONTRACTS

2022 Primary Mentor (Undergraduate PI: Kalen Sixkiller). *Development of a sport action classification model: An immersive end-to-end research experience*, Office of Undergraduate Research Student Initiated Internship Program (OURSIP), Princeton University/University of North Carolina at Chapel Hill, $5,958

2022-Present Principle Investigator, *Elipsys LLC*, KickStart Venture Services Commercialization Grant Award, University of North Carolina at Chapel Hill, $50,000

2021-Present Co-Investigator, *Novel technology in the education and evaluation of sterile compounding*, Eshelman Institute for Innovation Fund, University of North Carolina at Chapel Hill, $135,000

2021-Present Co-Investigator, *Development of a portable gait biofeedback system for rehabilitation of musculoskeletal conditions*, Eshelman Institute for Innovation Fund, University of North Carolina at Chapel Hill, $190,362

2021-Present Principle Investigator, *The development of ecologically valid profiles of anterior cruciate ligament injury risk*, Junior Faculty Development Award, University of North Carolina at Chapel Hill, $10,000

2019-Present Principle Investigator, *Leveraging artificial intelligence to profile and enhance phenotypic plasticity for second injury prevention: An innovative precision medicine platform to revolutionize injury care*, NIH NIBIB Trailblazer R21, University of North Carolina at Chapel Hill, $400,000

2021-2022 Principle Investigator, *Digital Health Hub for Human Phenomics*: *Neurohealth Promotion and Rehabilitation*, Creativity Hubs Pilot Pre-Proposal Award, University of North Carolina at Chapel Hill, $5,000

2016-2022 Co-Investigator (PI: J. Epstein), *Improving ADHD teen driving by targeting visual inattention to the roadway*, NIH NICHD R01, Cincinnati Children's Hospital Medical Center, $2,536,195

2016-2021 Co-Investigator (PI: G. Myer), *Real-time sensorimotor feedback for injury prevention assessed in virtual reality*, NIH NIAMS U01, Cincinnati Children's Hospital Medical Center, $2,292,040

2019-2020 Co-Primary Mentor (Undergraduate PI: J. Elpers), *Development and evaluation of a non-player character controller to enhance ecological validity for virtual reality training simulations*, University Research Council Undergraduate Student Stipend and Research Cost Program for Faculty, University of Cincinnati/University of North Carolina at Chapel Hill, $4000

2018-2019 Co-Investigator (PI: B. Kerrey), *Provider mental workload and the success of tracheal intubation in high acuity, low frequency settings: a pilot study of three measures in an academic pediatric emergency department,* Division of Emergency Medicine Team Science Award, Cincinnati Children's Hospital Medical Center, $29,341

2018-2019 Principle Investigator, *Sensory-based stimulation and driving performance*, Proctor & Gamble Industry Contract, Cincinnati Children's Hospital Medical Center, $79,899

2018-2019 Principle Investigator, *Intelligent concussion (ICon) assessment platform*, Cincinnati Children's Center for Technology Commercialization, Cincinnati Children's Hospital Medical Center, $50,000

2018-2019 Co-Investigator (PI: G. Myer), *Augmented neuromuscular training: Improving lives through data-driven personalized medicine,* Cincinnati Children's Center for Technology Commercialization, Cincinnati Children's Hospital Medical Center, $55,000

2017-2018 Principle Investigator, *Genetic fuzzy artificial intelligence virtual reality training for collision-based injury prevention in sport*, Cincinnati Children's Research Innovation Funding, Cincinnati Children's Hospital Medical Center, $74,052

2017-2018 Principle Investigator, *Biofeedback-enhanced phenotypic plasticity to alter collision injury mechanisms*, Cincinnati Children's GAP Funding, Cincinnati Children's Hospital Medical Center, $42,697

2016-2017 Co-Investigator (PI: B. Kerrey), *Motion capture to determine critical biomechanics of laryngoscopy and tracheal intubation*, Ohio EMS, Cincinnati Children's Hospital Medical Center, $78,552

2016-2018 Co-Investigator (PI: T. Lorenz), *Development of a neurophysiologically integrated exoskeleton for sit-to-stand transitions,* University of Cincinnati Strategic Collaborative Grant Program, University of Cincinnati/Cincinnati Children's Hospital Medical Center, $120,000

2014-2016 Co-Investigator (PI: G. Myer), *Identification of patellofemoral pain risk factors developed during maturation*, NIH NIAMS R21, Cincinnati Children's Hospital Medical Center, $242,000 (**received perfect score in review**)

2014-2015 Principle Investigator, *Driving performance of teenage patients with concussion*, Ohio EMS, Cincinnati Children's Hospital Medical Center, $49,540.

SERVICE

Editorial

2021-Present Associate Editor, Frontiers in Network Physiology, Network Physiology of Exercise
2021-Present Review Editor, Frontiers in Sports and Active Living, Injury Prevention and Rehabilitation
2021-Present Review Editor, Frontiers in Exercise Physiology

Invited reviewer

American Journal of Sports Medicine
Applied Psychophysiology and Biofeedback
Autism Research
Behavior Research Methods
Biomed Central Research Notes
Chaos, Solitons & Fractals
Ecological Psychology
Frontiers in Fractal Physiology
Gait & Posture
Human Ethology Bulletin
Human Movement Science
International Journal of Sports Medicine
Journal of Dance Medicine & Science
Journal of Experimental Psychology: Human Perception and Performance
Journal of Gerontology: Medical Sciences
Journal of Motor Behavior
Journal of Neuroengineering and Rehabilitation
Journal of Neurophysiology
Journal of Sport Rehabilitation
Journal of Sports Sciences
Medicine & Science in Sports & Exercise
Motor Control
Nonlinear Dynamics, Psychology, and Life Sciences
Open Access Journal of Sports Medicine
Physical Medicine & Rehabilitation: The Journal of Injury, Function and Rehabilitation
Physical Therapy in Sport
Physiotherapy Theory and Practice
PLOS ONE
Small Group Research

Professional Society Leadership

2016-2021 Secretary, Society for Chaos Theory in Psychology and Life Sciences

2014-2018 Chair, Membership Committee, Society for Chaos Theory in Psychology and Life Sciences

2012-2014 Membership Committee, Society for Chaos Theory in Psychology and Life Sciences

Conference Co-Organizer

Digital NeuroHealth: Optimizing Phenomics, Performance and Patient Outcomes, 2022, Chapel Hill, NC.

31st Annual SCTPLS Conference 2021, Society for Chaos Theory in Psychology and Life Sciences, Virtual due to COVID-19

30th Annual SCTPLS Conference 2020, Society for Chaos Theory in Psychology and Life Sciences, Toronto, CN (Virtual due to COVID-19)

Nonlinear Datapalooza 2.0, 2020, Society for Chaos Theory in Psychology and Life Sciences, Salt Lake City, UT

29th Annual SCTPLS Conference 2019, Society for Chaos Theory in Psychology and Life Sciences, Orange, CA

28th Annual SCTPLS Conference 2018, Society for Chaos Theory in Psychology and Life Sciences, Raleigh, NC

27th Annual SCTPLS Conference 2017, Society for Chaos Theory in Psychology and Life Sciences, Cincinnati, OH

Inaugural Nonlinear Datapalooza 2015, Society for Chaos Theory in Psychology and Life Sciences, Orange, CA.

Invited Symposia Chair

Developing Resilience in Athletes and Teams. Complex Systems in Sport International Congress 2017, Barcelona, ESP.

Invited Non-Research Presentations

Kiefer, A. W. (2007). Applying for Funding at the Departmental and University Levels. Pre-Conference Symposium at the North American Society for the Psychology of Sport and Physical Activity, San Diego, CA.

Non-Peer Reviewed Popular Media Publications

Bonnette, S., Barber Foss, K. D., DiCesare, C. A., Dikfuss, J. A., Grooms, D. R., **Kiefer, A. W.**, Kitchen, K., Reddington, D., Riehm, C., Riley, M. A., Schille, A., Shafer, J., Thomas, S. & Myer, G. D. (2020). The future of ACL prevention and rehabilitation: Integrating technology to optimize personalized medicine, *ASPETAR Sports Medicine Journal*, *9*, 72-77.

Committees

2021-2022 HMSC Advisor Committee, University of North Carolina at Chapel Hill

2021-Present Sports Medicine Institute Internet/Social Media Working Group, University of North Carolina at Chapel Hill

2019-2020 Mixed-Reality Faculty Learning Community (XR FLC), University of North Carolina at Chapel Hill

2018-2019 Mind, Brain and Behavior ACTS Website Committee, Cincinnati Children's Hospital
Quality Improvement Committee, Division of Sports Medicine, Cincinnati Children's Hospital

2005-2006 Psychology Department Colloquium Committee, University of Cincinnati

Psychology Graduate Student Research Group, University of Cincinnati

2004-2005 Co-founder of the graduate Sport and Exercise Science Association, Barry University

ADDITIONAL TRAINING

2022 Mid-Atlantic I-Corps Program
2020-2021 UNC Venture Catalyst Fellowship Program
2020 ViaVerus Customer Discovery Workshop
2008 APA Advanced Training Institute on Nonlinear Methods for Psychological Science
2008 How to Write Winning Grants
2007 3rd Annual Motor Control Summer School

PROFESSIONAL MEMBERSHIPS

Sigma Xi Honor Society, Full Member
American College of Sports Medicine (ACSM)
Society for Chaos Theory in Psychology & Life Sciences (SCTPLS)
International Society for Ecological Psychology (ISEP)

INDUSTRY EXPERIENCE

2021-Present	CEO, Co-Founder	Elipsys LLC
2019-2022	Owner, Co-Founder	Phenomic Innovations, LLC.

INDUSTRY CONSULTING

2016-2018	Scientific Research Expert for Media	Tobii Pro, Stockholm, Sweden
2014-2018	VR/AR Technology Consultant	Gerson Lehrman Group
2011-2014	VR Technology Consultant	Qualisys Motion Capture Systems Gothenburg, Sweden

INTELLECTUAL PROPERTY

University of North Carolina at Chapel Hill

2022 Methods, Systems, and Computer Readable Media for Automated Assessment of Aseptic Technique of Compounding in a Compounding Hood, U.S. Provisional Patent Application #63/393,766 (Co-Inventor)

2021 Automated eye tracking assessment solution for skill development, Patent Cooperation Treaty Application #PCT/US2021/065652 (First Named Inventor)

Cincinnati Children's Hospital Medical Center/University of Cincinnati

2017 Augmented Neuromuscular Training System and Method, U.S. Patent 11,350,854, issued June 7, 2022 (Co-Inventor)