NMRL Director’s Note

The University of Pittsburgh’s Neuromuscular Research Laboratory/Warrior Human Performance Research Center (NMRL/WHPRC) has a rich research legacy of studying musculoskeletal injury prevention and human performance optimization. Established in 1987 as a collaborative effort between Dr. Scott Lephart and Dr. Freddie Fu to primary study joint proprioception, neuromuscular control, and functional joint stability in sport-centric injuries, the NMRL/WHPRC evolved to also study military-centric musculoskeletal injuries and human performance optimization in 2005. Over the last 12 years, the University of Pittsburgh NMRL/WHPRC has been one of the preeminent academic institutions studying military human performance optimization and injury prevention (HPO/IP). We remain committed to our **VISION:** To be internationally recognized as a premier academic research center and its faculty as thought leaders in musculoskeletal injury prevention and human performance optimization and **MISSION:** To mitigate musculoskeletal injuries and optimize human performance by conducting innovative, multi-disciplinary, basic and applied research providing evidence and translating scientific knowledge; enhancing clinical decisions and education. This research will lead to improved quality of life and resiliency in athletic, military, and active populations.

NMRL Faculty Take First Place in Innovation Tournament

NMRL faculty were well represented at the inaugural University of Pittsburgh Performance Innovation Tournament on April 11, 2018. The Performance Innovation Tournament was designed by the Pitt Innovation Institute to encourage Pitt researchers across multiple disciplines to collaborate with the Athletics Department to help solve issues facing athletes, coaches and training to improve performance and decrease risk for injury. Matt Darnell, PhD, Betsy Nagle, PhD, and Katelyn Allison, PhD, were members of the winning team for their proposal titled “Impulse Swimming Test,” which measures force production and anaerobic performance in real-time to swimmers. The Impulse Team also included Jackie Nagle Zera, former NMRL post doc and current assistant professor at John Carroll University, Marc Christian, assistant coach for Pitt Swimming & Diving, and Carma Sprowls Repcheck, assistant professor in the Department of Health and Physical Activity. The team won $80,000 in seed money for product development and validation testing. The proposal pitched by NMRL faculty Chris Connaboy and Qi Mi, which aimed to develop a “Pitt Fusion” data acquisition and dashboard application to integrate performance, injury and sleep factors in order to inform coaches, placed in the top four proposals out of 16 submissions. Connaboy was also a member of two other finalist teams, Moviso and iExit.
NMRL Funded for SPARTA Training Study

The Neuromuscular Research Laboratory/Warrior Human Performance Research Center has partnered with Dr. Julie Greeves, Dr. Thomas O'Leary, Dr. Sarah Jackson, and Dr. Sophie Wardle from the Women in Ground Close Combat Research Programme, United Kingdom Ministry of Defence, on the Soldier Performance and Readiness as Tactical Athletes (SPARTA) Training Study. This 3 year study will compare various physical training regimens to better understand physiological differences between men and women, and mechanisms to enhance abilities to successfully complete ground close combat occupational tasks, such as heavy load carriage. University of Pittsburgh Co-PIs Drs. Brad Nindl and Chris Connaboy and Co-Is Drs. Shawn Flanagan, Mita Lovalekar, Brian Martin, Courtenay Dunn-Lewis, Kevin Conley, Ron Poropatich, and Carola van Eck will comprehensively examine physical employment standards, strength and power, muscle and bone physiology, biomarkers, and biomechanical adaptations.

NMRL Funded by Isagenix for Nutrition Supplement Study

The Neuromuscular Research Laboratory/Warrior Human Performance Research Center was awarded an externally funded research grant from Isagenix International LLC. This study will examine the effects of two different pre-workout supplements on physical, cardiovascular, and, cognitive performance outcomes in both men and women. University of Pittsburgh Co-PIs Drs. Brad Nindl and Brian Martin and Co-Is Drs. Shawn Flanagan, Matt Darnell, Kim Beals, Alexis Pihoker, and Meaghan Beckner have partnered with Dr. Paul Arciero from Skidmore College to rigorously assess the efficacy of these two pre-workout supplements on muscular strength, power, and agility, as well as aerobic fitness and cognitive performance in resistance-trained men and women. “The opportunity to collaborate with the premier neuromuscular research laboratory here at the University of Pittsburgh and the world-leading health and wellness company Isagenix International on this cutting-edge research study is a thrill for me because we will be contributing novel and groundbreaking research in the field of human performance optimization” says Co-Investigator and Isagenix scientific advisor Dr. Paul Arciero FACSM, FTOS, FISSN.
Shawn Eagle Receives ACSM Doctoral Research Grant

Fourth year doctoral student Shawn Eagle received an American College of Sports Medicine Doctoral Research Grant to support his dissertation work, titled "Acute Recovery of Coupling Perception with Action in Recently Concussed Young Athletes". The work will attempt to characterize acute recovery of perceptuomotor control in relation to established concussion evaluations such as the Vestibular Ocular Motor Screen and ImPACT neurocognitive testing.

Army War College Resilience Day

NMRL Director, Dr. Brad Nindl, presented an invited keynote talk entitled “Physiological and Psychological Resilience as Key Enablers for Optimizing Military Readiness: Science and Strategies for Senior Leaders” at the Army War College on Monday 13 August 2018. He is pictured with LTC Tin Dang, Program Manager for Senior Leader Sustainment and organizer for event and Dr. Stella Volpe, Chair, Nutrition Sciences Department, Drexel University who was also an invited keynote speaker and presented on aspects of nutrition. The United States Army War College is a U.S. Army educational institution in Carlisle, Pennsylvania, on the 500-acre campus of the historic Carlisle Barracks. It provides graduate-level instruction to senior military officers and civilians to prepare them for senior leadership assignments and responsibilities.

NMRL Doctoral Students Present at Science 2018

Eight NMRL doctoral students presented at the University of Pittsburgh's Science 2018 showcase, on October 18th in Alumni Hall. The topics presented included tactical nutrition strategies, neurophysiology, neuromuscular consequences of concussion, and perception-action coupling dysregulation in austere environments. Congratulations students and well done!
NMRL Faculty Members Promoted to Associate Professor

Kim Beals, PhD, RD, CSSD, LDN has been promoted to Associate Professor in the Department of Sports Medicine and Nutrition in the School of Health and Rehabilitation Sciences at the University of Pittsburgh. Kim is the Associate Director of the Neuromuscular Research Laboratory (NMRL) and Warrior Human Performance Research Center. Beals completed her PhD in Exercise Physiology at the University of Pittsburgh and her Master of Science in Clinical Nutrition at Drexel University. She is a registered dietitian and board certified specialist in sports dietetics. Her research interest and involvement have been focused on: 1) the use of foods and nutrients to improve diet quality, physical performance and body composition and reduce systemic inflammation 2) identify body composition factors related to reducing musculoskeletal injuries and improving physical performance 3) evaluating the impact diet has on a healthy gut microbiome and metabolome and how that affects overall health, recovery and resiliency.

Mita Lovalekar, MBBS, PhD, MPH, has been promoted to Associate Professor in the Department of Sport Medicine and Nutrition, School of Health and Rehabilitation Sciences, University of Pittsburgh. Mita is a research epidemiologist and co-PI on several research studies conducted by the Neuromuscular Research Laboratory, and teaches in the Master of Science in Sports Medicine program. She has trained as a physician in Mumbai, India, and completed her PhD and Master of Public Health in Epidemiology at the Graduate School of Public Health, University of Pittsburgh. Mita's research interests include injury epidemiology and surveillance, data issues related to injury research, and chronic disease epidemiology.

A note from Associate Professor and Department Chair, Kevin Conley, PhD, ATC: "Dr. Beals and Dr. Lovalekar have been critical components of the success the NMRL has enjoyed over the past 12 years. Their contributions, their collegiality and their commitment to the science of human performance and injury prevention has helped to position the NMRL among the truly outstanding laboratories of its kind in the world. As we look forward into the future of this new generation for the NMRL and all the opportunities that await us, I am confident we will continue to stand at the forefront of scientific inquiry and innovation as it relates to optimizing the human system, and I am encouraged that we have faculty such as Dr. Beals and Dr. Lovalekar to help lead us to even greater reaches of discovery. I am very proud to call them colleagues."
Springfield College Hosts Peter V. Karpovich Lecture

The Springfield College School of Health, Physical Education, and Recreation presented the Peter V. Karpovich Lecture featuring Army reservist Bradley C. Nindl, professor in the Department of Sports Medicine and Nutrition in the School of Health and Rehabilitation Sciences at the University of Pittsburgh, on Wednesday, Nov. 14, 2018.

Nindl, who received his master of science in physiology of exercise from Springfield College in 1993, is the current Director of the Neuromuscular Research Laboratory and Warrior Human Performance Research Center at the University of Pittsburgh. He discussed how leveraging scientific and technological advances and evidence-based best practices in physical education and exercise science will yield a fit, ready, and injury-free military. Nindl has a strong focus on exploring science and strategies to help bolster military readiness and national security.

The readiness of the U.S. military is adversely impacted by an unacceptably high incidence rate of physical training-related musculoskeletal injuries that represent a major threat to the health and fitness of soldiers and other service members and that degrade our nation’s ability to project military power.

Springfield College established the Karpovich Lecture in 1973 in memory of its former faculty member, Peter V. Karpovich, who was an internationally recognized exercise physiologist and one of the principal founders of the American College of Sports Medicine. Karpovich joined the Springfield College faculty in 1927 serving as a professor of physiology. He was named director of health education at the College in 1947 and was appointed research professor of physiology in 1955.

NMRL Faculty Member Develops Innovative Software Tool

Dr. Qi Mi, together with a computer science undergraduate student Jon Rutkauskas developed a software tool SPADE (Simple Platform for Analyzing Data Efficiently) that can be used to easily create interactive charts for multi-dimensional datasets. The technology has received $3000 NSF fund from the First Gear program for further validation. Recently, Dr. Mi has also been invited to present SPADE in the Innovation Showcase event which displayed the most impactful innovations at Pitt.
NMRL Faculty: Ongoing Research Initiatives

**Brad Nindl, PhD, FACSM**, is Director of the Neuromuscular Research Laboratory/Warrior Human Performance Research Center and Professor in the Department of Sports Medicine in the School of Health and Rehabilitation Sciences at the University of Pittsburgh. His research interests span human performance optimization/injury prevention domains with a focus on adaptations of the neuromuscular and endocrine systems (growth hormone/insulin-like growth factor-I axis) to both exercise and military operational stress. He is an associate editor for Medicine and Science in Sports and Exercise and the Journal of Strength and Conditioning Research and a Fellow in the American College of Sports Medicine.

**Kim Beals, PhD, RD, CSSD**, is Associate Director of the NMRL, and an Associate Professor in the Department of Sports Medicine and Nutrition. Dr. Beals’ current initiatives are focused around nutrition and exercise strategies to modify body composition and to enhance physical performance. Future initiatives are focused around the microbiome. Foods and nutrients in the diet may affect health by altering the composition of gut microbiota and perhaps more importantly by serving as substrates for microbial metabolism. Research is needed to determine which foods and nutrients specifically promote growth and functionality of beneficial bacteria as part of a healthy microbiome. This research will help to fill a gap in the scientific literature and increase our understanding of how the habitual diet affects the gut microbiome.

**Kevin Conley, PhD, ATC**, is an Associate Professor and Chair of the Department of Sports Medicine and Nutrition in the School of Health and Rehabilitation Sciences. He has over 20 years of clinical and academic experience, having spent the previous 17 years as the director of the Athletic Training Education Program. Dr. Conley also serves as Associate Dean for Undergraduate Studies at SHRS, where his responsibilities include providing support and oversight related to common policies and procedures for the six undergraduate programs in the school.

**Katelyn Allison, PhD, ACSM EP-C**, is the co-director of the Master of Science Program in Sports Medicine within the Department of Sports Medicine and Nutrition. She serves as the principal investigator for the Marine Corps Women Integration research initiative, as a co-investigator on all Department of Defense injury prevention and performance enhancement research activities, and specializes in exercise physiology-related data collection and dissemination. Prior to joining the NMRL as faculty, Allison completed her bachelor’s degree in Exercise Science and master’s degree in Exercise Physiology at the University of Pittsburgh, where she also competed in Cross Country and Track. She completed her doctoral degree in Rehabilitation Science at the University of Pittsburgh and spent four years as a graduate research associate at the NMRL. Her research interests include the effect of fatigue on proprioception and neuromuscular control, exercise and nutritional contributions to injury prevention, health, and performance optimization, and female injury prevention, performance enhancement, and health.
Chris Connaboy, PhD, is an assistant professor in the Department of Sport Medicine and Nutrition, working within the Neuromuscular Research Laboratory and Warrior Human Performance Research Center. Connaboy completed his PhD in Biomechanics and Motor Control and his MSc in Biomechanics at the University of Edinburgh. Prior to coming to the University of Pittsburgh, Dr. Connaboy worked at the University of Houston, in Texas and both Edinburgh Napier University and the University of Edinburgh, in Edinburgh, Scotland. Prior to undertaking his academic career Dr Connaboy was an infantry soldier in the Black Watch, Royal Highland Regiment in the UK Armed Forces. As a researcher, he has expertise in human performance optimization with a specific focus on movement, coordination and the perceptuo-motor processes involved in performing skilled actions in elite soldiers and athletes. He currently serves as Co-Principal investigator on a study funded by the U.K. Ministry of Defence, to examining the Optimization of Training and Physical Performance for Women in Ground Close Combat Roles (WGCC 5.5.6: Task 0107). He is a co-investigator on a NASA funded study (NNX15AC13G) examining the Interrelationships Between Physical Health, Psychological Risk And Performance When Operating In Isolated, Confined And Extreme Environments. Also, he is currently a co-investigator on a Congressionally Directed Medical Research Program award (W81XWH-16- PHTBIIRP-CR3A): Characterization of Psychological Resilience and Readiness: Cross-Validation of Cognitive and Behavioral Metrics During Acute Military Operational Stress. He recently completed a project serving as PI on a study for the Air-Force the Special Operations Command (FA8650-12-2-6271): Injury Prevention and Human Performance Research Initiative.

Matt Darnell, PhD, RD, CSSD, SCCC, is an assistant professor within the Department of Sports Medicine and Nutrition at the University of Pittsburgh. He is the director of graduate studies in Sports Science. Darnell has a doctorate degree in Rehabilitation Science. He earned his bachelor's and master's degrees in Clinical Dietetics and Nutrition at the University of Pittsburgh, where he also competed on the wrestling team. Darnell is a Registered Dietitian, Board Certified Specialist in Sports Dietetics, and Strength and Conditioning Coach Certified. His research interests include nutrition and exercise approaches for improved athletic performance, injury prevention, and rehabilitation.

Courtenay Dunn-Lewis, PhD, focuses her research on optimizing holistic human performance, including the ability of resistance exercise and other health interventions to enhance health, resilience, and cognitive and psychological well-being. Dr. Dunn-Lewis received her baccalaureate from Johns Hopkins University, a master’s degree in Kinesiology at the University of Connecticut, and a doctorate in Kinesiology at the University of Connecticut. She is an Assistant Professor at the Neuromuscular Research Laboratory/Warrior Human Performance Research Center in the School of Health and Rehabilitation Sciences at the University of Pittsburgh. Dr. Dunn-Lewis’ research projects are/have been supported by the United Kingdom Ministry of Defence and the University Center for Social and Urban Research. She is a past recipient of the New England ACSM David Camaione Doctoral Award, Outstanding Doctoral Student Award, Human Anatomy and Physiology Society Robert Anthony Award, and the Retirement Research Foundation (RRF) Summer Fellowship. She has over 40 peer-reviewed publications and is an associate editor for the Journal of Strength and Conditioning Research.
Shawn Flanagan, PhD, MHA is an assistant professor of Sports Medicine and Nutrition at the University of Pittsburgh Neuromuscular Research Laboratory and Warrior Human Performance Research Center. His background is in neuroscience and physiology with training in brain stimulation, imaging, neuroendocrinology, and physical exercise. At the University of Pittsburgh, Flanagan’s overall research interests emphasize neurobiological factors that contribute to human performance optimization, stress, resilience, and injury. Current work includes psychological and physiological resilience, novel clinical rehabilitation techniques for return to duty/play, the influence of the brain/cognition on injury, and biomarkers for performance adaptations and injury. His research projects are/have been supported by the Department of Defense, National Aeronautics and Space Administration, and the National Strength and Conditioning Association. Flanagan is a member of the Society for Neuroscience, American Physiological Society, Endocrine Society, and American College of Sports Medicine. Dr. Flanagan is a past recipient of The Ohio State University Department of Human Science Doctoral Fellowship Award, the American Kinesiology Association Graduate Student Writing Award, and he co-authored two research publications that were each awarded Best Scientific Paper by the Journal of the American College of Nutrition.

Mita Lovalekar, MBBS, PhD, MPH, an associate professor of Sports Medicine and Nutrition. She is trained as a physician, and has doctoral and master’s degrees in Epidemiology. She is an associate-investigator with the Department of Defense and Neuromuscular Research Laboratory research projects, and is involved with study design, data processing, analysis, and interpretation. Lovalekar's research interests include injury epidemiology and surveillance, injury prevention, and chronic disease epidemiology.

Qi Mi, PhD, is an Assistant Professor in the Department of Sports Medicine and Nutrition and a member of the Center for inflammation and Regenerative Modeling within the McGowan Institute for Regenerative Medicine. Dr. Mi is currently working on applying data mining and machine learning approaches to uncover patterns and develop predictive model of musculoskeletal injury and other biological disease.

Elizabeth Nagle, PhD, FACSM, is an Assistant Professor in the Department of Health and Physical Activity (HPA) within the School of Education with a secondary appointment with the School of Health and Rehabilitative Sciences at the University of Pittsburgh, and is also the undergraduate HPA program coordinator. Dr. Nagle completed her Ph.D. at the University of Pittsburgh, and is a certified ACSM Exercise Physiologist and Level 2 USA Swimming Coach. Her research interests include Development and Validation of aquatic protocols of Aerobic and Anaerobic Capacity for shallow water running, swimming, and military performance.
**Brian Martin, PhD** is a Postdoctoral Research Fellow in the Department of Sports Medicine and Nutrition. Dr. Martin completed his doctoral studies in Kinesiology at McMaster University, Ontario, Canada. His doctoral research focused on dietary manipulation of the metabolic response to exercise, and the associated impact on physiological remodeling and clinical indices of health. Martin’s postdoctoral research, focuses on physiological stress from exercise and training on biomarkers indicative of resilience, adaptation and protection from injury. Martin also served five years in the United States Navy, as a Hospital Corpsman. Following his military service, and throughout his University education he worked as an Emergency Room nurse.

**Adam Sterczala, PhD,** is a postdoctoral research associate in the University of Pittsburgh Neuromuscular Research Laboratory and Warrior Human Performance Center. Sterczala completed his PhD in Exercise Physiology at the University of Kansas and his MSc in Exercise Science at the University of Connecticut with training in electromyography, nerve stimulation, ultrasound neuroendocrinology and muscle fiber typing. His research interests include the influence of exercise training, aging and stress on neuromuscular excitability and motor unit behavior. In addition, Sterczala is a Certified Strength and Conditioning Specialist with Distinction under the National Strength and Conditioning Association and a member of the American College of Sports Medicine.

**Nizam Ahamed, PhD** is currently working as a Postdoctoral Research Fellow in the Department of Sports Medicine and Nutrition, working within the Neuromuscular Research Laboratory at University of Pittsburgh. Nizam did his first Postdoc at Faculty of Kinesiology, in University of Calgary. Dr. Nizam earned his PhD (2014) in Biomedical Engineering from University of Malaysia Perlis and his MSc in Computer Science at the University of Madras, India (2004). He has several years of experience in teaching and research fields, applying Artificial Intelligence, machine learning models and Signal processing techniques in a variety of health-related areas, like biomechanics, sports science, movement disorder and muscle physiology. Nizam has extensive research publications with a recent focus on the use of wearable technology and machine learning methods to understand real-world biomechanical gait patterns from local runners for running-related injury identification and prevention. His current research interests to understand US military people’s musculoskeletal biomechanical injury risks using wearable devices, artificial intelligence techniques and marker-less motion capture systems. He looks forward to pursuing his passion for research in the field of kinesiology using more advance technology.
NMRL Staff

**Dennis Dever, CSCS** is a Research Assistant for the Neuromuscular Research Laboratory. He completed his bachelor’s degree in Exercise Science and went on to attain a master’s degree in Sports Medicine at the University of Pittsburgh. His master’s work focused on the effects of military load carriage on gait biomechanics. He is currently working as a strength and condition coach for the Soldier Performance and Readiness as Tactical Athletes training study. Dever's research interests include performance optimization, injury prevention, and load carriage biomechanics in tactical populations.

**Robert Kornosky, MPA** is the financial manager for the Department of Sports Medicine and Nutrition at the University of Pittsburgh. He completed his master’s degree in Public Administration and bachelor’s degree in Business Administration from the University of Pittsburgh. Kornosky has experience in grants management, accounting, and human resource administration. Prior to joining the Department of Sports Medicine and Nutrition Kornosky worked for the University's School of Medicine as an accountant.

**Connor Wege** is the Administrator of the NMRL for the Department of Sports Medicine and Nutrition. He has been with the NMRL since July 2018 and is currently enrolled in the Master’s in Higher Education Management program within the University of Pittsburgh.

NMRL Doctoral Students

**Meaghan Beckner** is a doctoral student in the Rehabilitation Science program within the School of Health and Rehabilitation Sciences at the University of Pittsburgh. She received her bachelor’s degree in Exercise Science at the University of Pittsburgh and worked as a clinical research coordinator for several years. Meaghan returned to the University of Pittsburgh's Department of Health and Physical Activity as a graduate assistant and received her master’s degree in Health and Physical Activity. Her research interests include performance optimization and injury prevention, primarily within special operations forces.
Anne Beethe, MA, ATC, CSCS is a doctoral research fellow in the Sports Medicine program within the School of Health and Rehabilitation Sciences at the University of Pittsburgh. Prior to enrolling in the doctoral program, Anne was an Assistant Athletic Trainer at Belmont Abbey College in Belmont, NC, working with their Men’s Soccer, Baseball, and Women's Basketball programs. Anne earned her BS in Exercise Science at Creighton University and her MA in Athletic Training at the University of Nebraska Omaha. Additionally, she is an Athletic Trainer Certified through the Board of Certification and a Strength and Conditioning Specialist through the National Strength and Conditioning Association. Anne’s research interests include injury prevention and performance optimization in sport and military populations, and more specifically neurological factors that contribute to human performance optimization, stress, resilience, and injury.

Will Conkright, MS, RD, CSSD, CSCS is an active duty service member currently pursuing a doctoral degree in the Rehabilitation Sciences program at the University of Pittsburgh. He completed his bachelor’s degree in Hospitality Management and Dietetics at Western Kentucky University and went on to receive his master’s degree in Nutrition from Baylor University. His master’s work focused on physiological effects and recovery from rigorous military training. His research interests include exosomes and physiological, cognitive, and performance adaptations as they pertain to the military. Will has served in a variety of roles as an army dietitian including his most recent as the Command Human Performance Dietitian for U.S. Army Special Operations Command.

Kellen Krajewski, MS, CSCS is a doctoral student in the Sports Medicine program within the School of Health and Rehabilitation Sciences at the University of Pittsburgh. Prior to enrolling in the doctoral program, he received his master’s degree in Sports Medicine from Armstrong State University. There, he served as a Graduate Student Researcher for the Biodynamics and Human Performance Center. In addition, Krajewski has served as an instructor of biomechanics at the University of Scranton and oversaw biomechanics research conducted in their Human Motion and Ergonomics Laboratory. Krajewski’s research interests include performance optimization and injury prevention in tactical populations, spine biomechanics with external loads, and biomechanical performance assessments.

Alice LaGoy is a doctoral student within the Sports Medicine and Nutrition department of the School of Health and Rehabilitation Sciences. She received her undergraduate degree in human physiology from Gonzaga University. After completing her undergraduate degree, Lagoy worked as a research assistant at the Washington State University Sleep and Performance Research Center. She is currently working as a member of the Military Sleep Tactics and Resilience Research Team at the University of Pittsburgh. Her research interests include perception-action coupling related to athletic and military performance, the role of sleep in recovery and the physiology underlying these relationships.
Felix Proessl is a doctoral research fellow in the Neuromuscular Research Laboratory and Warrior Human Performance Research Center at the University of Pittsburgh. His background is in neurophysiology, with training in brain stimulation, neuroimaging, wearable technology and strength and conditioning. His research interests focus on central nervous system-related consequences of fatigue, particularly corticospinal excitability, and strategies to enhance human performance using neuromodulatory measures.

Aaron Sinnott, MS, ATC, is a doctoral student in the Sports Medicine program within the School of Health and Rehabilitation Sciences at the University of Pittsburgh. Prior to enrolling in the doctoral program, he was a site coordinator for the NCAA-DoD C.A.R.E. Consortium Project at California State University-Humboldt. Sinnott also held a lecturer position in the Kinesiology and Recreation Administration department. He received his master’s degree in Exercise Science from Humboldt State University (2015) while employed as a graduate assistant athletic trainer for men’s soccer and basketball. His thesis work focused on cumulative head impacts in football and soccer. Sinnott completed his undergraduate education in Athletic Training from California State University-Sacramento (2013). Research interests encompass concussion injuries – mechanisms for optimal recovery, and influences on functional impairment.

Select Peer-reviewed Publications by NMRL Faculty, Students, and Staff


Swanson CW, Proessl F. High-definition transcranial direct-current stimulation of the right M1 further facilitates left M1 excitability during crossed facilitation. J Neuropsychol. 120(1):4-6 (2018).


Select Conference Presentations by NMRL Faculty, Students, and Staff


Eagle, SE, Mi, Qi, Flanagan SD, Nindl BC, Beals, K, Connaboy, C (2018). Previously Concussed Warfighters Exhibit Altered Neuromuscular Traits, Mid-Atlantic Regional Chapter ACSM meeting, Nov 2nd-3rd, Harrisburg, PA


Krajewski, KT, , Dever, DE, Beethe, AZ, Nagai, T, Nagle, EF, Nindl BC, Connaboy, C (2018). Hydrodynamic Flow Velocity Changes with Linear Increase in Flume Speed, Mid-Atlantic Regional Chapter ACSM meeting, Nov 2nd-3rd, Harrisburg, PA


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Zamzow C, Darnell ME, Ford P, Conger SA. Effects of Beet Juice on Anaerobic Exercise Performance. American College of Sports Medicine Annual Meeting; May 29 – June 2, 2018; Minneapolis, MN.


Invited Speaking Engagements

Shawn Flanagan, PhD

Title: Emerging Approaches to Predict Monitor and Improve Physiological Resilience
Event: Wright Patterson Airforce Base
Date: February 2018
Location: Dayton, OH

Title: Neurobiology Plasticity: Corticospinal Basis of Persistent Functional Deficits and Traumatic Musculoskeletal Injury
Event: McGowan Annual Scientific Retreat
Date: March 2018
Location: Pittsburgh, PA

Title: Resilience and Musculoskeletal Readiness: Warfighter Responses to Acute and Chronic Stressors
Event: 7th Annual International Symposium of Regenerative Medicine
Date: October 2018
Location: Seattle, WA
Chris Connaboy, PhD

Title: Understanding Performance Optimization and Risk Mitigation Through the Assessment of Moving Signatures
Event: U.S Marine Corps Force Fitness Division
Date: November 7th, 2018
Location:

Title: Characterizing Behavioral Risk in Isolated, Confined and Extreme Environments: A Preception-Action Approach
Event: Mid-Atlantic Regional Chapter ACSM Meeting
Date: November 2nd – 3rd
Location: Harrisburg, PA

Qi Mi, PhD

Title: SPADE: Simple Platform for Analyzing Data Efficiently
Event: Innovation Showcase
Date: October 2018
Location: Pittsburgh, PA

Anne Beethe, MA, ATC, CSCS

Title: Treating Pain with Transcranial Magnetic Stimulation
Event: UPMC Athletic Training Journal Club
Date: March 9th, 2018
Location: Pittsburgh, PA

Matt Darnell, PhD, RD, CSSD, SCCC

Title: Full Plate: Nutrition for Managing Busy Lifestyles and Stress
Event: UPMC Sports Medicine Orthopedic Fellows Wellness Seminar Series
Date: August 15th, 2018
Location: Pittsburgh, PA

Title: Feeding a Lifetime: Nutrition for Health, Performance, and Longevity
Date: July 10th, 2018
Location: Saint Vincent College and Monastery, Latrobe, PA
Brad Nindl, PhD

Title: Physiological and Psychological Resilience as Key Enablers for Optimizing Military Readiness: Science and Strategies for Senior Leaders
Event: Army War College Resilience Day
Date: August 13\textsuperscript{th}, 2018
Location: Carlisle, PA

Title: Leveraging Exercise Science and Physical Education to Optimize Military Physical Performance: Science and Strategies to Bolster Military Readiness and National Security
Event: 2018 Karpovich Lecture
Date: November 14\textsuperscript{th}
Location: Springfield College, Springfield, MA

For additional information about the NMRL, please contact:

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