United States Special Operations Command

Scott M. Lephart, PhD was recently appointed as Distinguished Professor in the School of Health and Rehabilitation Sciences at the University of Pittsburgh. Dr. Lephart serves as Professor and Chair of the Department of Sports Medicine and Nutrition and Director of the Neuromuscular Research Laboratory and the Warrior Human Performance Research Center. He also holds a secondary Professor appointment in the Department of Orthopaedic Surgery.

Based on the enduring seven year research projects for the Special Operations Forces (SOF), the NMRL/WHPRC was recently selected as the scientific mission partner related to human performance research of US Special Operations Command (USSOCOM) and has been engaged in a Memorandum of Agreement to fulfill this role.

With six Warrior Human Performance Laboratories located at each of the component commands, the University of Pittsburgh is positioned to measure the effectiveness of human performance aspects of USSOCOM’s Preservation of the Force and Families (POTFF) initiative and contribute significantly to the direction of human performance. This designation allows WHPRC to represent their present and future SOF applied research as a joint, SOF peculiar task serving in a focal and direct support role to USSOCOM and POTFF.

Marine Corps Forces Special Operations Command

The Neuromuscular Research Laboratory/Warrior Human Performance Research Center has recently been funded to begin human performance research with the United States Marine Corps Forces Special Operations Command (MARSOC). The research initiative will begin in early 2014 at Camp Lejeune, NC. This project will utilize the University of Pittsburgh human performance research model to scientifically develop an injury prevention and performance optimization program that is culturally-specific and dynamically responsive to the unique tactical demands of MARSOC Operator.

The addition of the MARSOC study completes the scientific support for all component commands enabling the University of Pittsburgh to represent USSOCOM and POTFF’s desire to establish scientific basis for injury prevention and training needs. The overall research initiative will provide baseline and longitudinal assessments to determine the specialized needs of SOF.

This work was supported by the Office of Naval Research, Grant N00014-14-1-002.
**US Army Special Operations Command**

Initiated in April 2012, research with US Army Special Operations Command (USASOC) is supporting refinement of the Tactical Human Optimization, Rapid Rehabilitation and Reconditioning (THOR3) program. The overall objective is to result in a validated THOR3 program that improves physical and tactical readiness and mitigates musculoskeletal injury. To date, 214 soldiers have participated, with enrollment to continue through 2014.

In July 2013, the JFK Special Warfare Center and School (SWCS) was introduced to the research study with the new aim of assessing success rates through the Special Forces Assessment and Selection (SFAS) in addition to the Special Forces Qualification Course (SFQC). Testing is being completed on 18X students at baseline and longitudinally to assess musculoskeletal injury and performance.

This work is supported by the US Army Medical Research and Material Command (Research grant USAMRMC/TATRC #W81XWH-11-2-0020). Opinions, interpretations, conclusions and recommendations are those of the author and not necessarily endorsed by the US Army.

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**Air Force Special Operations Command**

The Warrior Human Performance Research Center at Air Force Special Operations Command (AFSOC), Hurlburt Field, Florida, officially opened on September 18, 2013. The laboratory includes approximately 2,500 square feet of laboratory space and includes state-of-the-art human movement and performance analysis instrumentation to assess physiological, musculoskeletal, biomechanical, and performance characteristics.

The grand opening was attended by leadership from both the University of Pittsburgh and AFSOC.

This work was supported by the Air Force Research Laboratory/ Air Force Materiel Command, #FA8650-12-2-6271.
Naval Special Warfare Group 4 - Special Boat Team 22

The final report for initial research of the University of Pittsburgh's Human Performance and Injury Prevention Research Initiative with Naval Special Warfare Group 4 (NSWG-4) / Special Boat Team 22 (SBT-22) was delivered spring 2013. As part of this report, it was recommended that the findings of Phase 1 and 2 be incorporated into SBT-22’s Tactical Athlete Program (TAP) as part of a Phase 3 clinical trial to determine the effects of modifications to the TAP on Operator biomechanical, musculoskeletal, and physiological characteristics.

It has been observed that the Operators lose strength, flexibility, and cardiovascular fitness during certain training cycles due to a combination of intense tactical training and a reduction in time devoted to physical training. This combination may be negatively affect overall human performance. The objective of this clinical trial is to validate the capabilities of a TAP to maintain human performance levels during concurrent high intensity tactical training.

This work was supported by the Office of Naval Research, Grant N00014-10-1-0912/N00014-11-1-0929

Naval Special Warfare Group 2

Based on two years of laboratory and field testing to scientifically evaluate biomechanical, musculoskeletal, physiological characteristics and musculoskeletal injuries in Naval Special Warfare (NSW) Operators, NSW’s Tactical Athlete Program (TAP) was refined with the necessary strategies to promote physical readiness and mitigate musculoskeletal injuries throughout the tactical lifecycle. A controlled trial was implemented to test the effectiveness of a 12 week block periodized training program to induce improvements in physical physiological, and tactically-relevant performance in NSW Operators.

The results of the study suggest the block periodized program was effective in inducing physical, physiological, and tactically-relevant performance adaptations in NSW Operators.

Current research activities are focusing on completion of baseline testing for new Operators and longitudinal testing throughout the deployment cycle to assess performance decrements and injury rates.

At the request of the Naval Special Warfare Command, our human performance research will expand to study maritime-related musculoskeletal injury patterns and physical readiness.

Naval Special Warfare SQT/CQT

Initiated in February 2012, our research with NSW SQT/CQT will provide baseline data for analysis to determine direct and long-term career needs for the Operator. The data will identify physical, physiological, and nutritional characteristics requiring immediate need for improvement and preventative strategies in SQT/CQT students based on tactical requirements and as compared to Operators with higher years of service and deployments.

This research will also establish baseline data for Force-wide interval testing to assess career decrement and injury prevalence, reference following injury, and effectiveness of TAP to improve physical readiness. To date, 310 students have been tested during Phases 1 and 2 of research.

This work was supported by the Office of Naval Research, Grant N00014-11-1-0929.
Personnel Spotlight: Hurlburt Field, FL AFSOC

Meleesa Wohleber, DHSc, ATC

Meleesa is an Assistant Professor and Research Associate at the University of Pittsburgh. She received her Doctor of Health Science degree from Nova Southeastern University, Master of Science in Kinesiology and Athletic Administration at James Madison University, and Bachelor of Science in Athletic Training from West Virginia Wesleyan College. Prior to joining the NMRL, Meleesa was an athletic trainer at the United States Coast Guard Training Center in Cape May, NJ. She has also worked as an athletic trainer at the University of Louisville. Meleesa's research interests include injury prevention screening programs for active populations and prevention of musculoskeletal injury in the military.

Deirdre McFate, MS, ATC

Deirdre is an Instructor and Research Associate at the University of Pittsburgh. She completed her Master's degree in Wellness and Human Performance within the Department of Sports Medicine and Nutrition at the University of Pittsburgh in December, 2011. Deirdre received her Bachelor of Science degree in Athletic Training from California University of Pennsylvania. Her research interests include injury prevention and performance optimization through nutrition and exercise in the athletic and military populations, and the effects of fatigue on performance and injury prevalence.

Andrew Simonson, MS

Andy is an Instructor and Research Associate at the University of Pittsburgh. Andy completed his Bachelor's in Exercise Science and Master's in Exercise Physiology at the University of Pittsburgh. His research interests include the prevention of musculoskeletal injuries and utilization of exercise training for improving physical performance in tactical military operators, and body composition in relation to optimal functional performance.

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