#### VOLUME 3, ISSUE 2 FALL 2011



### Dr. Lephart Gives Brief to NATO

Dr. Lephart traveled to Brussels in September to give a presentation to NATO officials regarding injury prevention and performance optimization research pertaining to a military population. He conveyed the importance and need for research efforts that focus on the reduction of avoidable musculoskeletal injuries, human performance, and tactical readiness in Special Operations Forces.



# UPITT WARRIOR HUMAN PERFORMANCE RESEARCH

#### Neuromuscular Research Laboratory University of Pittsburgh

Department of Sports Medicine and Nutrition School of Health and Rehabilitation Sciences



## Department of Defense Injury Prevention and Performance Optimization Research

Researchers at the University of Pittsburgh are expanding research activities aiming to study strategies to mitigate musculoskeletal injuries and optimize physical readiness of our most elite military personnel who are conducting danger-

ous missions in the global war on terror. Ongoing research since 2006 includes studying injury prevention and human performance with the US Department of Defense, including two research projects with Naval Special Warfare and the US

Army 101st Airborne Division (Air Assault). Additional research to begin this fall will include work with the US Army Special Operations Command, US Air Force Special Operations Command, and a third Naval Special Warfare study.

#### Continuation and Expansion of Naval Special Warfare Projects

Since 2007 the University of Pittsburgh has supported Naval Special Warfare's (NSW) Tactical Athlete Program by studying injury prevention and physical readiness in the Operators of NSW Group 2 in Little Creek, VA (page 2). Over the past year this effort was expanded to NSW Group 4, Special Boat Team-22, in Stennis, MS (page 2) to address culturalspecificity of the Special Warfare Combat-

the culturalspecificity of the Special Warfare Combatant-craft Crewman. This
research is focused on the
development and refinement of NSW's Tactical Athlete Program in collaboration with their human performance, medical, and
training personnel.

The University of Pittsburgh received a \$5.6M grant in FY2011 to continue its work with NSW Group 2 and Group 4, Special Boat Team -22. This award will also support expansion of research with SEAL Qualifica-

erators which can be utilized for training development as well as examining prospective biomechanical, musculoskeletal, and physiological risk factors for injury over the course of Operators' career.



tion Training (SQT) and Crewman Qualification Training (CQT) at the Naval Special Warfare Center at Coronado, CA (page 3). This new NSW initiative will include collection of baseline data on SEAL and SWCC Op-

Continuing and expanded research with NSW is supported by the Office of Naval Research Grant #N00141110929.

"The 101st Airborne Division (Air Assault) Injury Prevention and Performance Enhancement Research Initiative, administered by the University of Pittsburgh, continues to positively impact the physical readiness of our Soldiers... Soldiers across the Army deserve, now more than ever, the health benefits afforded by stat of

John F. Campbell, Major General, U.S. Army, Commanding

the art medical

research."

#### Naval Special Warfare Group 2

Little Creek, VA-

rent injury prevalence to Na- injury and performance. readiness. A total of 302 Op- ing. erators were enrolled in phas- will validate the effeces 1 and 2 of this research tiveness of the TAP proproject and underwent a com- gram to improve the prehensive human perfor- previously mance assessment for injury suboptimal characterisprevention and optimal physi-tics captured cal readiness to evaluate bio- phases 1 and 2 of re-

identified during

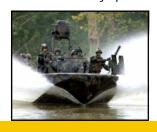
mechanical, musculoskeletal, search. Additional aims will This research was designed to physiological, and nutritional identify specific risk factors scientifically address the cur- characteristics relative to for unintentional musculoskeletal injuries and interval testval Special Warfare Group 2 The data were provided to ing/surveillance to assess long (NSWG2) Operators and iden- NSWG2's Tactical Athlete Pro- -term operational drain, reftify modifiable contributors to gram (TAP) personnel for erence following injury and injury and optimal physical modification to current train- effectiveness of TAP to im-Forthcoming research prove physical readiness. This

> work was supported by the Office of Naval Research, Grant #N00014071190/ N000140810412/ N000141110929.



#### Special Warfare Group 4—Special Boat Team 22

Stennis Space Center, MS-



the Special Warfare Combat-Modeled after our research ant-craft Crewmen (SWCC)with Naval Special Warfare an elite combat unit of Naval Group 2, this project will Special Warfare which speidentify injury risk factors cializes in the operation of that are culturally-specific to rapid mobility in shallow water. The Human Performance Research Laboratory at Spe-rollment of 150 Operators cial Boat Team 22 was in-through July 2012. stalled in December 2010. This work was supported by Phases 1 and 2 of the research the Office of Naval Research,



initiative are currently under- Grant #N000141010912/ way with an anticipated en- N000141110929.

#### 101st Airborne Division (Air Assault)

Fort Campbell, KY-

and tactical performance.

and magnitude of unintention- enrolled in Instructor Certifi- conclusions, and recommenal musculoskeletal injury; Phase 2- identified suboptimal exposed to ETAP). physical

research to support the 101st cal Athlete Program to modify characteristics to Airborne Division (Air Assault). suboptimal laboratory, perfor- ETAP. The objective of this research mance, and Soldier-specific This work was supported by musculoskeletal injuries and ongoing to implement ETAP and

physiological Additional research for 2012 dorsed by the US Army.

characteristics from 1000 test will identify risk factors for The University of Pittsburgh is sessions; Phase 3- designed unintentional musculoskeletal completing its fifth year of and validated the Eagle Tacti- injury and Aviator-specific

is to Mitigate unintentional tasks; and Phase 4- currently the US Army Medical Research Materiel optimize physical readiness into Division PT and to assess (Research grant USAMRMC/ injury mitigation in garrison TATRC #W81XWH-11-2-0020). Phase 1- identified the scope and theater (1315 Soldiers Opinions, interpretations, cation School, 26,300 Soldiers dations are those of the author and not necessarily en-

#### Naval Special Warfare Center (NSWC) - SQT/CQT

Coronado, CA-

(SQT)/Crewman Qualification injury in SEALS/SWCC prior to lished across Naval Special Training (CQT) is the final Group/Team assignment

represent the physical/physiological capabilities of Operators as they enter the Force. Little data exist to identify physical the and physiological base-

ness.

The overall objective of this — Assess tactical readiness research focus will:

phase of training to become a — Establish baseline data for being utilized for baseline SEAL/SWCC and the data cap- Force-wide interval testing to testing of Operators Laboratotured at this time point will assess career decrement and ry and tactical testing will be



line for SEALS/SWCC entering injury prevalence, reference Stennis, MS and establish risk the Force and impact on long-following injury, and effec-factors for SQT/CQT graduterm injury or physical readi-tiveness of TAP to improve ates. physical readiness

This aspect of the research Award #N00141110929. project will take advantage of

 Identify suboptimal characthe three University of Pitts-SEAL Qualification Training teristics and risk factors for burgh research centers estab-Warfare, with Coronado, CA

> performed on 300 SEAL/SWCC Operators upon completion of SQT/CQT to identify baseline data for integration into interval testing at Little Creek, VA and

This work is supported by ONR

"UPITT's research is in direct support of our NSW Tactical Athlete Program, which has been established to help prevent Operator injuries, maximize performance and combat readiness, and enhance career longevity and quality of life following service."

#### Personnel Spotlight: Coronado, CA



Scott Conger, PhD

Scott is an Assistant Professor in Sports Medicine and Nutrition working on the Naval Special Warfare Research Initiative. He received his PhD in Exercise Phys-

iology in 2011 and his Master's degree in Hu- grees in Clinical Dietetics and Nutrition at the man Performance and Sport Studies in 2001 University of Pittsburgh. Matt is a Registered from the University of Tennessee. He has held Dietitian and appointments as the laboratory manager of Coach Certified through the Collegiate Exercise laboratories at both the University of Strength and Conditioning Coaches Associa-Arkansas and the University of Michigan.



Ryan Wedge, MPT, BS

Ryan is a Research Associate working on the Naval Special Warfare Research Initiative. He completed his Bachelor of Science degree in Physical Therapy

South Portland, ME at Saco Bay Physical Thera- Sports Medicine Institute in Birmingham, AL. py.



Matthew Darnell, MS, RD, SCCC Matt is an Instructor in Sports Medicine and Nutrition working on the Naval Special Warfare Research Initiative. Matt completed his Bachelors and Masters de-

Strength and Conditioning tion.



Darcie Yount, MEd

Darcie is a Research Associate working on the Naval Special Warfare Initiative. She completed her Bachelor of Science degree in Kinesiology and her Mas-

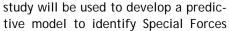
and his Master of Physical Therapy at Quinni- ter's degree in Biomechanics, both at Auburn pac University in Hamden, CT. He has previ- University in Auburn, AL. She also completed ously worked as a sports medicine clinician in a student research internship at the American CAPT Scott R. Jonson, MSC, USN, **Deputy Force Medical** Officer, **US Naval Special** Warfare Command

#### **United States Army Special Operations Command**

Fort Bragg, NC-

Modeled after our work with Naval

Special Warfare, the US Army Special Operations Command (USASOC) project will support development of USASOC's Tactical Human Optimization, Rapid Rehabilitation, and Reconditioning (THOR3) program to identify the priorities necessary for improvement and change in the current physical training program. The data from this



Soldiers who are predisposed to musculoskeletal injury based on task and demand analyses, biomechanical, musculoskeletal, physiological, and injury prevalence data. The Human Performance Research Laboratory at Fort Bragg is scheduled for installation in January 2012.

This work was supported by the US Army Medical Research and Materiel 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.

#### Collaboration with the Defense Advanced Research Projects Agency

The Defense Advanced Research Projects Agency (DARPA) has a mission to pursue and exploit fundamental science and innovation for National Defense. The NMRL will assist DARPA in the development and direction of research related to injury prevention. The NMRL has received a grant from DARPA to work on the development and direction of research related to the Warrior Web and its application for injury preven-

tion in the military. The primary investigator for this project is faculty member Timothy C. Sell, PhD, PT.

This work is supported by DARPA, Grant # W15P7T-12-1-0001

Opinions, interpretations, conclusions, and recommendations are those of the author and not necessarily endorsed by DARPA.





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