USAMRMC Research Supports Performance Triad's Goals

USAMRMC Public Affairs Crystal Maynard 24 September 2015

For years, moms have been saying -- "Go to sleep, you need your rest. Eat your vegetables to be healthy and strong. Get off the couch and go play outside!"

The Army is backing that advice with the Performance Triad, which promotes a healthy and fit force. The Performance Triad is a comprehensive plan to improve Soldier readiness and increase resilience through public health initiatives and leadership engagement.

The U.S. Army Medical Research and Materiel Command's Military Operational Medicine Research Program's research portfolios support the Performance Triad's goal of maximizing warrior health, performance and fitness by developing evidence-based guidelines that can be incorporated into Performance Triad education and training materials.

"MOMRP's physiological health and injury prevention research portfolios help the Army protect, sustain and optimize the Soldier by providing scientifically validated ways that the Army can enhance and refine how Soldiers are training, what they are eating and how they are managing sleep and fatigue," said MOMRP Director Lt. Col. Dennis McGurk. "Everything we do supports the well-being and performance of the Soldier and aims to prevent injuries resulting from operational stressors."

Physical fitness, activity and injury prevention are crucial to ensuring U.S. Soldiers perform physically as elite athletes. Practicing principles of safe and effective training are vital to maintaining physical readiness, preventing injuries and improving general health. MOMRP researchers are reviewing the order and intensity of physical training exercises to discern if more injuries occur in a certain order or level of exertion and what recommendations can be made to mitigate the risk of injuries.

Musculoskeletal injuries -- sprains, strains, dislocations and fractures -- are a concern for the Army. A high percentage of active-duty Soldiers are on some form of prescription nonsteroidal anti-inflammatory medication to control musculoskeletal stress and strain. Additionally, during basic training, 30 percent of males and 60 percent of females require medical attention due to musculoskeletal issues.

"We are looking at practical and safe countermeasures that can be implemented in doctrine and policy for Soldiers to improve physical performance, prevent deterioration of muscle function and bone integrity during injury and training, as well as reduce susceptibility to injury," said Valerie Trabosh, Ph.D., MOMRP

Physiological Health Program Area Manager. "This could be through changing how or when training is performed or designing individualized training platforms that are optimized based on personal attributes of an individual Soldier." Even though sleep is a critical piece in achieving optimal physical, mental and emotional health, the demands of training, work and operations often make it difficult to get good, quality sleep. Poor or inadequate sleep leads to poor performance and impairs many abilities that are essential to the mission.

Current and foreseeable military operations are characterized by limited sleep opportunities, often coupled with nighttime missions. Insufficient sleep and working through the night impair mental acuity. However, these impairments cannot be objectively factored into operational decisions unless they are quantified, and this is where the MOMRP's research is key. Providing leaders with actionable information regarding current and future Soldier cognitive performance allows for more informed decision making.

"The MOMRP is developing a smartphone-based app that allows quantification of individual mental acuity based on prior sleep patterns as well as anticipated sleep and caffeine usage," said Trabosh. "This will help Soldiers and leaders decide how to most effectively prepare for a mission, but it can be used at any time by the Soldier to enhance their overall health through optimized sleep timing."

The Performance Triad is centered on Soldiers making informed choices to achieve overall fitness. Improving dietary intake is an essential step toward improving health and performance, and reducing rates of obesity and risk of chronic disease. In addition to obesity, adequate nutritional intake is a concern in military personnel during their preparation for a mission.

In order to maintain a healthy body weight and consume an adequate amount of nutrients, dietary guidelines advise consuming a diet of lean proteins, fruits, vegetables, whole grains and low-fat dairy products. However, the 2008 Department of Defense Survey of Health-Related Behaviors indicated that less than 20 percent of military personnel consumed these five key foods groups at least three times daily.

The MOMRP is looking into a variety of strategies that may positively impact the decisions that are made in military dining facilities and strategies for military dining facilities to promote healthy choices through food arrangement and education materials. "We are currently managing research to see if using omega-3 enriched eggs and meats as a replacement for non-enriched products and has cost and health benefits that would improve Warfighters' nutritional status, especially their fatty acid status," said Trabosh. "This potentially cost effective change in military dining facilities would help to ensure Warfighters are getting the nutrients needed to help fight inflammation, but doesn't require them to take a cumbersome regimen of dietary supplements."

Some of the research that the MOMRP oversees provides validated scientific findings that confirm what is recognized anecdotally to be true such as how Soldiers should load up on healthy foods in the dining line before grabbing the sweet stuff. Through this research and advanced development of knowledge and materiel products, the MOMRP is working to support the wellbeing of the most integral part of the Army -- the Soldier.

"The MOMRP and the Performance Triad have the same end goal," said McGurk. "Guaranteeing that Army leaders and Soldiers have the information they need to make decisions for optimal health and performance."