



U.S. ARMY
RDECOM

Interaction between Cognitive and Physical Fatigue

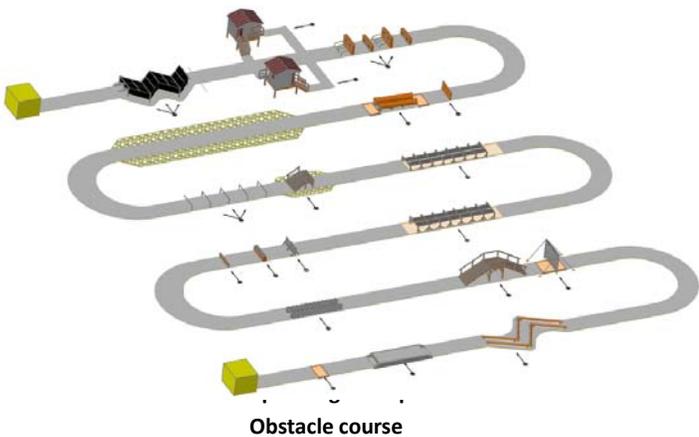


S&T Campaign: Human Sciences *Human Behavior*

James Head, (410) 278-8574
james.r.head27.ctr@mail.mil

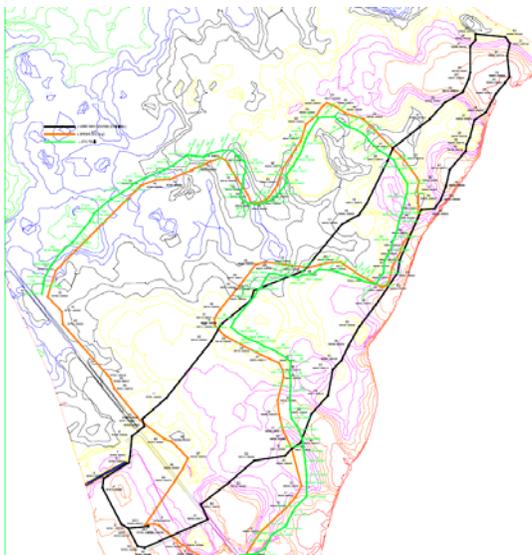
Research Objective

- Investigate the interaction between cognitive and physical fatigue
- Understand the role of response inhibition in marksmanship performance
- Quantify physical and cognitive fatigue



Challenges

- Objectively quantifying physical and cognitive fatigue
- Understanding how cognitive fatigue influences physical fatigue
- Operationally relevant stimuli
- Availability of Soldiers as study participants



Cross country course

ARL Facilities and Capabilities Available to Support Collaborative Research

- Soldier Performance and Equipment Advanced Research (SPEAR) at APG, MD
 - Instrumented treadmill
 - Motion capture
- M-range (shooting range) at APG, MD
 - Computer-driven targets
 - Accuracy and response time
- Command, Control, Communications, Intelligence, Surveillance, and Reconnaissance Lab (C4ISR) at APG, MD
 - 8 whisper rooms
 - Networked
- Obstacle course at APG, MD
 - Time gate measures
 - Operational relevant tasks
- Networked Cross country course at APG, MD
 - Wifi enabled
 - Pop up targets
- ARL expertise
 - Physiological performance
 - Human Factors
 - Biomechanical measures
 - Shooting performance
 - Vigilance and response inhibition

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Subject matter (military) experts
- Innovated physiological techniques for objectively measuring workload
- Advanced statistical analysis (e.g., mixed modeling)
- Suggestions for innovative new research approaches to address stated research objectives



M-range