



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Blast Exposure Research

Employing Environmental Sensors in Military Training for Measurement of Blast Overpressure

The Environmental Sensors in Training (ESiT) program is a US Army Training and Doctrine Command initiative that builds upon Army policy in 2007 for Service Member helmets to employ electronic sensor technologies to sense and record potentially concussive events in deployment environments, and upon Army policy in 2013 that provided guidance for management of potentially concussive events in garrison environments (Headquarters, Department of the Army Executive Order 165-13). ESiT is a holistic review of sensors for blast exposure and for blunt impact to the head. The purpose of ESiT is to inform the technical requirements for environmental sensors and the methodology for employment of those sensors in select training events. USAMRMC is administering the current ESiT effort, leveraging other programs and projects in related domains, particularly the Science & Technology Objective, "Brain in Combat," which demonstrates technologies to facilitate treatment, return to duty, and evacuation decisions for TBI. The effort under these conjugate programs provides opportunity for surveillance measurements of blast exposures in military training, as well as input to ongoing research on the association between blast exposures and neurophysiological effects. A report on ESiT pilot studies has been released via the Defense Technical Information Center and additional reporting from human subjects studies will be submitted in calendar year 2016 for peer-reviewed publication. Unlike training events that have the potential for blunt impact to the head and diagnosed concussion, training events with acute blast exposure are not known to result in concussion or other medical diagnosis. However, recent evidence suggests that cumulative blast exposure may be associated with negative neurophysiological outcomes. The ESiT program affords the DoD capability to evaluate and mitigate risk from chronic exposure to blast.