



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Mechanisms of Injury

Evaluating Brain Function in Warriors with Blast-related TBI

In a study sponsored by the DoD's CDMRP and CNRM, researchers at the Center for the Study of Traumatic Stress at USUHS conducted a longitudinal study using state-of-the-art measurements of brain structure and function to evaluate the effects of blast-related mTBI in Service Members at WRNMMC and Fort Belvoir Community Hospital. Event-related potentials (ERPs), measures of brain function with high temporal resolution, were obtained in Service Members ($n = 137$) at baseline and after blast injury. As assessed by ERP measurements, Service Members with mTBI had significant delays in the speed of auditory and visual processing. An unexpected finding was that blast-injured Service Members who screened negative for TBI showed similar processing delays as those diagnosed with TBI. These findings suggest that exposure to blast may lead to altered cerebral function not detected with current clinical assessment methods. Additional studies are needed to determine the implications of these findings on the diagnosis, treatment, and rehabilitation of injured Service Members.