



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Mechanisms of Injury

Blast-induced TBI Causes Specific Changes in Brain Circuitry that May Be Associated with PTSD

NICoE sponsored and conducted research to assess neurocircuitry with diffusion tensor imaging (DTI) in patients with blast-induced TBI. The most prominent injuries visualized by DTI in blast-injured brains occurred in fiber tracts of the frontal cortex. Specifically, neuroanatomical damage occurred in tracts connecting regions of the brain implicated in PTSD and other psychological health conditions. Depending on the orientation of the tracts within the brain, the tracts responded differently to either blast or non-blast TBI. These results suggest that PTSD and blast injury-induced alterations may have overlapping neurocircuitry mechanisms.