



PTSD confounds detection of compromised cerebral white matter integrity in military Veterans reporting a history of mild traumatic brain injury

Purpose

This study tested the hypothesis that the presence of PTSD disrupts the association between mTBI and lower white matter integrity previously identified in non-military samples.

Participants

124 recent Veterans with a range of mTBI and PTSD history

How was the study conducted?

Diffusion tensor imaging (DTI) metrics of white matter integrity in 20 regions were compared using multiple mTBI and PTSD contrasts.

Findings

Civilian mTBI was associated with lower global anisotropy, higher global diffusivity and higher diffusivity in 17 of 20 regions. No main effects of deployment mTBI were observed, but an interaction between deployment mTBI and lifetime PTSD on FA was observed globally and in 10 regions. Impact and blast mTBI demonstrated similar but weaker effects to those of civilian and deployment mTBI, respectively, demonstrating the context of mTBI is more relevant to white matter integrity than mechanism of injury.

Military Impact

A main effect of civilian mTBI indicates long-term disruptions to white matter are likely present, while the interaction between deployment mTBI and PTSD indicates that a history of PTSD alters this relationship.

Davenport ND, Lamberty GJ, Nelson NW, Lim KO, Armstrong MT, Sponheim SR. PTSD confounds detection of compromised cerebral white matter integrity in military veterans reporting a history of mild traumatic brain injury. Brain injury. 2016 Oct 14;30(12):1491-500.