



Characterizing effects of mild traumatic brain injury and posttraumatic stress disorder on balance impairments in blast-exposed servicemembers and Veterans using computerized posturography

Purpose

To examine the use of computerized posturography (CPT) to objectively describe balance problems following mTBI and to explore the feasibility of using CPT to distinguish between blast-exposed combat participants with and without mTBI and PTSD.

Participants

One hundred and sixty-six combat exposed, mostly male, service members and Veterans (mean age=27.5) with blast exposure within the past two years while deployed. Exclusion criteria included moderate and severe TBI. Thirty-three had mTBI, 47 had mTBI and 86 had TBI with post traumatic amnesia (PTA), while 46 had PTSD.

How was the study conducted?

Recruited participants underwent a standardized interview technique allowing for separation into four diagnostic groups. All participants then underwent CPT on the Neurocom Smart Balance Master.

Findings

Of the 166 participants, 33 had no TBI, 47 has TBI without PTA, 86 had TBI with PTA and 46 were diagnosed with PTSD. Four subgroups were created: 1) no PTSD/TBI 2) TBI with TBA but no PTSD 3) PTSD but no TBI and 4) both PTSD/TBI. Balance was impaired in those with mTBI with PTA and in those with PTSD versus those with neither condition. Deficits were amplified for those with both conditions.

Military Impact

CPT offers an intriguing opportunity to investigate physiologic effect and objective differences between those with combat-associated mTBI and PTSD. Accurate differentiation would lead to more rapid administrations of proper treatments.

Wares J.R., Hoke K.W., Walker W., Franke L.M., Cifu D.X., Carne W., Ford-Smith C. Characterizing effects of mild traumatic brain injury and posttraumatic stress disorder on balance impairments in blast-exposed servicemembers and Veterans using computerized posturography. Journal of Rehabilitation research and Development. 2015 ; 52(5): 591-603. PubMed: 26437003
<https://cenc.rti.org/portals/0/cenccontent/presentations/docs/jrrd-2014-08-0197.pdf>