



## **Longitudinal evaluation of ventricular volume changes associated with mild traumatic brain injury in military service members**

### **Purpose**

To examine the difference in longitudinal trajectory of ventricle-brain ratio, a measure of brain atrophy, between Veterans with and without a history of mTBI.

### **Participants**

Researchers used military Veteran cohorts, consisting of Veterans previously deployed as part of Operation Enduring Freedom/Operation Iraqi Freedom. From these cohorts, 104 participants with complete longitudinal data were evaluated; 70 with mTBI and 34 with no mTBI history.

### **How was the study conducted?**

Demographic and deployment information was collected. Self-report measures, neuropsychological assessment were performed. Potential mTBI events were assessed using the Minnesota Blast Exposure Screening Tool and the level of post-concussive symptomatology was quantified. MRI imaging was collected to calculate ventricle-brain ratio at baseline and follow-up. Unadjusted differences in between the mTBI and no mTBI groups at each study visit were tested via the Student's T-Test (Total brain volume) and Wilcoxon Test (Ventricle-brain ratio and Total ventricular volume).

### **Findings**

Veterans with history of mTBI had larger brain volume, but no interaction between mTBI and age was observed from brain volume, ventricular volume, or ventricle-brain ratio.

### **Military Impact**

Veterans and service members with mTBIs may have larger brain volumes, but this study did not find evidence that a history of mTBI is associated with a change in Ventricle-brain ratio trajectory.

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