



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Neurobehavioral and Psychological Health Outcomes Chronic Effects of Neurotrauma Consortium (CENC)

CENC is a dedicated joint Department of Defense (DoD) and Department of Veteran Affairs (VA) effort addressing the long-term consequences of mild traumatic brain injury (mTBI) in Service Members and Veterans. It is conducted in response to the Presidential Executive Order 13625 and aligned to the National Research Action Plan (NRAP) for Improving Access to Mental Health Services for Veterans, Service Members, and Families. The CENC Coordinating Center is located at Virginia Commonwealth University (VCU) and executes 10 studies and five integrated research cores across more than 30 participating institutions (<https://cenc.rti.org>). The majority of studies are focused on human subjects recruited from Veteran, active duty Service Member, Reserve, and National Guard populations. CENC studies examine chronic TBI and co-morbidities associated with mTBI; sensory deficits (visual, auditory, vestibular), movement disorders, pain (including headache), cognitive, and neuroendocrine deficits. All studies include data from populations with blast exposure. For instance, in a recent study accepted for publication in *Brain Injury*, case reports were collected on four Veterans at the James A. Quillen VA who were reporting chronic dizziness and postural instability following blast exposures.¹ Analysis of neuroimaging data collected on these Veterans demonstrated diffuse axonal injuries and micro-hemorrhages or vascular anomalies as measured using diffusion tensor imaging (DTI) and susceptibility weighted imaging respectively. The association between neuroimaging biomarkers and long-term outcomes will be further investigated in a recently initiated CENC-supported study at the WG Hefner VA that will examine microstructural features in post-deployment Veterans with blast exposure histories to better understand the relationship between neuroimaging findings and chronic cognitive and psychological outcomes.

¹ Gattu, R., Akin, F. W., Cacace, A. T., Hall, C. D., Murnane, O. D., & Haacke, E. M. (2016). Vestibular, balance, microvascular and white matter neuroimaging characteristics of blast injuries and mild traumatic brain injury: Four case reports. *Brain Injury*, 30(12), 1501–1514. <https://doi.org/10.1080/02699052.2016.1219056>

