

# Putting Research to Work for Military Families



**Focus:**  
Multiple  
Branches

## Symptoms in Military Service Members After Blast mTBI With and Without Associated Injuries

Kennedy, J. E., Cullen, M. A., Amador, R. R., Huey, J. C., & Leal, R. O. (2010). Symptoms in military service members after blast mTBI with and without associated injuries. *NeuroRehabilitation*, 26, 191-197. doi:10.3233/NRE-2010-0555

**SUMMARY:** Data from U.S. Military Service members who received mild traumatic brain injury (mTBI) due to explosive/blast munitions while deployed in Iraq assessed their current symptoms through surveys. This study explored the effects of both a physical wound and mTBI on stress-related emotional and somatic symptoms. Findings indicate that participants with mTBI but no bodily injury reported more physical, cognitive, affective, and sensory post-concussive symptoms and experienced more posttraumatic stress disorder (PTSD) symptoms.

### KEY FINDINGS:

- Symptoms of PTSD (re-experiencing, avoidance, and hyper-arousal) were significantly higher among participants with mTBI but without bodily injury compared to those with mTBI and at least one additional associated injury.
- Post-concussive symptoms (affective, cognitive, somatic, and sensory) were significantly higher among participants with mTBI and no bodily injury compared to those with mTBI and at least one additional associated injury.
- Participants with more severe bodily injuries experienced fewer post-concussive symptoms and less severe PTSD symptoms.

### IMPLICATIONS FOR PROGRAMS:

Programs could:

- Offer workshops during reintegration to help families and Service members adjust to the Service member's return, especially when the deployment has included combat exposure
- Provide outreach or additional screening for Service members who have elevated levels of PTSD symptoms and mTBI in the absence of bodily injury
- Enhance education, activities, and curriculum related to coping behaviors and dealing with anxiety symptoms

### IMPLICATIONS FOR POLICIES:

Policies could:

- Continue to support resources for screening and the provision of acute treatment for soldiers with mTBI regardless of whether or not other associated injuries exist
- Consider implementing additional programs to inform Service members, families, clinicians, and medical staff about PTSD and its symptoms
- Recommend partnerships among military-based and community-based programs to help military families feel more comfortable accessing services that are not on installations

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## METHODS

- Veterans were interviewed at Brooke Army Medical Center, Fort Sam Houston, Texas and Wilford Hall Medical Center and at Lackland Air Force Base from January 2007-April 2009.
- The severity of injuries throughout the body were calculated with the Abbreviated Injury Scale (AIS), post-concussive symptoms were measured with the Neurobehavioral Symptom Inventory (NSI), and PTSD was measured with the PTSD Checklist-Civilian version (PCL-C).
- Symptoms on these measures were compared for participants with only mTBIs (Group 1) and those with mTBIs and at least one associated injury (Group 2). Researchers included age as a control variable in the analysis because Group 1 was significantly older than Group 2.

## PARTICIPANTS

- Participants included 274 U.S. Military Service members who received mTBIs due to explosive/blast munitions while deployed to a combat theater in Iraq and returned to the U.S. because of their injuries and/or subsequent symptoms.
- All participants were male and were 18 to 50 years old (average age = 26.9).
- Most participants identified as Army (88%), Marines (3%), Air Force (1%), and 8% Reserves/Guard.

## LIMITATIONS

- The study sample was comprised of male Active Duty servicemen, mostly Army Soldiers. Results may not generalize to women, Service members in other branches of the military, or non-military populations.
- Findings may be specific only to Service members who sustained explosive/blast related injuries and were unable to return to combat.
- The version of the PTSD scale used in the study was developed for civilians and there are limited data on how well this measure assessed PTSD in a Veteran sample.

## AVENUES FOR FUTURE RESEARCH

Future research could:

- Replicate the study with other populations, including other branches of the military and those with injuries that do not preclude returning to combat
- Conduct a longitudinal study designed to follow Service members throughout their treatment may provide a more clear explanation for the pattern of results seen in the present study
- Examine mTBIs that were a result of more diverse mechanisms of injury, such as physical abuse

## ASSESSING RESEARCH THAT WORKS



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