



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Sundry Treatments for Blast-related Injuries

Influence of Post-Concussion Sleep Duration on Concussion Recovery

Studies have shown that sleep disturbances can negatively affect neurocognitive and physical performances, which are also affected in concussed individuals (*Broglia et al. 2014, Harmon et al. 2013, Lund et al. 2010, McCrory et al. 2017, Strine and Chapman 2005, Taylor and McFatter 2003*). Recent results suggest that many concussed athletes report short and long-term sleep disturbances, raising the question of how altered sleep duration may impact performance on concussion assessments, symptom severity, and recovery (*Duclos et al. 2014, Gosselin et al. 2009, Parcell et al. 2006, Sufrinko et al. 2015, Tham, Fales, and Palermo 2015*). Researchers at the University of Georgia (Athens, Georgia), as a part of the Concussion Assessment, Research, and Education (CARE) Consortium, have conducted a study to examine whether sleep duration after concussion influences symptoms, balance, and neurocognitive performance during the course of recovery (*Hoffman et al. 2017*). Study participants were drawn from college athletes from the CARE Consortium sites who completed a multidimensional concussion assessment battery at baseline, within 24-48 hours of injury, once asymptomatic, and after return-to-play. As a part of the assessment battery, they completed the Sports Concussion Assessment Tool 3, the Standardized Assessment of Concussion, the Balance Error Scoring System, and the Immediate Post-Concussion Assessment and Cognitive Testing. The concussed participants were placed into three groups based on whether they experienced shorter sleep duration, no sleep change, or longer sleep duration following concussion throughout concussion recovery. The time to recovery did not differ between groups; however, symptom severity was significantly greater in the shorter sleep group compared to the other groups at 24-48 hours and 2-4 days post-injury. Similarly, reaction times were slower in the shorter sleep group during this same period. Interestingly, most concussed participants studied fell into the longer sleep group, not the shorter sleep group. These data suggest that concussed individuals should be screened for sleep disturbances following injury, and short-term sleep interventions may be helpful during recovery for a subset of concussed individuals.

The results from this study could impact guidelines for clinical treatment of Service members with concussion during recovery.

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