



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Injury Risk Assessment and Criteria Development

CARE Consortium: Providing Evidence Against Hiding mTBI symptoms

The National Collegiate Athletic Association (NCAA)-Department of Defense (DoD) Grand Alliance: Concussion Assessment, Research, and Education (CARE) Consortium aims to better understand the development of injury and trajectory of recovery from concussion. The CARE Consortium has consented over 37,000 student athletes and service academy cadets at 30 sites. The Consortium has two study arms, the first being a clinical study focused on examining the natural history of concussion with a multisite, longitudinal investigation of concussive and repetitive head impacts. The second arm builds upon the first arm, with a clinical study allowing for more advanced research projects, such as testing impact sensor technologies, studying potential biomarkers, and evaluating concussion with advanced neuroimaging.

One of the high-impact findings from FY18 demonstrated that an immediate reduction of activity following concussion lead to faster recovery (*Asken et al., 2018*). From a dataset of 506 college athletes with diagnosed sport-related concussions, individuals were classified as immediate removal from activity (I-RFA) or delayed removal from activity (D-RFA). The I-RFA group included those who, according to the postinjury clinical reporting form, immediately reported their injury and were then immediately removed from play. The D-RFA group included those who did not immediately report their injury and/or were not immediately removed from play. Those in the I-RFA group lost significantly fewer days of activity because of sport-related concussion than those in the D-RFA group—approximately three fewer days. Those in the I-RFA group were also significantly less likely than those in the D-RFA group to have a recovery period lasting longer than 14 days, and their self-reported symptoms were less severe.

Other highlights from the CARE Consortium in 2018 include: significantly higher mean diffusivity in white matter tracts of concussed American football players than in the non-concussed, with axial diffusivity significantly correlating with acute symptomology (*Mustafi et al., 2018*); a lack of correlation between head impact biomechanics and symptomology (*Rowson et al., 2018*); and an intensifying effect of a history of anxiety, depression, or anxiety with depression on the number and severity of reported concussion symptoms (*Weber et al., 2018*).

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