Issue One: March 2022

NCAA•DOD Grand Alliance CARE Consortium

The CARE Consortium Newsletter

Thank you for participating in the CARE Consortium

As a student-athlete or military service academy cadet/midshipman, you played a vitally important role in the CARE Consortium research study – the largest of its kind to examine the short- and long-term effects of concussion.

Over the coming months/years, you may receive an email, text message or telephone call from our research team inviting you to participate in the next phase of the study, the CARE- SALTOS Integrated (CSI) Study.
We would greatly appreciate your help in this continued effort!

INSIDE THIS ISSUE

CARE-SALTOS Integrated (CSI) Study launches in 2022

Last fall, the CARE Consortium was selected as the recipient of a $25M award from the Medical Technology Enterprise Consortium (MTEC) to be used in combination with a $10M award from the NCAA and $7.65M from the Defense Health Agency. The new award will support research to follow up with former civilian and military participants from the initial CARE Consortium Study. This new five-year project, entitled the CARE-SALTOS Integrated (CSI) Study, involves both fully remote (online or telephone) study questionnaires, as well as comprehensive in-person visits for a select subset of eligible participants.

In 2022, you may receive an email, text message or telephone call from our research team inviting you to participate in the CSI Study. All former CARE study participants who have graduated or departed their undergraduate institutions are eligible to participate in remote, online surveys as part of the CSI Study. In addition, a subset of individuals will be selected to participate in the comprehensive, in-person segment of the study and if you're eligible, you may be contacted by a research team member from Indiana University (IU), Medical College of Wisconsin (MCW), or military treatment facilities at Walter Reed, Ft. Bragg, Ft. Hood or Joint Base Lewis-McChord (JBLM).

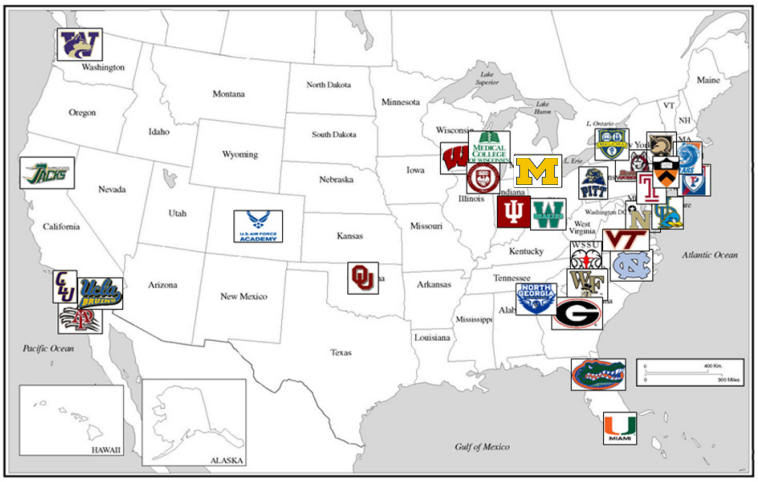
All other eligible participants for the remote portion of CSI may be contacted by email, text, or by a University of Michigan survey research operations (SRO) specialist, inviting you to complete the study questionnaires either online or over the telephone. If you choose to complete the study online, you will be able to access the secure CSI study portal 24/7 at your convenience. The study portal is compatible with all major electronic devices including desktop and laptop computers, tablets and smartphones.

Over the course of the next 5 years, we would like to send you two questionnaires. You could complete them either online or over the phone, whichever is easier for you. The two study questionnaires are in addition to the one-day comprehensive in-person evaluation conducted at one of our dedicated research sites [IU, MCW, Walter Reed, Ft. Bragg, Ft. Hood or JBLM].

You will be compensated for your time if you complete any of the study assessments (questionnaires or in person). Whether you participate online, over the telephone, or in person, all your information will be kept strictly confidential as outlined in the study consent.

Consortium Goals and Key Findings

Established in 2014, the U.S. Department of Defense (DoD) and the National Collegiate Athletic Association (NCAA) funded the Concussion Assessment, Research and Education (CARE) Consortium to inform science, clinical care and public policy related to concussion and repetitive head impact in U.S. Military Service Academy (MSA) cadets and collegiate student-athletes. To date, CARE has enrolled >50,000 MSA cadets/midshipmen and NCAA student-athletes from 30 participating collegiate institutions, representing 26 NCAA sports, military training, and other activities. In addition, the CARE study has captured data on over 5,000 concussed cadets/midshipmen and student-athletes making it the largest concussion database of its kind.



From the outset, this public-private study was designed to answer key knowledge gaps around clinical and neurobiological recovery, brain structure and function, and factors predicting outcomes in MSA members and NCAA student-athletes.

- The initial phase of CARE ("CARE 1.0", 2014-2018) focused on the short-term outcomes (i.e. six-months) following concussion.
- The second phase of the study ("CARE 2.0", 2018-2021) investigated the effects of sport, military training, and concussion over the course of a collegiate career and outcomes up to five years after graduation

The CARE data collected to date represents the most diverse concussion data of its type ever collected and allows for analysis of groups often neglected in the medical literature. The CARE data set is diverse in terms of race (36% non-white), gender (40% female), and levels of head impact exposure from participants in contact sports, limited-contact sports, non-contact sports, and military service academy members.

Key Findings Thus Far

- **Early recognition of concussion and removal from continued exposure leads to faster recovery and return to play.**
- **Even for highly fit and motivated athletes, recovery after concussion takes longer than what was traditionally thought, and merits close attention by athletes, coaches, medical providers and military leaders.**
- **After concussion, a gradual return to exercise under appropriate medical supervision can be initiated safely and effectively even if some symptoms remain.**
- **Female and male athletes in the same sport demonstrate similar recovery times.**
- **Data collected from football athletes were used to change the NCAA preseason practice rules to reduce concussion risk.**
- **Specific research on female athletes showed similar recovery times as their male counterparts, suggesting their concussions are being managed the same.**
- **Several papers have looked at the tools used to evaluate concussion, optimizing the assessment process for speed and accuracy.**
- **Blood samples collected from concussed and control athletes identified biomarkers that may one day be used for sideline/clinic diagnosis of concussion.**

Recent Publications

Leveraging the extensive infrastructure and experienced research teams from 30 participating civilian universities and military service academies, the CARE Consortium has published **over 80 scientific papers** that are critical to advancing the science behind concussion and head impact exposure effects on brain health. Many of these have been used by civilian and military organizations to inform policies aimed at improving athlete and military service member health and safety.

- The CARE Consortium is the largest concussion and head impact exposure study ever conducted. The study design and overall goals carried out by the 30 schools and participants are described by Broglio and others (2017).

- Previously, the frequency and implications of delayed reporting of concussion symptoms was not known. CARE data suggests that two-thirds of individuals delay concussion symptom reporting and this delay is associated with up to a three day delay in return to play (Asken et al. 2018).

- Previously, the normal return to activity time following concussion was considered to take approximately two weeks. CARE data suggests that the "normal" return to play time for the majority (85%) of athletes extends to up to 28 days (Broglio et al., 2021).

- Previously, there was limited data on how sport-related concussion affects elevation in blood protein biomarkers. CARE data suggests that acute concussion is associated with increased levels of select biomarkers (GFAP and UCHL-1), with some evidence of a "dose-response" relationship, where greater biomarker elevations are observed in more severe grades of concussion (McCrea et al. 2020).

- Previously, the impact of modern concussion management practices on athlete safety was not known. CARE data suggests that widespread implementation of modern concussion management practices (symptom free waiting period/graded exertion protocol), are associated with reduced risk of repeat concussion (McCrea et al. 2019).

- Additional links to publications by the CARE Consortium investigator teams can be found on the CARE website: www.CAREConsortium.net

Thank You!

We want to extend our deepest appreciation to you and all your teammates and classmates who volunteered to participate in the CARE Consortium studies. We are grateful for your time and effort, and hope that these occasional newsletters will help to highlight how your contribution is advancing our knowledge of concussion and improving treatment and clinical care for student athletes and cadets. Thank you!

Contact and Resources

For more information on the study, please visit our website: www.CAREConsortium.net

If you have study specific questions, you may email us at carealumni@umich.edu and we will respond to you within 48 hours.

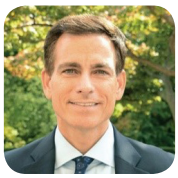
Meet the Investigators

The success of the CARE Consortium has been the result of hard work from over 300 full and part-time researchers since 2014. The vision and overall leadership come from the four primary investigators.

Thomas W. McAllister, M.D., is the Albert Eugene Sterne Professor Psychiatry at Indiana University School of Medicine. He was previously Millennium Professor of Psychiatry and Neurology, Director of the Section of Neuropsychiatry, and Vice Chair for Neuroscience Research for the Department of Psychiatry at Dartmouth Medical School. Dr. McAllister is the past president of the American NeuroPsychiatric Association. He received his undergraduate degree from Dartmouth College and his medical degree from Dartmouth Medical School. He has written widely on TBI and has been the principal investigator on numerous grants from NIH, CDC, and DoD.

Michael McCrea, PhD, ABPP is the Shekar N., Kurpad, MD, PhD Professor and Chair of Neurosurgery and Co-Director of the Center for Neurotrauma Research at the Medical College of Wisconsin (MCW), and a research neuro-psychologist at the Clement Zablocki VA Medical Center in Milwaukee, Wisconsin. He is ABCN board-certified in clinical neuropsychology and is the past President of the American Academy of Clinical Neuropsychology and Society of Clinical Neuropsychology (SCN). He serves on the National Academies of Science, Engineering and Medicine Committee on Accelerating Progress in Traumatic Brain Injury Research and Care.

Steven Broglio, PhD is Associate Dean for Graduate Affairs, a Professor of Athletic Training, and Professor of Neurology and Physical Medicine and Rehabilitation at the University of Michigan. Dr. Broglio is the Director of the Michigan Concussion Center and the NeuroTrauma Research Laboratory, where he oversees clinical care, educational outreach, and multi-disciplinary research. Dr. Broglio was awarded the Early Career Investigator Award by the International Brain Injury Association, the Early Career Award by the National Athletic Trainers' Association, and Fellowship in the American College of Sports Medicine and National Athletic Trainers' Association.



Colonel (Ret.) Paul. F. Pasquina, M.D. is the Professor and Chair of the Department of Rehabilitation Medicine and Director of the Center for Rehabilitation Sciences Research (CRSR) at the Uniformed Services University of the Health Sciences (USUHS). He is also Chief of the Department of Rehabilitation at Walter Reed National Military Medical Center (WRNMMC). He is a graduate of the United States Military Academy at West Point and USUHS, completed his residency at Walter Reed Army Medical Center and completed a fellowship in primary care sports medicine at Georgetown/USUHS. He is board certified in PM&R, Electrodiagnostic, and Pain Medicine.