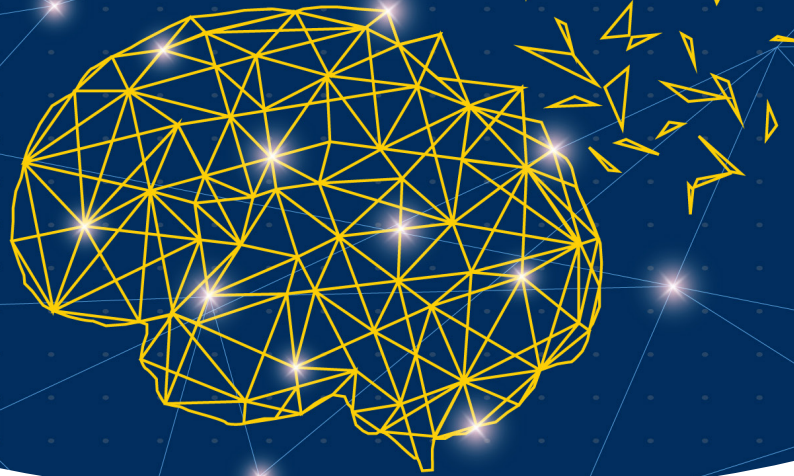




# CONCUSSION CENTER

UNIVERSITY OF MICHIGAN

## RESEARCH CORE



Despite all that has been learned about concussion in recent decades, concussion research still remains in its infancy because each question answered leads to new questions not previously considered.

A wide range of University of Michigan researchers are working to tackle critical questions at the forefront of concussion research, from the level of neurons and molecules to the level of patients and populations.

The Michigan Concussion Center Research Core seeks to expand concussion knowledge by bringing together University of Michigan researchers from labs and clinics across the university's campuses, schools, and departments to perform cutting-edge, collaborative concussion research.

We partner closely with the Michigan Concussion Center's Outreach & Engagement Core to disseminate new concussion knowledge to the community, and we partner with the Clinical Core to translate knowledge gained to improve patient health.



**#1**

public research university  
(National Science Foundation)



**\$1.55 billion**

in annual university  
research expenditures



**45,000**

participants in the  
Concussion, Assessment,  
Research, and Education  
(CARE) Consortium Study

For more information about the Michigan Concussion Center, visit [concussion.umich.edu](https://concussion.umich.edu).

# Michigan Concussion Center **Research Core Highlights**



*Dr. Arruda (College of Engineering) with a multilayered helmet system*

As the old saying goes, “an ounce of prevention is worth a pound of cure.” University of Michigan researchers are actively engaged in research aimed at preventing concussions in at-risk athletes. Research in the School of Engineering is developing a novel helmet system that dissipates the energy involved in a hit to the head better than existing helmet designs by using combinations of materials with different properties to tune and decrease the impulse. Research in the School of Medicine is being conducted to determine the effect of neck strengthening exercise on an athlete’s concussion risk in order to optimize exercise programs for concussion risk reduction.

The approach medical providers take to treat a concussion has evolved rapidly in recent years as new knowledge has surfaced. In response to research conducted at Michigan Medicine and other institutions, the “rest is best” approach to concussion management is gradually being replaced with a more active rehabilitation strategy utilizing supervised exercise to guide post-concussion activity recommendations. Other research being conducted in the School of Medicine is also challenging the paradigm of superficially treating just the symptoms of a concussion by studying the effects of fish oil supplements on the underlying concussion recovery process.

The short- and long-term effect of concussion on the nervous system and an individual’s neurological health are now at the forefront of public concern related to concussion. The School of Kinesiology is leading the largest concussion study ever conducted, the Concussion, Assessment, Research, and Education (CARE) Consortium Study, which has now enrolled more than 45,000 participants at 30 sites across the U.S. to study the natural history of concussion. Michigan Medicine is also conducting innovative analytics using data from 18 sites participating in the Transforming Research and Clinical Knowledge in Traumatic Brain Injury (TRACK-TBI) Study. This study has enrolled more than 2,700 participants to examine the effect of concussion and more severe traumatic brain injury on blood biomarkers, neuroimaging results, and clinical outcomes.



*Dr. Almeida (Michigan Neurosport) works with a patient on a faster return to play*