

A large, dark blue outline of a human brain, viewed from above, serves as the background for the entire page. The outline is composed of thick, rounded lines that define the cerebral cortex and the central sulcus.

Annual Report  
FY 2021

## Letter from the Director

Friends and colleagues,

I am happy to share with you the University of Michigan Concussion Center's annual report for the 2020-21 fiscal year. Despite the challenges faced by everyone around the world, our membership continued to achieve a number of successes that will have a positive impact on individualized concussion care in both the short and long term.



In January, we transitioned out of our home in the Central Campus Recreation Building to the newly renovated School of Kinesiology Building, located in the heart of U-M's central campus. The state-of-the-art facility represents a major step forward, with center members having dedicated offices and meeting space with direct access to research laboratories.

Our faculty have worked across the Research, Clinical, and Outreach & Engagement Cores to integrate groundbreaking concussion research in unique and exciting ways. Most notably, we collaborated on an FDA-cleared rapid handheld blood biomarker screening tool for brain injury, conducted research indicating an increase in youth concussion reporting, and partnered with Detroit Public Schools Community District to provide concussion education.

Although our plans to hire new faculty were paused as a result of the pandemic, we have reinitiated the process with renewed vigor and are aiming to fill the positions by fall 2022. We are excited to add both junior and senior faculty members who will support our ongoing efforts, elevate the center, and continue to drive our mission forward.

The events of 2020 put a pause on many of our plans, but our team has emerged on the other side with an amplified focus on maximizing patient health through the relentless pursuit of concussion knowledge.

Sincerely,

Steven P. Broglio, PhD  
Director

## Our New Home

As the hub of the university's concussion-related activity, the U-M Concussion Center is proud to be located in the School of Kinesiology's newly renovated facilities with immediate access to clinical and wet lab research space.

This past January, the School of Kinesiology moved into its new four-story, 178,000-sq.-ft. home right in the heart of U-M's central campus. Originally designed by renowned architect Albert Kahn, whose other campus masterpieces include Burton Memorial Tower, Hill Auditorium, and Hatcher Graduate Library, the building has been a university landmark since 1915.

After a transformative \$120M renovation, the School of Kinesiology Building now offers 26,000 sq. ft. of teaching and learning space, and 36,000 sq. ft. of research space, all containing top-of-the-line equipment and amenities.



## Research Core

### Traumatic Brain Injury Blood Test

In January 2021, the FDA cleared the first rapid handheld blood test to aid in traumatic brain injury (TBI) care. Dr. Fred Korley, associate professor of Emergency Medicine, was part of the Transforming Research and Clinical Knowledge in Traumatic Brain Injury (TRACK-TBI) research team that led several studies demonstrating how the blood test can benefit TBI patients in clinical care.

### Self-Reporting Concussion Increases

New research from Philip Veliz, associate research professor of Nursing, indicates that one in four adolescents self-reported a concussion in 2020 - a 20% increase from 2016. An increase in the general population's awareness of concussion is thought to be the main catalyst for this increase.

**80+**  
publications

**\$42M+**  
in research grant proposals

**5,000+**  
concussion certifications  
from training course

**4,000+**  
patient visits

### CARE Consortium

Our faculty continue to conduct a long-term study of athlete and military service member brain health. The Concussion Assessment, Research, and Education (CARE) Consortium has enrolled more than 55,000 student-athletes and military service academy members from 30 performance sites and prospectively captured detailed information on 5,500 concussions. Starting in fall 2021, the investigation's next phase will assess self-reported outcomes in former athletes and current officers up to 10 years following graduation. A subset will complete detailed in-person evaluations of brain structure and function, blood and DNA analyses, and comprehensive clinical evaluations.

### U-M Alumni Neurological Health Study

Center researchers are collaborating with U-M Athletics to develop a cross-sectional study assessing long-term neurological health in former U-M athletes and non-athlete alumni. The goal is to evaluate key neurological health metrics in male and female athletes who formerly participated in sports with differing amounts of contact and non-athlete alumni.

### Patient-Reported Outcome Measures

Center researchers are developing a tool to understand a patient's concussion injury and recovery experience. The project's goal is to develop a set of concussion-specific patient-reported outcome measures (PROM). Once completed, the PROM will become a standard part of the clinical visit and will be used within a new center-developed Concussion Learning Health System to improve patient/provider communication, care, and outcomes following a concussion.

## Clinical Core

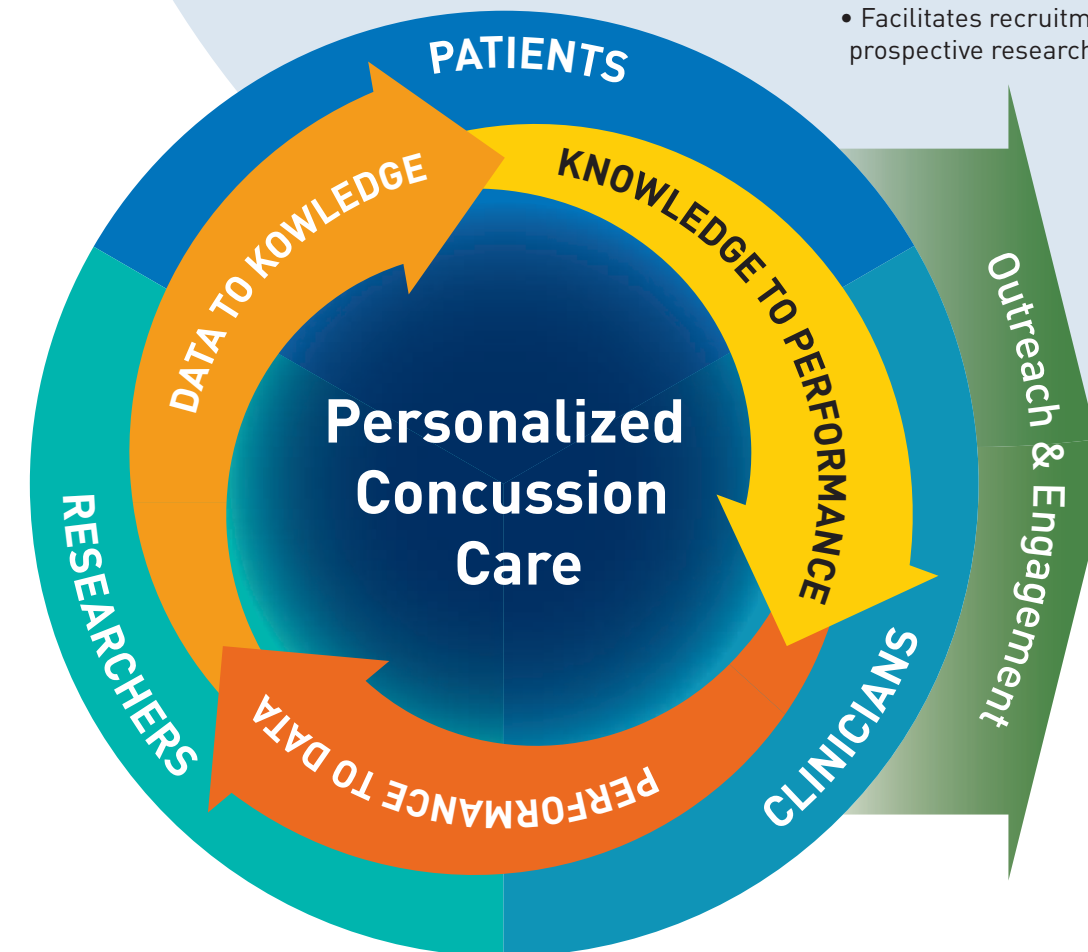
The Clinical Core partners with NeuroSport and the Physical Medicine & Rehabilitation Concussion Programs, which provide specialty concussion care. We also partner with Athletic Medicine, as well as the Michigan Medicine Adult and C.S. Mott Children's Hospital Emergency Departments, among others.

In partnership with the Research Core, the Clinical Core focuses on critically important gaps in concussion care, fostering discovery and facilitating the translation of research into patient care and education. To achieve this aim, the Clinical Core:

- Unifies U-M concussion care providers
- Provides direction and infrastructure to undertake groundbreaking clinical and translational research in concussion care
- Facilitates recruitment of clinical populations into prospective research studies to position U-M as a leader in concussion clinical research that will positively transform the landscape of concussion care

### Concussion Learning Health System

Integrating clinicians, researchers, and other stakeholders from across Michigan Medicine and the broader U-M community, the Clinical and Research Cores are developing a robust Concussion Learning Health System. A learning health system allows for knowledge generation from patient care to be evaluated and embedded into daily clinical practice to produce continual improvement in patient care.



# Outreach & Engagement Core

## Social & Cultural Disparities in Concussion

The center designed and led a virtual roundtable on the social and cultural disparities impacting athlete concussion identification and management. The invited panelists, consisting of national athletic and research experts, shared presentations on historically underrepresented groups, and identified influencers to athlete self-reporting, treatment, and care.

## Concussion Champions

Members of the U-M and state of Michigan community serve as center ambassadors through the Concussion Champions program. The champions promote the center's mission by participating in outreach and engagement activities to raise awareness of concussion prevention and care.

We are proud to have Jay Alexander, executive director of athletics, Detroit Public Schools Community District; Llyod Carr, retired U-M head football coach; and Mark Uyl, executive director, Michigan High School Athletic Association, as inaugural champions for the center.

## Detroit Public Schools Community District Partnership

In collaboration with Detroit Public Schools Community District (DPSCD), the center seeks to understand existing disparities in concussion identification, management and care for its student-athletes. In workshops with a broad group of DPSCD stakeholders, key concerns were raised impacting DPSCD athletes, families, and staff. The center is currently developing effective and meaningful solutions to address these concerns in the form of a comprehensive toolkit that includes educational materials, protocols, processes, and improved access to available health-care resources.

## Speaker Series and Special Sessions

The U-M Concussion Center provides continuing education opportunities to stakeholders within and beyond the university. This past year, the center hosted virtual discussions with national and international concussion experts in biomarkers, chronic traumatic encephalopathy (CTE), injury reduction, and inequities in concussion care. The knowledge shared during our events is building global awareness of the latest research and best practices and establishing the center as a concussion thought leader.

## Lunch & Learn Series

The U-M Concussion Center created a monthly Lunch & Learn series designed to build awareness of concussion-related work among the U-M community of clinicians and researchers through casual conversation that fosters collaboration.

## Faculty Council

Center faculty members who have demonstrated leadership in concussion research formed the center's inaugural faculty council. Council members represent the faculty's voice and serve by providing intellectual guidance, advice on research agendas and engagement strategies, and recommendations for center strategy.

## Concussion Scholars Program

Through a \$2M endowed gift, the U-M Concussion Center Scholars Program aims to give U-M students opportunities to work alongside center researchers, faculty, and staff members on center-identified priorities.



***"It's an honor to be an inaugural Concussion Champion. As a former player and coach, I'm excited to see the center's research answer important questions that will improve care and provide education that protects Michigan athletes and beyond."***

—LLOYD CARR



***"Everyone must be educated on concussions, especially those who do not have the resources or a road map of reporting and follow-up care. Thanks to our partnership with the U-M Concussion Center, DPSCD Athletics has a road map in place to be better prepared, equipped, and educated about recognizing concussions and how to navigate reporting and care of our student-athletes."***

—JAY ALEXANDER



***"I was not in a position to take on unpaid research, so this program made my work with the U-M Concussion Center possible. I worked alongside great faculty and research assistants who are doing cutting-edge research central to concussion science."***

—MELVIN D.



***"I am grateful to have been involved with the U-M Concussion Center because it allowed me to use the information I learned from my Movement Science classes at U-M to understand the purpose and mechanisms behind the concussion testing."***

—SUZANNE C.



***"Working with the U-M Concussion Center gave me the opportunity to explore clinical research during my time at U-M, which informed my decision to pursue further research opportunities when I start medical school this summer."***

—DANIELLE D.



Photo: Robert Allen McClain, studentandathlete.org

## Foundational Partners

Biosciences Initiative  
School of Kinesiology  
Department of Neurology  
Department of Physical Medicine  
and Rehabilitation  
NeuroSport

## U-M Collaborators

Athletic Medicine  
Athletics  
College of Engineering  
College of Literature, Science,  
and the Arts  
C.S. Mott Children's Hospital  
Department of Emergency Medicine  
Department of Molecular, Cellular  
and Developmental Biology  
Department of Pharmacology  
Exercise and Sport Science  
Initiative  
Injury Prevention Center  
Institute for Healthcare Policy  
and Innovation  
Learning Health Sciences  
Office of Research  
Precision Medicine  
Recreational Sports  
School of Nursing  
School of Public Health  
Transportation Research Institute  
University Health Service

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### Twitter:

@UMichConcussion

### Newsletter:

[myumi.ch/1p7oM](http://myumi.ch/1p7oM)

### Regents of the University of Michigan

Jordan B. Acker, Michael J. Behm, Mark J. Bernstein, Paul W. Brown, Sarah Hubbard, Denise Ilitch, Ron Weiser, Katherine E. White, Mark S. Schlissel *(ex officio)*