

Study finds concussions are a risk for young athletes in all sports—not just football

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A recent study from the Henry Ford Sports Medicine Research team suggests that high school athletes competing, not only in football, but in soccer, hockey, basketball, swimming, cheerleading and other sports are not only at risk for concussions, but may need a longer recovery than first thought.

The study's results published by *Orthopedics*, a nationally recognized, peer-reviewed journal for orthopedic surgeons found that the most common sports for brain injuries were indeed football, hockey and soccer.

"We thought that concussion issues would be very short-lived," said Vasilios (Bill) Moutzouros, M.D., chief of Sports Medicine at Henry Ford and a study co-author, "That they wouldn't have as many attention issues, that they'd be able to recover for their sport much more quickly. Our study found just the opposite."

"The two sports, other than football, where concussions are common are soccer and hockey, although brain injuries can happen in any sport," said Meaghan Rourke, one of more than 30 Henry Ford athletic trainers who support sports programs at over 20 high schools, colleges and universities and professional teams in the tri-county area.

Michigan Gov. Gretchen Whitmer's latest executive order allows the high school football season to begin September 18. Football was reinstated by the Michigan High School Athletic Association (MHSAA) after initially being postponed until spring 2021. With football back in action with an adjusted six-game season, athletic trainers will once again be patrolling the sidelines and be on the lookout for signs of concussions. Other sports given the green light to compete this fall include soccer, volleyball, swimming and diving. These competitions will also present the potential for brain injuries from collisions, falls and impacts with the field of play.

"I went through a four-year period as an athletic trainer where I had at least one swimmer suffer a concussion. That's a sport you don't really think about in terms of concussions," said Rourke. She explained that in one instance a swimmer miscalculated her distance to the pool wall while doing the backstroke and bumped her head against the wall. As a result, the swimmer was out for more than a month with a concussion. Diving is another sport susceptible to brain injuries as the divers' heads impact the surface of the water at high speeds generated from their dives. In reality, all sports have the potential for concussions since athletics involve physical activity and competition.

"Competitive cheerleading is another sport where I've seen concussions happen. The kids get very high in the air, and if they slip and fall when they are coming down, they can suffer serious head injuries," said Rourke, "We usually have one or two athletes in that sport suffer concussions. Overall, I've probably had to deal with a concussion in every

sport, including golf."

The retrospective study looked at Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT) scores at baseline testing and following concussions performed by neuropsychologists. The study found that memory ImPACT scores increased as players suffered repeated concussions.

ImPACT is the brain injury testing protocol developed in the late 1990s at the University of Pittsburgh and released in the early 2000s. The testing protocol is the only FDA-approved tool for concussion assessment and is the national testing used by healthcare, educational and sports organizations to help assess and manage concussions. The protocol defines a concussion as "a disturbance in brain function that occurs following either a blow to the head or as a result of the violent shaking of the head." Symptoms of a concussion can include a combination of headaches, nausea, vomiting, balance problems, dizziness, fatigue, visual problems and a host of other brain-associated symptoms.

The study examined the records of 357 high school athletes who were treated for concussions at Henry Ford from 2013 to 2016. The athletes age averaged between 14-18 with nearly 62% being males. Football yielded the most concussions (27.7%), followed by hockey (21.8%), soccer (17%), basketball (9 %) and cheerleading (4.2%). From the study's participants, 72 played in "Other" sports and accounted for 20.3% of the total number of concussions. Overall, 14 % reported suffering from amnesia and 33 % reported a history of concussions.

Henry Ford [athletic trainers](#) use internationally approved guidelines to accurately diagnose concussions, appropriately manage the recovery process, and safely return athletes back to their game. They use sideline tools such as the Sports Concussion Assessment Tool 5 (SCAT5) to immediately evaluate cognitive function and, if needed, additional neuropsychological tests may be administered by a physician to track progression through the recovery process. SCAT5 is a standardized concussion assessment used by licensed healthcare providers when a concussion is

suspected in athletes ages 12 and older.

Current MHSAA protocols call for a player showing concussion symptoms to be sidelined for at least 24 hours. Athletes at high schools staffed with a Henry Ford athletic trainer are sidelined for at least five days and follow a strict return to play protocol, "We're going to slowly bring them back," said Rourke. "We don't want to just throw them out there where they're going to get hit again, and then they're dealing with prolonged symptoms."

The Henry Ford research team found that athletes with only one concussion required at least 30 days of recovery prior to returning to their sport while others who reported a second or more concussions required more recovery time. They also learned that visual motor speed and reaction time scores decreased with recurrent concussions, and that male and female athletes with a previous history of [concussion](#), and those with delayed diagnosis, required more time before returning to competition.

The study team hopes that the results help start the conversation on how to more safely return student athletes to their sport after a brain injury. "When you recognize that it can be up to 30 days to get a young student athlete back, you're going to change your mind-set on how you advance them, in terms of how you push them, in terms of how you test them," said Dr. Moutzouros.

Previously, it was believed that brain injuries were related to a player's age. The younger the player, the shorter the recovery time. "We need more studies on the younger athletes," said Dr. Moutzouros, "Many of us have children. We're all worried about them and we want them to be safe. So, we need to recognize that this is a problem for the youth [athlete](#)."

More information: Toufic R. Jildeh et al, Return to Sport Following Adolescent Concussion: Epidemiologic Findings From a High School Population, *Orthopedics* (2020). [DOI: 10.3928/01477447-20200521-03](https://doi.org/10.3928/01477447-20200521-03)

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