






Measuring up

## Howard County introduces computer tests to help recognize concussions and avoid potentially life-threatening situations

By Katherine Dunn | Sun Reporter  
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Glenelg girls soccer goalie Kerry Krammer doesn't remember much about last month's state soccer championship.

Late in the first half, as Krammer went hard into a slide tackle against a breakaway opponent, her head slammed into the opponent's knee.

She never lost consciousness, but she suffered a concussion.

"I can barely remember the game," Krammer said. "I remember the bus ride to the game. I remember warming up. I remember making one save, but I don't remember anything else."

The next thing she recalls is the car ride home from Anne Arundel Medical Center that night.

Krammer is one of an estimated 600 Howard County public school athletes who will suffer concussions this school year, said Dr. Gerry Gioia, a pediatric neuropsychologist and director of the Save Concussion Outcome, Recovery and Education Program at Children's National Medical Center in Bethesda.

To help assess those traumatic brain injuries, Howard County officials are introducing ImPACT, Immediate Post-concussion Assessment and Cognitive Testing, to all 12 of the county's public high schools.

A computer test that takes about 25 minutes, ImPACT measures memory, reaction time and attention span, among other cognitive functions, to draw a baseline reading. If a player later sustains a concussion, he can take the test again and the athletic trainer can compare quantitative results to help decide when the athlete is ready to play again.

"A major concern is a student-athlete being injured with a concussion and not being identified or recognized and then having a repeated concussion prior to that recovery. That puts them in a

very, very serious and possibly life-threatening situation," said Gioia, who helped Howard trainer Gina Palermo administer ImPACT this fall.

A paper to be published in this month's issue of the Journal of Athletic Training estimates that the number of high school athletes nationwide who sustained concussions during the 2005-06 school year at 135,901.

ImPACT, one of several computerized pre-concussion tests, is used in high schools in 44 states and the District of Columbia, and by teams in the NFL, NBA, Major League Baseball and the NCAA, including the University of Maryland.

Howard is the only Maryland county to implement the testing, which is voluntary for students, for all of its high schools, and there are no plans to go statewide, said Ned Sparks, executive director of the Maryland Public Secondary Schools Athletic Association.

Sparks said the cost of such a program would have to be passed on to the local jurisdictions.

Howard County is one of the few jurisdictions in Maryland with certified athletic trainers in every school, and those trainers are the key to ImPACT, Gioia said.

Bob Wade, coordinator of athletics for the Baltimore public schools, said he was not familiar with pre-concussion baseline testing but that he has been working for about five years to get athletic trainers for the city's 19 public schools.

The testing is not on the agenda in Baltimore County either, but athletics coordinator Ron Belinko said that "if a student had a history of concussions, we would recommend they get this test, which costs \$75 a student and could be administered by several of the sports medicine centers."

Belinko, who said county statistics don't show a big increase in the number of concussions, added that the research coming from the Howard County program could help officials in other jurisdictions determine the need for such testing.

Palermo, who suffered two concussions as a volleyball player at Holy Cross in Delran, N.J. in the late 1990s, became interested in baseline testing programs as a student at Rutgers, which had a pilot program. She was instrumental in bringing it to Howard County.

A \$4,000 grant from the Howard County Injury and Violence Prevention Coalition paid for preliminary studies and seminars with athletic directors, athletic trainers and coaches, said Mike Williams, coordinator of athletics for Howard County. The county schools budget pays for the \$750 cost per high school for the software and storing results.

Part of the process is education, making sure coaches, athletes and parents know the signs of a concussion and know how serious they can be.

"We're not taking this out of the doctors' hands," Williams said. "It's just a piece of the puzzle, but we think it's an important piece."

Some concussions are obvious. An athlete might lose consciousness, not know where he is or not understand what is going on around him. Some are difficult to detect.

An athlete might not realize what has happened or might not want to admit it, fearing the loss of playing time.

"If you take yourself out of the game, the coach would put someone else in, and what if they do better? They might take your spot, and then you might not get to play," said Marie Rau, a Howard basketball player.

Margaret Wallis brought her son Eric, a Howard freshman who plays football and club ice hockey, for testing not long after she had suffered a concussion from an errant kick in karate class.

"The sports he plays are conducive to concussions," Wallis said, "and I saw the effect it had on me for a couple days with not being able to concentrate and the headaches. I can imagine trying to be in school and concentrate and learn would be very difficult."

The most common lingering effects of the concussions seen by Palermo are headaches, nausea and "mental fogginess."

Krammer said she had headaches for nine days after her concussion. For a few days, she kept asking the same questions over and over.

"I realized I was asking it again, but I couldn't remember [the answers]," she said.

Palermo said getting to know her athletes is important so that she knows whether they are behaving out of character, because irritability and sleepiness can also linger.

"For me to release somebody, I ask, 'When was the last time you had a headache?' I wait 72 hours from the last headache and then start them with light activity, like the bike or treadmill. If they do get a headache, I stop it immediately. I work them back gradually," said Palermo, who has seen five concussions this fall.

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