

Concussions a major issue for high schools

Andrew Petersen | The Quad-City Times | Posted: Sunday, October 17, 2010 2:00 am



Muscatine quarterback Paul Jindrich is sacked by the Pleasant Valley defense October 8. (Rashah McChesney / Quad-City Times)

Long before she became a physician, Jessica Ellis was a football fan.

But more and more, seeing a hard hit causes her to shudder rather than cheer.

"I'm a fan of bone-crushing hits," Ellis said. "But the reality is, as cool as that is, that's where we see a lot of injury."

Specifically, that's where doctors, certified athletic trainers and - through increasing awareness - coaches are seeing head injuries, namely concussions.

A sports medicine specialist at Orthopaedic and Rheumatology Associates in Bettendorf, Ellis also is in her fourth year as team doctor for the Davenport school district and St. Ambrose University. In that capacity, she estimates she treats one or two concussions per football game.

Barring the loss of consciousness, concussions have traditionally been an afterthought among sports injuries. Recently, however, these mild traumatic brain injuries have garnered serious national attention in all levels of athletics.

Evolving technology, education and chilling research have led to reconsidered view of head injuries. Governing bodies within athletics have taken action, and 10 states have laws overseeing concussion diagnosis and treatment. National legislation is pending congressional approval.

"We just know too much now what can happen with repeated concussions," Ellis said. "As long as we can identify injuries, we can keep risk to a minimum. But we need everyone's cooperation."

Growing concern

Concussions have long been known to cause a temporary loss of brain function to varying degrees.

A 2000 study in the American Journal of Sports Medicine identified the concussion rate in high school football at 5.6 percent. While the frequency was apparent, the full ramifications of such injuries were less clear.

The documented concussion rate has grown through the past decade to 8.9 percent, according to this year's National High School Sports-Related Injury Surveillance Study. Experts attribute the increase to better diagnosis. Even so, various estimates in the medical community hypothesize that upwards of 50 percent of concussions go undetected.

Concern has grown along with diagnoses, particularly at the high school level, where there are 1.1 million football players with still-developing teenage brains.

Last March, the National Federation of State High School Associations expanded its stance on concussions. Previously, the NFHS guideline called for an athlete to be removed from competition only if the individual was "unconscious or apparently unconscious."

The revised rule requires that an athlete leave a game if he displays any combination of a laundry list of concussion symptoms, including dizziness, nausea, blurred vision and confusion. Once out of the game, the athlete must be cleared by a medical professional before returning.

While NFHS mandates are optional for individual states to accept, Iowa and Illinois adhere to current guidelines.

"We needed to bring an awareness," NFHS assistant director Bob Colgate said. "We've still got the notion out there that people don't think an athlete has suffered a concussion unless they're knocked unconscious.

"Until we get that solved, we're not going to make any headway in this."

Culture shock

In the first week of the NFL season, Philadelphia Eagles linebacker Stewart Bradley got up after making a play on defense, stumbled toward the sideline and fell flat on the ground. Team medical personnel looked him over, and Bradley returned to the game before later being diagnosed with a concussion.

A week later, on Sept. 19, Dallas tight end Jason Witten angrily argued with medical personnel, pleading to return to the game after suffering a concussion.

Both events were broadcast on national TV.

Football culture has long accepted "stingers" and a player having his "bell rung" as necessary sacrifices that are intrinsic parts of the game. It's this attitude that guidelines at all levels are trying to reverse.

"I'm glad they tightened it up," Davenport Central coach Mark Roering said. "It really takes the decision out of your hands. Sometimes you can get into the heat of the battle and get overzealous, maybe put a kid in there that shouldn't be."

High school coaches and certified athletic trainers have grown more vigilant under the new rules trying to spot potential concussions.

The concern is understandable, as prep football concussion numbers mirror nationwide statistics. Only a few schools in the area haven't seen a diagnosed concussion this fall, and some have seen more than their share. The Davenport West program alone has had 12 this fall, and Class 2A school Columbus had five through four games.

Pinpointing the problem

Combating the old-school culture, an assortment of research has legitimized the widespread concussion concern.

Dr. Kevin Guskiewicz has been studying sports head injuries for more than 17 years at the University of North Carolina. Much of his recent focus has been measuring the number and force of hits to the head that football players endure during practice and competition.

Using specialized helmets equipped with sensors to monitor UNC football players, researchers documented hits that surpassed 100 gs of force, likened by Guskiewicz in a New Yorker article to someone's head hitting the windshield in a 25-mph car crash into a wall.

A new Purdue University study published earlier this month in the Journal of Neurotrauma went a step further, building on the UNC findings that a player can sustain 1,000 to 1,500 hits each season.

Monitoring 21 players at a Lafayette, Ind., high school, with helmet sensors, Purdue researchers discovered "significant brain deficits" in four players who weren't diagnosed with a concussion and hadn't displayed any concussion-like symptoms.

When head injuries are identified, they traditionally haven't been given enough time to heal. A 2009 report at the Center for Injury Research and Policy at Nationwide Children's Hospital found that 41 percent of 1,300 athletes re-entered the same game in which they developed concussion symptoms.

"Every kid is different," Ellis said. "There are kids who seem fine within half an hour, and I've had some symptomatic for six months. The minimum is four days before full contact."

Increasing awareness

Davenport Central senior T.J. Meyer has twice been diagnosed with a concussion.

Both instances occurred in junior high. He felt a bit nauseated, but neither time did Meyer leave the game. He simply didn't tell anyone how he felt until after the game.

Therein lies perhaps the biggest remaining obstacle for proponents of a proactive approach to concussions. Prep athletes, not unlike their college and NFL counterparts, don't want to leave the game for fear of letting down their team.

Ellis has noticed an increased number of players turning in teammates, but self-reporting lags behind. Meyer sees it, too.

"I feel like if you have the symptoms you should go talk to coach, but most players aren't going to," he said. "I've heard it can have serious brain effects. I'm a little smarter than I was in eighth grade.

"(But) if you were in the game, you wouldn't want to leave."

The NFHS has put together an educational online video that through September had been viewed by more than 70,000 people this fall. Most of those are coaches and game officials, who in some states are required to watch.

Coaching clinics have emphasized awareness, as have schools. Bettendorf and Pleasant Valley are among districts that have personalized concussion policies building off the NFHS mandate.

But even with coaches and trainers addressing the issue, as a group, players haven't been entirely convinced of potential consequences.

Mental preservation

In rare cases, the impact of head trauma can be extreme.

University of Pennsylvania football player Owen Thomas committed suicide last April, and subsequent examination of his brain revealed a condition called chronic traumatic encephalopathy. CTE is a disease caused by repeated head trauma and can lead to aggression, memory loss, depression and confusion.

No one can say for sure that CTE directly caused Thomas' suicide, but doctors have indicated that it might have played a role.

Less catastrophic impacts could be felt in the classroom. Concentration and cognition can be affected by head injuries.

And lest anyone think the dilemma is limited to football, the NFHS-sponsored study shows another 87,000-plus concussions in high school sports other than football in the 2009-10 school year. In girls soccer, 7 percent of participants suffered concussions last year.

"I think it's part of American culture," Ellis said. "Kids are going to get hurt in different ways. It used to be tough to get people to realize how serious this is. We should put them at no undue risk."