

Stanford football team players in high-tech concussion study

By Suzanne Bohan
Contra Costa Times

When a hard-driving Oregon State cornerback slammed into Stanford's standout receiver Chris Owusu on Saturday, the helmet-to-helmet hit gave Owusu his third concussion in 13 months.

But this time, Owusu's high-tech mouth guard recorded the force of the hit, how hard he hit the ground and how much his brain twisted inside his skull.

The Stanford senior and 19 teammates this season began using the special mouthpieces with sensors that measure the force of head movement -- the beginning of an urgent study into the growing phenomena of head injuries plaguing contact sports from high school to the pros.

Coaches and trainers know what to look for, but not every concussion is recognizable.

"It's pretty obvious when an athlete comes off and they don't go to the correct sideline," said Jesse Free, a Stanford athletic trainer. "Or they come off the field asking 'what just happened?'"

Wireless transmitters in the mouth guards send the force data to sideline monitors for addition to a database that will support research into safety and prevention. The system is not set up for immediate analysis on the field.

Stanford is the first university in the nation to conduct field research with the mouth guard at the college level. This new study begins as concerns spread nationwide about the brain injuries that affect some 1.6 million to 3.8 million yearly who engage in sports and recreational activities.

"Concussion is such an important

Advertisement

topic, particularly for youth" said Dr. Dan Garza, Stanford's team physician and assistant professor of orthopedic surgery.

A concussion happens when the force of a blow slaps the brain against the skull. The injured nerves cause symptoms such as disorientation, dizziness, memory loss or strange perceptions.

Several small injuries, or one serious concussion, can lead to permanent disabilities. More than 125 former pro football players are suing the NFL and, in many cases helmet-maker Riddell, over concussion-related issues, the Associated Press reported last month. And repeated concussions ended the career of former 49ers quarterback Steve Young.

It isn't clear how long Owusu's latest concussion will keep him off the football field, but Stanford may provide an update Tuesday.

Most brain injuries among high school football players are unreported, according to a 2004 study in the Clinical Journal of Sports Medicine.

Add to them the athletes playing ice hockey, soccer, lacrosse, field hockey and basketball, all of which also have a high risk of brain injuries.

Experts are particularly worried about concussions in young people, as their developing brains are more easily damaged and slower to heal. In athletes of any age, serious or repeated brain trauma can lead to long-term speech impairment, memory loss, mood disorders and, in extreme cases, neurodegenerative diseases.

Immediately after a concussion, an athlete might become disoriented and dizzy, have ringing in the ears or a headache, and often temporarily loses memory, said Free, the Stanford trainer.

Stanford's research began this season with the football team.

"When they proposed the idea of having these mouthpieces, I was all for it," said Stanford safety Michael Thomas. "The guys are definitely concerned."

More players want the impact sensors, Garza said, but X2 Impact in Seattle, the company making them, can't yet meet demand. Garza expects the entire team to have them next year.

In 2012, Stanford will start studying the device with the women's field hockey and lacrosse teams.

Some NFL players also may use impact sensors next season for a study, said Kevin Guskiewicz, a sports medicine researcher and

member of the NFL Head, Neck and Spine Committee. In September, Guskiewicz won a \$500,000 MacArthur fellowship -- the "genius grant" -- to support his research on sports-related brain injuries.

"We definitely have more demand for our gear than we can currently satisfy," said Christoph Mack, president and CEO of X2 Impact. "There's just a tremendous amount of concern and confusion about head impacts."

It's not clear how the research might change rules or coaching.

But research led by Guskiewicz using another type of impact sensor helped persuade the NFL to change kickoff rules this season, moving the kicking team up 5 yards to the 35-yard-line to reduce the number of full-speed player collisions by putting the end zone more within a kicker's range.

It's a different world compared to his early coaching days, said Terry Eidson, assistant varsity football coach for legendary De La Salle High School.

"Twenty-five years ago playing football, it was like 'everyone gets their bell rung. It's part of the game,'" said Eidson, who has coached the team for 31 years.

Eidson said that he recently checked an athlete who "got up a little woozy" and could not remember the defense.

"It was 'goodbye,' and he was pulled," Eidson said.