Sports Imperative: Protecting Young Brains

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Attention players, parents, coaches, trainers and doctors. The injury experts have a message. You’ve probably heard it before, but the moment is right to hear it again: If young athletes want to preserve their brains after a head injury, however minor, the typical jock advice to suck it up and get back in the game is not only bad, it’s potentially life-threatening.

Now, before the playing season starts, is the time for baseline testing of athletes involved in sports where head hits are common. With pre-injury results in hand, coaches and doctors are far better able to determine whether a concussion has occurred and if and when the brain has recovered.

It is also time to abandon the notion that a seemingly minor hit that causes a player to see stars or become briefly disoriented is “just a ding.” It is not “just” anything — it’s a mild concussion that must be taken seriously.

“If in doubt, sit them out” is the strong recommendation of Dr. Robert C. Cantu, one of the nation’s leading experts on sports-related concussions and their consequences. Dr. Cantu, a co-author of the National Athletic Trainers’ Association position paper on managing sport-related concussion, emphasized in an interview, “No athlete should be physically exerting himself if he has any concussion-related symptom.”

Lasting Consequences

Last year, The New York Times published 15 articles on the occasionally devastating results of repeated concussions. The cases involved high school and college students as well as professional athletes. Nearly all had returned to play before they had fully recovered from a direct or indirect blow to the head, and a second or third hit put them on the bench for good.

The consequences of a repeat concussion were often long-lasting and sometimes permanent: persistent headaches, fatigue, difficulty paying attention, memory problems, mood swings and personality changes. In a few cases, the result was death.

At least four American high school students died last year from football head injuries. Most suffered from what is called second-impact syndrome, a rare but catastrophic dysregulation of brain activity that can occur when a young player sustains another hit before the brain has recovered from an earlier concussion.

In nearly all cases, such tragedies can be prevented if players, parents, coaches and doctors learn the critical importance of recognizing and heeding the symptoms of concussion and giving the brains of injured players a chance to heal fully.

The symptoms of concussion may include headache, blurred vision, fatigue, fogginess, poor balance, sleep disturbance, nausea, dizziness, irritability, sensitivity to noise or light, memory problems or inappropriate emotions. Dr. Cantu, a clinical professor of neurosurgery at Boston University School of Medicine, says anyone responsible for an athlete’s well-being should use the 25-item Graded Symptom Checklist (see accompanying article) to assess the seriousness of a concussion and monitor recovery.

“First and foremost, anyone who is still symptomatic from a concussion should not be allowed to return to a contact or collision sport,” Dr. Cantu wrote this year in Current Sports Medicine Reports, published by the American College of Sports Medicine.

For high school and younger athletes, whose young brains are more vulnerable to severe damage, those with symptoms of a concussion should not be allowed back in that day’s game, he said, even if they say they feel fine and appear to be symptom-free 20 minutes later. And a young player who suffers a repeat concussion would be wise to remain on the sidelines for at least a week after all symptoms are gone.
In the interview, Dr. Cantu stressed the importance of giving an injured brain a chance to rest, physically and cognitively. Not allowing sufficient rest can make the symptoms worse, delay recovery and cause permanent damage when brain cells die because they haven’t had time to recover.

“It is generally accepted that three mild concussions in any one season should terminate an athlete’s further participation that season,” Dr. Cantu wrote. “Furthermore, there should be at least a three-month symptom-free period before resuming participation in a contact collision sport.”

Football players are not the only ones likely to sustain sports-related concussions. Athletes who play ice hockey, lacrosse and soccer, as well as boxers and wrestlers, are also at risk. Even basketball players are vulnerable to concussions. The risk in soccer comes not from heading the ball but from collisions with other players or the goal post, said Steven P. Broglio, a certified athletic trainer at the University of Illinois at Urbana-Champaign, who recently studied head impacts during high school football games.

And it is not just male athletes who are at risk. If anything, girls who play the same sports as boys are more vulnerable to concussions and take longer to recover, studies have shown, even taking into account the probability that girls are more willing to report symptoms. Younger athletes, too, are at greater risk of concussion and recover more slowly than those of college age or older, Dr. Cantu said.

Counting only the reported cases of concussions among high school athletes, 137,000 occurred in the 2007-8 school year, according to data collected by the Center for Injury Research and Policy at Nationwide Children’s Hospital in Columbus, Ohio. Many more are believed to have occurred but were either unrecognized or unreported.

Special Helmets

In an effort to alert coaches and trainers to a head hit warranting investigation, players at several colleges and some high schools have helmets fitted with a telemetric system that can almost instantly transmit wireless signals to computers on the sideline about the intensity and location of a hit.

The system, called HITS, was developed by Simbex, of Lebanon, N.H., with support from the National Institute of Child Health and Human Development. It is marketed by Riddell, but is still primarily a research tool to help coaches, trainers and doctors identify players who may not report symptoms for fear of being taken out of the game.

Dr. Cantu estimated that the incidence of concussions in football is “probably four to five times higher” than is now being recognized on the sidelines. Dr. Broglio, who has studied the HITS helmet in high school football, noted that “53 percent of concussed high school athletes are suspected of not reporting their injuries to medical personnel.”

An individual telemetric helmet now costs about $1,000. But Rick Greenwald, the president of Simbex, said in an interview that the human development institute had provided money for developing a lower-cost version that could be widely used at the high school and youth sports levels.