



## Sports and Head Injuries – What you Need to Know

By Linda Balsiger, M.S., CCC-SLP

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Stories about brain injuries in football players have been rampant in the news recently – ranging from sudden death to degenerative brain disease caused by the cumulative effect of repeated head blows. As a result, the NFL has become serious about addressing head injuries in athletes, and is now imposing suspensions and steep fines for “egregious and elevated hits” that violate game rules.

For every sensational story, there are countless other cases of sports-related brain injury that do not get media coverage. A **concussion** is a mild **TBI (traumatic brain injury)**, typically caused by a bump or blow to the head. According to the U.S. Centers for Disease Control and Prevention (CDC) there are 3.8 million sports or recreation-related concussions annually in the United States. Concussions often occur without a loss of consciousness, and even a mild concussion is a serious matter. A blow to the head is not necessary to have a concussion - a concussion can also occur from a blow to the body that causes a sudden acceleration or deceleration of the head.

Student athletes face the same risks as college and professional athletes, even when wearing a helmet. And head injuries are not limited to football - other school sports with high concussion rates are lacrosse, hockey, soccer, and wrestling. Among high-school sports, football has the highest rate of concussions, and girls’ soccer the second highest rate.

Female student athletes have higher concussion rates than males, ranging from 64% higher in soccer to 300% higher in basketball. Some experts attribute this to the fact that girls have less well-developed necks – which function as a type of “shock absorber” for blows. It has also been suggested that girls more readily report symptoms of a concussion, while more boys go undiagnosed.

Because their brains are still developing, youth athletes are more susceptible to head injury. They also take longer to recover and are more vulnerable to the effects of repeated concussions. Research has shown that a person who has suffered one head injury is four times more likely to suffer a second injury. Once a brain injury has occurred, it takes less force to cause a second brain injury. A second injury also requires a longer period of recovery. During recovery from a concussion, athletes are also at risk for **Second-Impact Syndrome (SIS)**, a catastrophic swelling of the brain that occurs when a second injury occurs before symptoms from an earlier concussion have resolved. Even a very mild initial concussion can lead to SIS if another head injury occurs before symptoms from the first concussion have completely abated. Although the incidence of SIS is low, it is typically fatal or severely disabling.

In response to a case of SIS, Oregon state legislators passed “Max’s Law” in 2009, which requires coaches of school athletic teams to receive annual concussion training. Similar laws have been passed in Washington, Texas, and Virginia, and national legislation is currently pending. The American Academy of Neurology issued new guidelines in November recommending that if a concussion is suspected, athletes should be removed from play immediately and not cleared to play again until seen by a physician trained in the evaluation and treatment of brain trauma. Although these laws and guidelines will undoubtedly save many athletes, it is important to know that symptoms of concussion can be mild,



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and some symptoms may not appear until days or even weeks after an injury. School coaches may also not be aware of other recent head blows that students may have received in another recreational activity (such as snowboarding or skiing). Therefore it is critical for parents to be aware of the signs of concussion, and to share information about symptoms and other head blows with school coaches.

Some of the common symptoms of a concussion include memory problems, poor concentration, confusion, sensitivity to light or noise, dizziness, nausea, and headaches. Not every person will develop all of the signs and symptoms, and some symptoms may appear and disappear. Students may also dismiss mild symptoms, and fail to mention them to parents or coaches. Because of these factors, it is important for parents to talk to their children about these facts, and to be vigilant when there is a possibility of concussion. If a concussion is suspected, it is critical to have a thorough medical evaluation, along with follow-up medical care and ongoing monitoring. Further information and fact sheets for parents and coaches are available at the CDC's youth sports injury information web page (<http://www.cdc.gov/concussion/HeadsUp/youth.html>).

Young people are at a critical time of learning in school. Even mild brain injuries can cause difficulties with concentration, focus, organization, listening, language, and memory that have a significant impact on learning and academic performance. Many children with undiagnosed brain injuries are diagnosed with learning disabilities in school when these problems occur. Recovery from brain injury requires a team approach, and identification of an injury is the important first step.

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