

When Children Butt Heads on the Field: Childhood Sports Concussion

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While many children enjoy the physical and character growth associated with competitive sports, many parents share concerns about potential injuries to their children. Fortunately, basic guidelines for recognizing minor concussions in scholastic sports have been developed. An understanding of these can prevent more serious injuries and consequences.

The brain develops at an extraordinary rate prior to birth and during early infancy. It continues to develop during childhood and adolescence with growth spurts at about age 8 and adolescence. Although, at a slower rate, it continues to develop and “mature” into early adulthood.

Childhood brain injuries may produce subtle to very obvious difficulties depending upon severity of brain trauma. With very mild concussions there may not be any measurable consequences. In mild traumatic brain injuries, symptoms usually clear up in a matter of weeks or a few months.

However, some individuals may complain of mild attention and memory complaints for longer periods of time. In moderate to severe brain injuries there may be permanent difficulties, some of which may not appear until a child reaches a certain developmental stage. When the severity of brain injury is more than mild, or whenever child complaints of personality change, attention, or memory persist a careful pediatric neuropsychological evaluation can help evaluate the presence or severity of difficulties.

Since by the time many football players reach the NFL they may have suffered several mild concussions, there has been increased interest in the short and long-term consequences of concussions. It has long been recognized that repeated mild concussions may result in serious neurological problems in boxers. This has been referred to as “dementia pugilistica.”

Several years ago the National Football League undertook the initiative to support further studies into mild concussion in athletes. By the time many players reach the professional football ranks they often have histories of several mild concussions or “dings”. Tragically, players suffering concussions on the field have died from minor head injuries following games due to excessive brain swelling. Some players admit to playing games while disoriented and some have recognized personality changes and difficulties in memory as the effects accumulate. The NFL’s interest in such concussions has extended into college and high school sports.

Not all bumps to the head involve a brain injury. Neurologists and neuropsychologists have recognized that the length of loss of consciousness is somewhat related to the severity of injury. The amount of time an adult or child fails to recall before the trauma (retrograde amnesia) and the period of time not recalled following the trauma (anterograde amnesia) are also somewhat

related to the extent of injury. Further indicators of severity involve skull fractures, brain contusions, and bleeding which may occur in the brain or between its protective layers.

To complicate matters more, the absence of a loss of consciousness or amnesia does not automatically indicate a brain injury has not occurred. Children often may not completely lose consciousness and may just fail to respond for a period of time. Careful monitoring of short-term changes in arousal, attention, memory of changes in personality can be helpful. Obviously, the emergence of neurological symptoms requires prompt medical attention.

The American Academy of Neurology has developed an expanded classification for mild concussion which has been used to assess sport concussions. Parents, coaches, and team medical support personnel should be familiar with these definitions and appropriate guidelines. Further information can be obtained from the Academy's website at AAN.COM.

Grade 1 concussions do not involve loss of consciousness or being "knocked out". Children suffering such a "ding" may experience temporary symptoms. These may include sensory complaints such as ringing in the ears and/or visual complaints, headache, nausea and mild dizziness. These may last a few minutes to up to 15 minutes. Children suffering Grade 1 concussions to be removed from the game, but are allowed to return if symptoms resolve within minutes.

Complaints lasting more than 15 minutes, but still not involving loss of consciousness are classified as a Grade 2 concussion. These children should not return to the game and should be assessed by a physician. If the symptoms resolve within a week, the guidelines suggest the child may return to play.

Grade 3 concussions differ from Grade 1 and 2 concussions in that there is a loss of consciousness. This may be from a few seconds to hours. Current guidelines suggest that players with Grade 3 concussions be placed in a neck brace, transported from the field and be assessed by a physician at a hospital. Return to play may be more prolonged and depends on the severity of the injury and course of recovery.

The NFL initiative in monitoring and reducing the risks of brain injury has spread to other sports and to scholastic sports. To ensure your child's safety ask your child's coach if your school is aware of the guidelines. Playing with safety in mind will help all to enjoy the thrill of competition for years to come.

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