

## Second impact syndrome...a sobering proposition

Concussion of the brain in sports is one of the more common injuries seen on the field, and as such is often passed off as an expected, and sometimes downplayed injury in comparison to orthopedic injuries and those injuries which are visibly apparent. Concussion is a form of closed head injury, those injuries which, in more severe forms, paralyze, handicap, and are life changing events. Although we seldom think of an athletic concussion as life threatening, there is reason to be concerned, and reason to be diligent in the management of concussion. Not only is the injury of the brain in boxing or hockey potentially as bad as that in an automobile accident, there are special risks inherent to sport related concussion which should be considered. The coup, or initial concussion is a rapid acceleration of the skull such that the brain impacts the side of the skull bruising and injuring the sensitive nervous tissue. The severity of this is dependent on the amount of acceleration and/or deceleration which causes the injury. Symptoms such as double vision are common, inability to focus or concentrate, to organize thoughts, or to speak coherently are often shrugged off by the athletes, who are able often to function despite getting their "bell rung". Coaches and administrators need to be diligent in enforcing the regulations regarding concussion injuries, as these are often the ones that sneak by but are actually potentially the most deadly. Though the risk is small, athletes receiving second concussions can actually suffer catastrophic brain injury, making identification of all concussions critical, and proper healing time a must. The following comes from Brain and Spinalcord.com on the subject:

"Second impact syndrome is a very rare condition in which a second concussion occurs before a first concussion has properly healed, causing rapid and severe brain swelling and often catastrophic results. Second impact syndrome can result from even a very mild concussion that occurs days or weeks after the initial concussion.

Most cases of second impact syndrome have occurred in young athletes, particularly those who participate in sports such as boxing, baseball, football, hockey, and skiing. That's why if an athlete has suffered a concussion, it's best if they don't return to their sport until the symptoms of the initial head injury are gone. Symptoms of Second Impact Syndrome

Second impact injury can result within a matter of days or weeks, or it can occur in the same game or competition if the athlete isn't removed and treated after the first concussion. Neither impact has to be severe for second impact syndrome to occur. Symptoms usually occur immediately following the second impact and progress rapidly. Common symptoms include:

- \* Dilated pupils
- \* Loss of eye movement
- \* Unconsciousness
- \* Respiratory failure
- \* Death

### Prognosis of Second Impact Syndrome

In many cases, second impact syndrome is fatal. In those cases where it isn't fatal, you can expect the long-term effects to be similar to those of severe traumatic brain injury. "

Though second impact deaths are rare, they do occur...are you willing to lose your child for a freshman football game? I didnt think so. Coaches, willing to lose an athlete, or perhaps a legal suit for a win? A sprain or even a torn ACL is bad, but a concussion is on a whole new level of risk than these injuries. That is why we as parents and providers need to educate those around us about the risks of concussion which go beyond seeing stars and seeing double. The brain injury association has a concussion toolkit which helps coaches and trainers/therapists/doctors decide when an athlete should stop, or start again in

sports. Now I don't want to scare the bejeebies out of you, but I do want to raise awareness..concussion is serious, second concussion, if too soon after the first, can be deadly. Here are the Brain injury association guidelines for management of concussion. These injuries should always be referred to a physician in order that the athlete and the team understand exactly how bad the injury is and how long it should heal.

## Grades of Concussion

### Grade 1:

1. Transient confusion (inattention, inability to maintain a coherent stream of thought and carry out goal-directed movements)
2. No loss of consciousness
3. Concussion symptoms or mental status abnormalities on examination resolve in less than 15 minutes

### Grade 2:

1. Transient confusion
2. No loss of consciousness
3. Concussion symptoms or mental status abnormalities (including amnesia) on examination last more than 15 minutes

### Grade 3:

1. Any loss of consciousness
  - A. Brief (seconds)
  - B. Prolonged (minutes)

## Management Recommendations

### Grade 1:

1. Remove from contest
2. Examine immediately and at 5-minute intervals for the development of mental status abnormalities or post-concussive symptoms at rest and with exertion
3. May return to contest if mental status abnormalities or post- concussive symptoms clear within 15 minutes

### Grade 2:

1. Remove from contest and disallow return that day
2. Examine on-site frequently for signs of evolving intracranial pathology
3. A trained person should reexamine the athlete the following day
4. A physician should perform a neurologic examination to clear the athlete for return to play after 1 full asymptomatic week at rest and with exertion

Grade 3:

Transport the athlete from the field to the nearest emergency department by ambulance if still unconscious or if worrisome signs are detected (with cervical spine immobilization, if indicated)

A thorough neurologic evaluation should be performed emergently, including appropriate neuroimaging procedures when indicated

Hospital admission is indicated if any signs of pathology are detected, or if the mental status of the athlete remains abnormal

When to Return to Play	
Grade 1 Concussion	15 Minutes or less Return to Play Only After Being Asymptomatic with Normal Neurologic Assessment at Rest and with Exercise:
Multiple Grade 1 Concussions	1 week
Grade 2 Concussion	1 week
Multiple Grade 2 Concussions	2 weeks
Grade 3 Brief Loss of Consciousness (seconds)	1 week
Grade 3 - Prolonged Loss of Consciousness (minutes)	2 weeks
Multiple Grade 3 Concussions	1 month or longer, based on decision of evaluating physician

As you can see there is a right way and a wrong way to play the concussion game. We all know concussions occur, but to guess on the grade or length of rest time is to risk a second impact. Always, and I mean always ask a professional physician for advice regarding these injuries.

Have a great week and please support the New Method Cleaners coats for kids drive by dropping off your unneeded coats to our office or to the cleaners, to be distributed on the 22<sup>nd</sup> at the coop ministry from 9-11.