

# Taking Concussion Seriously

It's estimated that over 250,000 participants in contact sports suffer concussions each year. In soccer, we hear about concussions often.

## What exactly is a concussion?

A concussion is a temporary disturbance of one's brain function as a result of either a blow to the head or rapid acceleration or deceleration of the head. In essence, the brain is suspended in spinal fluid and moves freely about the cranium (the skull). A concussion results when a blow to the head or snapping of the head (forward, backward, or side-to-side) causes the brain to crash into the inside of the cranium, causing neurological damage, and in some cases, bleeding. Though often associated with major trauma of the head, in some cases, even minor trauma can cause a concussion.

## A range of symptoms

Depending on the severity, symptoms of a concussion can include:

- headaches
- nausea and/or vomiting
- dizziness
- confusion
- ringing in the ears
- blurred vision
- double vision and/or loss of consciousness
- loss of very short term memory

## Levels and treatment of concussion

The concussion Aikman sustained was considered relatively mild. The mildest form is a grade one concussion, in which the sufferer has no loss of consciousness or memory. Much more severe are grade two concussions, which are accompanied by confusion, as well as memory loss lasting anywhere from a few minutes to a number of hours. Grade 3 concussions, the most severe, result in a loss of consciousness. Concussions are treated differently depending on their level of severity.

- If a grade one concussion is suffered, normal activity generally can be resumed (including play by an athlete) if all symptoms leave within 15 minutes of the injury.
- If a grade two concussion is suspected, all activity is (or at least should be)

stopped, the person or player should rest, and they should be observed regularly over the next few days for signs of swelling or contusion (or for worsening of any of the other symptoms listed above). If such does occur, a CT scan or MRI is generally taken. And even if such does not occur, a person or player with a grade two concussion should curtail normal activity and certainly not return to athletic competition for at least a 72 hours after all symptoms have cleared.

- Grade 3 concussions are very serious and, at a minimum, require immediate hospitalization, followed by a long period of rest before resuming normal activity and certainly, before returning to play.

## **Longer-term dangers and complications**

Although most people will recover fully, a concussion can pose a serious threat to life if it is accompanied by a hematoma--bleeding within the skull. Though relatively rare (especially in sports-related concussions), when they do occur, such hematomas are quite serious.

A subdural hematoma leads to an accumulation of blood between the brain and the dura--a leather-like cover between the brain and the inside of the skull. An epidural hematoma, often associated with a skull fracture, causes blood to pool between the dura and the skull. An intracerebral hematoma results in bleeding within the brain.

With any hematoma, pooled blood will compress the brain, and, if not treated very quickly, the brain stem as well, causing brain damage and possible death due to cessation of respiration. If any type of hematoma is suffered, immediate emergency medical attention is needed to release the pressure the hematoma is causing. The danger is that a hematoma will not be recognized until it has become very severe. Without immediate emergency surgery, a severe hematoma can cause serious brain damage or death.

Fortunately, such severe complications from concussions are relatively rare. More frequent are the problems of post concussion syndrome, second impact syndrome, and numerous concussion syndrome.

**Post concussion syndrome**, as the name suggests, refers to the aftereffects of a concussion. These include recurring headaches, dizziness, fatigue, irritability, sensitivity to light, difficulty with concentration or memory, and even personality change. Though varying from patient to patient, these aftereffects usually last a number of days with grade one or two concussions, and up to a number of weeks with grade three concussions. Unfortunately, one additional aftereffect that really doesn't go away is that, once you've suffered a concussion, you're five to six times more likely to suffer another one if you receive a blow or violent snapping of the head.

**Numerous concussion syndrome** is, as this name suggests, a situation where someone suffers a second or series of concussions. This results in the aftereffects of concussions becoming long term, or, in some severe cases, permanent.

**Second impact syndrome (SIS)** occurs when someone, usually an athlete, suffers a

second blow or violent snapping of the head while they're still suffering the effects of a previous concussion. When this happens, severe hematoma can result, with the patient quickly losing consciousness, and in many cases, lapsing into a coma and dying from respiratory failure caused by extreme pressure on the brain stem. Even more troubling is the fact that cases of SIS are more often seen in high school football players, since the grade one and grade two concussions they suffer too often go undiagnosed. In addition, there is the problem of cognitive difficulty caused by a concussion. As Dr. Jacob Rachlin, a neurosurgeon at Boston's Beth Israel-Deaconess Medical Center explains, "In some cases, a patient will appear to have fully recovered from a concussion, yet months later, experience cognitive problems, such as difficulty concentrating or taking notes." Though rare, such difficulties do occur, sometimes even after a minor concussion. So, as Doctor Rachlin urges, "If you do experience such difficulties, contact your doctor, don't ignore them. There are things that can be done to help."

## **Problems in prevention**

The problem of concussions in contact sports, especially football and hockey, has received a lot of attention in recent years. In particular, the concern over when to return to competition, if at all, has grown as star players like Aikman and San Francisco Forty-niners quarterback Steve Young have suffered numerous concussions. The concern and controversy is that players from all levels are risking far too much when they continue to play after having suffered a number of concussions. Many medical professionals have called for stricter rules regarding return to play after suffering a concussion, especially on the high school level. Some proposals, for example, would require at least a 15-30 day wait and the permission of a doctor before a player who suffers any concussion can return to play. Unfortunately, to date, very few locales have adopted such regulations.

### ***Resources***

Bressner, J. "Concussions in Football: Curbing the Inevitable." *Harvard Science Review*, Winter, 1997.

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