



Concussions

Overview

Functional (as opposed to structural) brain deficits caused by acceleration / deceleration of the brain against the inside of the skull (cranium). Loss of consciousness (being knocked out) is by definition a concussion. However, loss of consciousness is not a required symptom of a concussion.

Signs and Symptoms

There are a multitude of signs and symptoms that a concussed person may experience. These include:

- Headache
- Nausea
- Vomiting
- Balance problems
- Dizziness/Light-headedness
- Fatigue
- Trouble falling asleep
- Sleeping too much
- Sleeping too little
- Drowsiness
- Sensitivity to light
- Sensitivity to noise
- Irritability
- Sadness
- Nervousness
- Feeling more emotional
- Numbness/tingling
- Feeling slowed down or “mentally foggy”
- Difficulty concentrating/remembering

- Visual problems (double vision, blurriness, etc.)
- Amnesia of the event (inability to remember before or after the hit)
- A seizure immediately after sustaining the concussion is not uncommon, and is not worrisome (see worrisome symptoms below)

Immediate Treatment

A person who experiences these symptoms after a blow to the head should be immediately removed from game play or practice. A person trained to recognize concussion symptoms should evaluate the athlete on the sideline. If there is even the slightest hint of having a concussion, they are NOT to return to the game or practice. In most cases, emergency department evaluation is NOT needed. In these cases, simple observation for 6 hours is all that is necessary.

Symptoms that would necessitate emergent medical evaluation (in a hospital emergency room) include:

- Repeated vomiting
- Severe or progressively worsening headache
- Unsteady gait
- Slurred speech
- Weakness or numbness in the arms or the legs
- Unusual behavior
- Altered mental status (becoming less awake, aware, or listless)
- Seizure activity (after approximately 15 minutes to 6 hours later)

Post-Acute Treatment Period (6-72 Hours):

- Tylenol ONLY for headaches
- Non-steroidal Anti-Inflammatory medicines such as ibuprofen (Advil, Motrin), naproxen (Aleve), or aspirin are NOT to be used in the first 72 hours after a concussion
- Relative brain rest:
 - No activities that require mental activity (reading, writing, studying, school, watching TV or playing video games)
 - No activities that require physical activity (exercising, chores, etc).

Medical Evaluation

For concussions without worrisome neurologic signs, evaluation by a doctor within 7-10 days is appropriate.

Concussion Computer Testing

Neurocognitive computer tests have helped many doctors monitor concussions. These tests (such as ImPACT) cannot diagnose concussions, but merely help monitor and guide return to activities.

Recovery Period

The vast majority of concussions resolve within 7-14 days. A smaller set of people will experience symptoms as long as 1, 2, 3 or more months. This is not uncommon; so don't let this discourage you. Nearly 100 percent of people recovery fully from their concussions, whether it takes 1 day or 1 year.

Treatment for Prolonged Symptoms

For persons who experience prolonged symptoms, there are many choices to manage them. These include headache medicines, dizziness and nausea medicines, brain therapy, balance therapy, modified school plans, etc. Your doctor may also order additional testing (MRIs, neurocognitive testing, etc.) if symptoms have not resolved in 3 months.

School Accommodations

Your doctor can provide testing, homework, and classwork accommodations for students who experience symptoms.

Return to Sports

Pennsylvania Senate Bill 100 (2011/12) permits only licensed physicians and neuropsychologists to return athletes to sports. Athletes must have nearly zero symptoms and prove that they can tolerate physical exertion via the "Return-to-Play" process. This is a 5-step program administered over 5 or more days or increasing physical exertion and sporting activities. Once the athlete had cleared all 5 steps, they may then return to game play.

If a person suffers a second concussion while still recovering from another concussion, they are at risk for experiencing "Second Impact Syndrome." This is a rapid swelling of the brain, which has devastating effects, including death. Though this condition is rare, it is important that a person fully recovers as to prevent this condition.

If an athlete experiences 2 concussions in the same sport during the same season, they are not permitted to return to that sport during that season. If an athlete experiences 3 concussions during an academic year, they should be removed from all sports for the remainder of the year. If an athlete experiences 4 concussions in any one sport, serious consideration should be given to permanently quitting that sport.

Long-term Effects

Athletes who experience 1, 2, or even 3 concussions don't seem to have long-term effects, though they are more prone to getting concussions in the future. In general, the more blows to the head that one experiences, the more prone to long-term effects, which include permanent brain damage and cognitive disorders.