

CONCUSSION

What is a concussion?

A concussion is an injury to the brain caused by a blow to the head. A concussion may cause you to become temporarily confused or disoriented, have memory loss (amnesia), or become unconscious. Concussions are the most common head injuries in sports.

How does it occur?

A concussion occurs when a blow to the head or face, or a blow to another part of the body jars the brain. The impact causes shaking, jarring, stretching, swelling, or tearing of brain tissue and delicate nerve fibers, causing chemical changes in the brain.

Sports in which concussions most commonly occur are football, gymnastics, ice hockey, soccer, and wrestling. However, concussions can occur in any sport or activity where you may get hit in the head. Younger athletes and female athletes are more at risk.

What are the symptoms?

If you have had a concussion you may have any of the following symptoms:

- headache
- confusion
- memory loss (amnesia)
- loss of consciousness
- sleepiness or trouble falling asleep
- nausea or vomiting
- trouble thinking
- poor coordination
- dizziness
- weakness
- seizures
- loss of balance
- blurred vision
- sensitivity to light
- slowed reaction times
- emotional symptoms such as mood swings, irritability, or depression

You may have these symptoms for several days, weeks, or longer after the injury. 80-90% percent of people who have concussions are better in 10 days, but some people have symptoms that last longer.

If your neck hurts after a head injury, it is best to try not to move more than is necessary until it is checked by a healthcare provider. Anyone with a possibly

serious neck injury should not move at all and an ambulance should be called.

How is it diagnosed?

Your healthcare provider will examine you and find out what happened. If you can't remember what happened, he or she may need to get this information from other people saw the accident. Your healthcare provider will:

- do a neurologic exam
- examine your neck
- test your strength
- test your memory
- test your sensation, balance, and reflexes
- check your vision and your eye motion
- look at your eyes with a flashlight to see if your pupils are the same size

You may be tested again several times during the next hour to check for any worsening of brain function, which might occur if you have any bleeding or swelling in the brain.

Your provider may do a CT scan or an MRI of your head to be sure there is no damage to your brain. A concussion is a functional injury to the brain, not a structural injury; this means that tests such as MRI and CT scans are usually normal and might not be ordered by your provider. Depending on how your head injury occurred, you may have neck X-rays to check your spine.

Your provider may have you do a neuropsychological test. These tests will measure things like symptoms, memory and reaction time. Many of these types of tests are available on a computer. Some sports programs have their athletes do baseline tests before the season starts.

How is it treated?

The treatment for a concussion is rest. This means you may need to miss school, work, or other activities. Exercising too soon will make your symptoms last longer and may cause more problems. Your provider may advise you to limit activities that require thinking and concentration, such as working on a computer, studying, or playing video games until your symptoms are gone. Your brain needs to rest.

Headache may be treated with a mild pain reliever, such as acetaminophen. Nausea may be treated with a prescription medicine. Clear liquids or bland foods may be helpful.

If you have had a concussion, you need to be watched by a friend or relative for 8 to 12 hours.

CONCUSSION *(continued)*

Symptoms to report to your healthcare provider include:

- confusion
- seizures
- unequal pupil sizes
- restlessness or irritability
- trouble using your legs or arms
- worsening vomiting
- headache that will not go away after taking acetaminophen (Tylenol)
- garbled speech
- bleeding from the ears or nose
- decreasing alertness
- unusual sleepiness or hard to wake up
- a change in personality

If you are stable and recovering during the next 24 hours, you should rest for another day or two. As your symptoms go away, you can start to go back to your usual daily routine. However, you should stay away from any activities that would risk re-injury. A second concussion before the first one has healed could be very serious. Your healthcare provider will tell you when it is safe to return to sports and other activities.

When can I return to academic activities?

1. Rest. This includes rest from work and academics, including classes and homework assignments, screen time including e-mails, text messaging, television, etc. The motto is: “if you’re not bored, you are not recovering appropriately”. Plan to rest for the first 24-36 hours, depending on the severity of your symptoms. Some students may need continued rest from academics and cognitive functioning if they have persistent headaches and other symptoms.

2. Class Attendance. Once symptoms have improved, you can begin returning to classes. At first you should simply attend class, but not fully participate or take notes. See if you can simply be present in class and pay attention without the recurrence of symptoms. If symptoms return, you should politely excuse yourself from class and wait a day or two before trying to return to class.

3. Class Participation and Homework. Once you can sit in class without any recurrence of symptoms, begin attending class and actively participating. If that goes well, begin doing some homework assignments for approximately 30 minutes at a time before taking a break. Gradually increase the total time

studying as tolerated, and stop if any concussion symptoms occur or you have difficulty concentrating. Start with easier tasks such as light reading. Gradually increase the amount of time spent studying as tolerated.

4. Full Class Participation and Homework. Once you can fully attend class and complete reading and homework assignments and have been asymptomatic for 24 hours, you can consider return to athletic participation, dance classes or other physical activity.

When can I return to my sport or activity?

You will need to follow these steps for recovery to gradually get back to your sport. When you are fully symptom free for over 24 hours you can begin the following steps (each step should be 24 hours apart):

1. Light aerobic exercise. Do 15 to 20 minutes of light to moderate exertion on a stationary bike as well as 10 to 15 push-ups and sit-ups. This step is intended to mildly increase your heart rate and blood pressure and see how your brain responds. Stop if you start having symptoms, such as headache, nausea, vomiting, fogginess, or dizziness. Do not lift weights yet.

2. Movement/sport-specific exercise. If you don’t have any symptoms when you do light aerobic exercise, nor for 24 hours after the exercise, try to do a light 30-minute workout or individual sport-specific, noncontact exercise. For example, you might run, skate, or dribble or shoot a ball. Stop if you start having any symptoms.

3. Noncontact training drills and weight lifting. If you don’t have any symptoms during the activities of step 2, nor for 24 hours afterwards, you may participate in noncontact athletic activities. This means activities where there is no risk that your head will be hit. For example, a basketball player may do some uncontested layups or free throws but should not do any one-on-one or team drills. You may also begin some light-weight lifting and gradually increase the weight and repetitions over the following days. Stop if you start having any symptoms.

4. Full contact practice. Before you return to full-contact participation in your sport, you should be cleared by your healthcare provider. Remember if you start having any symptoms of concussion, you should STOP the activity, contact your healthcare provider for urgent advice or care, and schedule a follow-up with your provider.

5. Return to game play.

If you have any symptoms during any of these steps you must wait until you are symptom free for 24 hours and restart at the last successful step. If you have had repeated concussions, your healthcare provider may talk to you about limiting your participation in certain sports.

How can I prevent a concussion?

Recognizing and treating a concussion early is the most important part of care. Athletes need to be honest about telling their symptoms to coaches and medical staff!

It is very important to understand that receiving a second blow to the head before the first injury is fully healed can be fatal, even if the second injury seems minor.

A concussion is caused by a blow to the head. It is important in contact sports that you wear proper protective head gear that fits well. In sports such as football, it is important to use proper blocking and tackling techniques and not to use your head for initial contact. In sports such as bicycling, white-water kayaking, and rollerblading, wear a helmet. Strengthening your neck can help prevent concussions.