

## Concussion – Symptoms and Causes

Source: The Mayo Clinic

<http://www.mayoclinic.org/diseases-conditions/concussion/symptoms-causes/dxc-20273155>

The signs and symptoms of a concussion can be subtle and may not show up immediately. Symptoms can last for days, weeks or even longer. Common symptoms after a concussive traumatic brain injury are headache, loss of memory (amnesia) and confusion. The amnesia usually involves forgetting the event that caused the concussion.

Signs and symptoms of a concussion may include:

- Headache or a feeling of pressure in the head
- Temporary loss of consciousness
- Confusion or feeling as if in a fog
- Amnesia surrounding the traumatic event
- Dizziness or "seeing stars"
- Ringing in the ears
- Nausea
- Vomiting
- Slurred speech
- Delayed response to questions
- Appearing dazed
- Fatigue

You may have some symptoms of concussions immediately. Others may be delayed for hours or days after injury, such as:

- Concentration and memory complaints
- Irritability and other personality changes
- Sensitivity to light and noise
- Sleep disturbances
- Psychological adjustment problems and depression
- Disorders of taste and smell

### Symptoms in children

Head trauma is very common in young children. But concussions can be difficult to recognize in infants and toddlers because they can't describe how they feel. Concussion clues may include:

- Appearing dazed
- Listlessness and tiring easily
- Irritability and crankiness
- Loss of balance and unsteady walking
- Crying excessively
- Change in eating or sleeping patterns
- Lack of interest in favorite toys

### When to see a doctor

See a doctor within 1 to 2 days if: You or your child experiences a head injury, even if emergency care isn't required.

The American Academy of Pediatrics recommends that you call your child's doctor for anything more than a light bump on your child's head. If your child doesn't have signs of a serious head injury, remains alert, moves normally and responds to you, the injury is probably mild and usually doesn't need further testing. In this case, if your child wants to nap, it's OK to let him or her sleep. If worrisome signs develop later, seek emergency care.

### Seek emergency care for an adult or child who experiences a head injury and symptoms such as:

- Repeated vomiting
- A loss of consciousness lasting longer than 30 seconds
- A headache that gets worse over time
- Changes in his or her behavior, such as irritability
- Changes in physical coordination, such as stumbling or clumsiness
- Confusion or disorientation, such as difficulty recognizing people or places
- Slurred speech or other changes in speech

Other symptoms include:

- Seizures
- Vision or eye disturbances, such as pupils that are bigger than normal (dilated pupils) or pupils of unequal sizes
- Lasting or recurrent dizziness
- Obvious difficulty with mental function or physical coordination
- Symptoms that worsen over time
- Large head bumps or bruises on areas other than the forehead in children, especially in infants under 12 months of age

### **Athletes**

Never return to play or vigorous activity while signs or symptoms of a concussion are present. An athlete with a suspected concussion should not return to play until he or she has been medically evaluated by a health care professional trained in evaluating and managing concussions. Children and adolescents should be evaluated by a health care professional trained in evaluating and managing pediatric concussions. Adult, child and adolescent athletes with a concussion also should not return to play on the same day as the injury.

### **Causes**

Your brain has the consistency of gelatin. It's cushioned from everyday jolts and bumps by cerebrospinal fluid inside your skull. A violent blow to your head and neck or upper body can cause your brain to slide back and forth forcefully against the inner walls of your skull. Sudden acceleration or deceleration of the head, caused by events such as a car crash or being violently shaken, also can cause brain injury. These injuries affect brain function, usually for a brief period, resulting in signs and symptoms of concussion. This type of brain injury may lead to bleeding in or around your brain, causing symptoms such as prolonged drowsiness and confusion. These symptoms may develop immediately or later. Such bleeding in your brain can be fatal. That's why anyone who experiences a brain injury needs monitoring in the hours afterward and emergency care if symptoms worsen.

### **Risk factors**

Activities and factors that may increase your risk of a concussion include:

- Falling, especially in young children and older adults
- Participating in a high-risk sport, such as football, hockey, soccer, rugby, boxing or other contact sport
- Participating in high-risk sports without proper safety equipment and supervision
- Being involved in a motor vehicle collision
- Being involved in a pedestrian or bicycle accident
- Being a soldier involved in combat
- Being a victim of physical abuse
- Having had a previous concussion

### **Potential complications of concussion include:**

- **Post-traumatic headaches.** Some people experience headaches within a week to a few months after a brain injury.
- **Post-traumatic vertigo.** Some people experience a sense of spinning or dizziness for days, week or months after a brain injury.
- **Post-concussion syndrome.** Some people have symptoms — such as headaches, dizziness and thinking difficulties — a few days after a concussion. Symptoms may continue for weeks or months.
- **Cumulative effects of multiple brain injuries.** It's possible that some people who have had one or more traumatic brain injuries over the course of their lives are at greater risk of developing lasting, possibly progressive, impairment that limits function. This is an area of active research.
- **Second impact syndrome.** Rarely, experiencing a second concussion before signs and symptoms of a first concussion have resolved may result in rapid and usually fatal brain swelling.

Concussion changes the levels of brain chemicals. It usually takes about a week for these levels to stabilize again, but recovery time varies. It's important for athletes never to return to sports while they're still experiencing signs and symptoms of concussion.