

## Concussions

A concussion is a reaction by the brain to a jolt of force that is transmitted to the head by an impact or blow occurring anywhere on the body. The concussion results from the brain moving back and forth or twisting rapidly inside the skull. This causes a temporary change in the brain's function. In most cases, symptoms occur immediately but resolve over a short period of time. In some cases, symptoms can last for weeks or longer.

### Signs and Symptoms:

Acute symptoms:

- Confusion
- Amnesia
  - Usually for the actual event
  - May include loss of recall for events immediately before and after the head trauma
- May or may not have loss of consciousness

Early symptoms (within minutes to hours):

- Headache
- Dizziness (vertigo, imbalance)
- Lack of awareness of surroundings
- Nausea and vomiting
- Blurred vision

Later symptoms:

- Mood disturbances, irritability
- Cognitive disturbances
- Sensitivity to light and noise
- Sleep disturbances, fatigue

Signs of a concussion:

- Vacant stare (befuddled facial expression)
- Delayed verbal response
- Distractibility, inability to focus
- Disorientation (walking in the wrong direction, unaware of time, date, place)
- Slurred or incoherent speech
- Incoordination (stumbling, inability to walk in a straight line)
- Emotionally labile (crying for no apparent reason)
- Memory deficits (asking the same question over and over)
- Any period of loss of consciousness

### Recovery protocol:

To recover from a concussion, the body needs both cognitive and physical rest. Following a plan that outlines what activities a person can participate in and when normal activities can resume actually shortens the recovery period.

**Cognitive rest**

Cognitive rest involves avoiding participation in, or exposure to, activities that require concentration or mental stimulation, including:

- Computers and video games
- Television viewing
- Texting or playing with a phone
- Reading or writing
- Loud music
- Bright lights

These activities should be avoided for a minimum of 24 hours after the injury. If the person has any of the symptoms listed above, cognitive rest should continue until at least 24 hours after the symptoms have completely resolved. At that time, the person can gradually resume activities as listed above for short periods of time (2 to 4 hours, once or twice a day). If any symptoms reappear, then the person must again rest and only start activities after another 24 hours without symptoms.

**Physical rest:**

Physical rest includes getting adequate sleep, taking frequent rest periods or naps, and avoiding physical activity that requires exertion. Activities that should be avoided include:

- Any activity that can result in contact and collision and are high risk for re-injury
- High speed and/or intense exercise and sports
- Any activity that results in an increased heart rate or increased head pressure (straining or strength training)

Once 24 hours after the injury has passed or the person is symptom-free for 24 hours then a return to physical activity is appropriate.

**Phase 1:** start with low impact, non-strenuous activity such as walking or riding a bike. If tolerated, without return of symptoms, proceed to Phase 2 on the following day.

**Phase 2:** higher impact, higher exertion activity such as running and non-contact sports activities. Moderate weight training is allowed. If tolerated, without return of symptoms, proceed to Phase 3 on the following day.

**Phase 3:** full activity without restrictions

If during any phase of activity, the person develops symptoms, he/she will drop back to the previous level of activity for an additional 24 hours before attempting the next phase.