



Nova Scotia
Physiotherapy
Association

Frequently Asked Questions: Concussion

1. What is a concussion?

A concussion is a mild form of brain injury that causes a temporary disturbance in cells caused by acceleration or deceleration of the brain within the skull.^{1,2,3}

2. What causes a concussion?

A concussion is caused by acceleration or deceleration of the brain, following a significant impact to the head or elsewhere on the body.^{1,2,3} One common misconception is that someone must be hit in the head to cause a concussion; however, a significant enough hit to the body may result in acceleration or deceleration of the brain and cause concussion.⁴

3. What are the symptoms of a concussion?

A concussion causes brain cells to discharge uncontrollably, which may result in any of the following symptoms:⁴

Loss of consciousness - Headache - Pressure in the head - Neck pain - Nausea and/or vomiting - Dizziness or vertigo - Blurred vision - Balance problems - Sensitivity to noise - Sensitivity to light - Feeling slowed down - Feeling of “fogginess” - Not feeling right/feeling off - Difficulty concentrating - Difficulty remembering - Fatigue or low energy - Confusion Drowsiness - Trouble falling asleep More emotional Irritability - Sadness - Nervous or anxious

4. Are concussions preventable?

No. However, research has demonstrated that eliminating contact in sports and educating players about where they are on the playing field can help to limit concussion risk. Concussion is an acceleration injury, and embracing for impact and stiffening your neck may reduce the force transmitted to the brain. Therefore, this requires game awareness to anticipate impending impacts, and brace accordingly.⁴

5. How is a concussion diagnosed?

Concussions are difficult to diagnose because symptoms may not be present immediately following an impact and the symptoms are like those of other common injuries such as whiplash. **Complete Concussion Management Inc.** (CCMI) advises healthcare practitioners and all those involved in concussion care to err on the side of caution. If there is a significant impact and at least one concussion symptom, an athlete should be removed from play and assessed by a licensed healthcare practitioner with training in concussion management.⁴ CCMI recommends a comprehensive baseline concussion test for all high-risk athletes above the age of 10 prior to the season to help make an accurate diagnosis in difficult cases as well as to establish an approach to recovery and readiness for athletes to return to play.

6. Does a concussion always result in loss of consciousness?

No. Research shows that more than 90% of concussions do not result in loss of consciousness.⁴

7. What treatments are available for athletes with a concussion?

During the early stages following injury, moderate, symptom-limited rest is recommended. CCMI generally recommends 24 to 48 hours; however, these decisions are made on a case- by-case basis.⁵

Following a short period of rest, treatment and rehabilitation may include a gradual increase in mental and physical activity. If symptoms persist beyond 10 days, exercise therapy, manual therapy of the neck, diet and nutrition changes, and vestibular and visual rehabilitation are proven to be effective. The international concussion consensus recommends seeking the care of a trained and experienced concussion practitioner if symptoms persist beyond 10 days.

8. What treatments are available for non-athletes with a concussion?

CCMI offers treatment approaches for athletes and non-athletes, which may include exercise therapy; manual therapy; diet and nutrition changes; vestibular and visual rehabilitation; and education and reassurance. Visit completeconcussions.com/find-a-clinic to find a clinic and schedule an appointment with a recognized CCMI practitioner to learn about treatment approaches that are right for you.

9. What is “spreading depression”?

The initial release of brain cells following a concussion creates an imbalance within the brain. This causes an energy deficit as the cells use up all their energy stores to reset the normal balance. These energy stores decline over the next 3 to 7 days. In this stage, patients often feel fatigued, irritable and emotional because their energy levels are depleted.

The second phase of the concussion – or “spreading depression” – is the most dangerous. When someone is in this low energy state, another blow – even one of smaller impact – could cause a second concussion. Because the energy levels of the brain are already severely depleted, another concussion could cause extreme energy depletion, which may result in permanent damage of brain cells, potentially causing permanent disability, or in some instances, death.⁴

10. Can someone die from a concussion?

A concussion is known as a mild traumatic brain injury (mTBI) and, by itself, is not a fatal injury. The concern surrounding concussion in the initial few hours to days is not the concussion, but rather that there may be a more severe injury than concussion such as a bleed or skull fracture. There have also been cases where individuals have died from secondary concussions that occurred before full recovery of the first concussion, this is called “Second-Impact Syndrome”.⁴

For more information, visit www.CompleteConcussions.com.

Sources:

¹ Signoretti S., et al. The pathophysiology of concussion. American Academy of Physical Medicine and Rehabilitation. 2011 Oct;3(10 Suppl 2):S359-68.

² Barth, Jeffrey T., et al. Acceleration-Deceleration Sport-Related Concussion: The Gravity of It All. J Athl Train. 2001 Jul-Sep; 36(3): 253–256.

³ Giza, Christopher C. and Hovda, David A. The Neurometabolic Cascade of Concussion. The Neurometabolic Cascade of Concussion. J Athl Train. 2001 Jul-Sep; 36(3): 228–235.

⁴ Marshall, Cameron M. Sports-related concussion: A narrative review of the literature. J Can Chiropr Assoc. 2012 Dec; 56(4): 299–310.

⁵ McCrory p, et al. Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. Br J Sports Med 2017;0:1–10. doi:10.