

## Frequently Asked Questions – Concussion

### 1. What is a Concussion?

Concussion is a type of Traumatic Brain Injury (TBI). There are 3 kinds of TBI: mild, moderate, and severe. A mild TBI (mTBI) is a synonym of concussion. It is characterised by an energy crisis in the brain, but there is no actual damage to the brain tissue. This means that if a concussion is managed properly, the brain will fully recover. On the other hand, improper concussion management may lead to situations that can facilitate recurrence of concussions, and that can cause irreversible damage to the brain.

### 2. What happens during a Concussion?

During a concussion, a fast movement of the head and neck, accompanied or not by a hit in the head, provoke a fast acceleration and deceleration of the brain tissue, and stretch the brain cells (called neurones), tricking them into thinking they have received an electric signal, and this changes the composition of the molecules inside and outside the neurones. Now, all the neurones fire electrical signals at the same time, triggering an “electrical storm” inside the brain. This leads to an energy crisis, reducing the brain’s energy storage by up to 20% in the hours and days following a concussion, causing several characteristic symptoms of concussion.

### 3. Can I get a Concussion even if I don’t get a hit to the head?

Yes, in the past we used to think the concussion was caused by a hit to the head, which would bruise the brain around the area of the trauma. Current research shows this is not what happens during concussion. It is the fast movement of the head and neck that stretches the brain tissue leading to a series of metabolic events that characterises a concussion.

### 4. What are the Concussion symptoms?

There are more than 20 concussion symptoms. The most common are fatigue, headaches, dizziness, nausea, brain fog, visual problems, difficulty concentrating, wake/sleep disturbance, drowsiness, feeling slow, sound and light sensitivity, among others.

### 5. How long do Concussion symptoms last?

On average the symptoms last 10-14 days for most people (60%), however a good portion of concussed people may experience prolonged symptoms, that may last from 30 days to months and years.

### 6. Are there any emergency signs following a Concussion?

Concussion itself is not a medical emergency. However, more severe Traumatic Brain Injuries (TBIs) have the same mechanisms of injury as a concussion. Therefore, if a person presents with the following symptoms in the initial hours and days following a concussion, she/he should be taken to Accident and Emergency at the hospital, to exclude the possibility of more serious TBIs. The symptoms are loss of consciousness, feeling extremely sleepy or drowsy and cannot be awakened, severe headaches, seizures, feeling very confused, vomiting episodes, amnesia, cannot talk or walk properly, feeling weakness or numbness.

### 7. Are Concussions common?

Concussions are the most common kind of head injuries. The main causes are motor vehicle accidents, falls (especially for children and old people), and sports accidents, which are the most common cause in adolescents and young adults. It is more common in men than women, but statistically women are more vulnerable and tend to have long-lasting symptoms when compared to men.

### 8. What is Post-Concussion Syndrome (PCS)?

The term Post-Concussion Syndrome was recently replaced by Prolonged Concussion Symptoms (PCS) and refers to the concussed people group that sustain one or more concussion symptoms for a period over 30 days. In some cases, PCS can last for several months and even years. In most cases, people will develop PCS if the concussion management was not properly handled at every stage of concussion.

9. Why do people recover differently from each other after a Concussion and with different recovery timelines?

Many factors are attributed as potential causes to influence the concussion recovery timeline. We know that women are more prone to have prolonged symptoms, also this is more likely for people who have suffered previous concussions. Having a second concussion before fully recovering from the first concussion is the worst scenario, with potential irreversible damage to the brain. Therefore, proper management from the early stages of a concussion until full recovery is essential. Research shows that the main factor in enabling a faster recovery timeline and avoiding PCS, is seeing a health care provider who is specialised in concussion and up to date with current research, as soon as possible.

10. How is a Concussion diagnosed?

Despite the efforts by researchers in different fields, no diagnostic tool has been shown to be effective in the diagnosis of concussion. This includes laboratory blood tests, and imaging tests, like CT scans and MRI. Therefore, concussion remains a clinical diagnosis. This means that anyone that had a mechanism of injury compatible with concussion and presents with at least one of the concussion symptoms, after excluding more serious pathologies, should be diagnosed with concussion, and treated accordingly.

11. What is the best treatment for a Concussion?

That will vary for every person, as many different systems may be affected after a concussion, and people will need different rehab strategies on a case-by-case basis. The approach should include a thorough assessment, initially to exclude the possibility of more serious neurological pathologies, and then to identify the possible sources of the symptoms (this should include specific exertion testing, tests for the visual and vestibular system, neck orthopaedic and functional tests, dietary habits assessment, and in some cases psychological evaluation and support). After the assessment, different recovery strategies will be developed according to the person's needs. The most important is to be seen by a capable health care provider who understands the different stages of concussion, how to adequately assess all the systems that might be impaired, and who can create a specific and individualised plan of treatment.

12. How long should I wait to return to my regular activities after suffering a concussion?

There are specific protocols that should be followed to return to people's regular activities. This includes the return to school, work, driving, physical activities and sports. Rather than specific timelines, the protocols should follow a gradual return based on specific stages that must be attained before progressing to the next stages. Regarding the return to physical activities, and especially sports that have contact, such as football, rugby, or netball, there are specific tests that should be done to reach the goal of a safe return to play.

13. Is there a way to prevent concussion?

Unfortunately, there is no way to prevent a concussion, not even in sports with the use of helmets and mouthguards, which have been shown to be ineffective in several scientific studies. Some research, specifically related to team sports, indicates that training in improving a player's awareness of the game (which usually increases with experience) can help in reducing the risks and being more well-prepared for traumas that may potentially cause concussions. Studies showed that being prepared for a trauma that you can identify is about to happen, reduces exponentially the likelihood of injuries (concussion and other injuries in general) when compared to a situation where the trauma happens when the athlete is not expecting anything, or is not aware of it.