

What is concussion?

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Concussion is a traumatic brain injury resulting in a disturbance of the normal working of the brain in which typically standard brain scans are normal. It is usually the result of one of the following:

- A blow directly to the head e.g. a clash of heads or the head hitting the ground
- The head being shaken when the body is struck e.g. a high impact tackle

This disturbance results in a range of symptoms which are covered in detail on this site, some of which are very subtle, but the common ones are headache, dizziness, memory disturbance or balance problems.. The main effects that help us identify concussion are the brain's ability to process information – this is picked up by looking for symptoms and testing a player's memory and balance.

Loss of consciousness, being knocked out, occurs in less than 10% of concussions. Loss of consciousness is not needed for a diagnosis of concussion to be made.

While in most cases the onset of symptoms of concussion is immediate or within minutes of the injury, in some cases there is a delayed onset which may be up to 48 hours.

Concussion:

- Is a brain injury.
- Causes disturbance of the brains function.
- Cannot be detected using standard brain scans.
- Must be taken seriously.
- Can occur without loss of consciousness.
- Onset of symptoms may be delayed.
- Most cases recover with physical and mental rest. And takes about 7-10 days.
- In the early stages can be similar to rare but more serious structural brain injury

Young players are more susceptible to concussion and some studies suggest that females are twice as likely to sustain a concussion as males.

Headache Emotional Appearance Drowsiness Confusion Agitated Seizure Ears&eyes

Is concussion serious?

Most people who sustain a concussion do not require any treatment as they normally get better by themselves and recover quickly.

“While the medical term 'traumatic brain injury' can sound serious, the actual extent of damage to the brain is usually minimal and does not usually cause long-term problems or complications.” – NHS Choices

While for most the symptoms usually last for a few days, they may last for a few weeks or in a small number of cases longer; when it may be called Post-concussion Syndrome. Research suggests that most adults recover fully by about 7 – 10 days after the initial injury.

During this recovery time however, the brain does appear to be more vulnerable and if another concussion is sustained during this time, the risk of more severe and prolonged symptoms is increased, especially in young players (see below). This is why it is so important to recognise concussion, remove the player immediately from play, and not allow them to return to play until their brain function has returned to normal and they have been medically cleared.

If managed correctly, concussion rarely has serious consequences, and full recovery can be expected. Most doctors would therefore argue that the physical benefits of taking part in contact sports outweigh the potential risks associated with concussion.

The other consideration is the importance of identifying rare but serious head injuries that may initially present in a similar way to concussion. This issue is considered further below.

Is concussion different in young players?

In young players we do need to be more cautious. Because the child and adolescent brain is still developing there is particular concern that concussion can have more of an impact on the brain function, and another concussion occurring before recovery of the first results in prolonged symptoms that can have a significant impact on the child, especially on their education.

There are also reports that in extremely rare and as yet not fully understood cases, this subsequent concussion (if in close proximity to the first, particularly in the same game) may cause potentially **FATAL** rapid brain swelling.

What is therefore of some concern is that our research in young players suggests that boys playing rugby at their school or club frequently do not admit to being concussed and continue to play and train. In our study of 16 - 18 year olds, although 66% felt a concussion was a serious injury, only 44% were aware that there were Regulations

that required them to stand down from playing for a period and gain medical clearance before returning to play. Of those who felt that they had been concussed in the preceding two seasons, 66% of this group said that they did not leave the field after that concussion, and 38% said that they did not report their concussion to anyone. Only 10% said that they waited the stipulated IRB stand down period before returning to play.

Players must be encouraged to be honest with themselves, coaching and medical staff for their own protection. Our research shows that young players rely most on their coach for advice and guidance on concussion. Coaches, and other adults involved in rugby therefore

Young Players:

- Are more susceptible to concussion
- Take longer to recover
- Have more significant memory and mental processing issues.
- Are more susceptible to rare but potentially fatal complications of further concussions.



have a pivotal role in educating young players about concussion, and in making sure it is managed properly.

Can more serious conditions appear like concussion?

Although extremely rare in sport, a blow to the head (direct or indirect) may first appear to be concussion, when in fact there is something more serious going on; such as bleeding or swelling in or around the brain. Sometimes the symptoms of a more serious brain injury do not occur for several hours or days after the initial injury has taken place. If not recognised, these injuries can have very serious consequences and can be fatal. To keep this in context, according to American data on fatal head injuries, the number of deaths in all sports added together resulting from head injury is lower than the number of deaths due to lightning strikes.

All players who are suspected of having concussion must therefore be assessed by a health care professional and children by a doctor. If there are any concerns about a more serious injury then the emergency services should be called to take the player to hospital immediately.

What about repeated concussions?

Because there is considerable variation in the initial effects of concussion, and spontaneous recovery is often rapid, this could increase the potential for players to ignore concussion symptoms at the time of injury and/or return to play prior to full recovery, as was shown in our research. There is an increasing amount of research that suggests that returning to play before complete resolution of the concussion exposes the player to the risk of recurrent concussions that can occur with ever decreasing forces, and result in chronic symptoms of Post-concussion Syndrome. There are therefore concerns that repeated concussion particularly before full recovery could shorten a player's career, significantly interfere with academic performance, and may have some potential to result in permanent neurological impairment. This emphasises the need for prevention, careful management at the time of injury, comprehensive medical assessment and structured follow-up until the concussion has fully resolved. Players who suffer two concussions in any 12 month period are at greater risk of further brain injury and slower recovery and should seek medical attention from practitioners experienced in concussion management via their GP, before return to play.

Repeated concussions:

- Have potentially serious short and long term health consequences.
- Players who suffer two concussions in any 12 month period should seek expert medical opinion before RTP