Multiple concussions:
how are they managed and why?

If you have sustained multiple concussions (either many over a long period, or a few over a shorter period) it is important to be aware of the associated risks.
This is not an immediate recommendation to retire from contact sports, but rather an attempt to arm you and your family with the correct information so that you can make an informed decision yourself.

The below gives a broad overview of the area but is not designed to replace medical advice that will vary from patient to patient. This information is accurate as of the time of writing (November 2024), but please note that understanding in the area is rapidly evolving and the information is this document is subject to change.

Introduction

A concussion is a form of minor traumatic brain injury (mTBI), and as a result must be taken seriously. Concussions have both short and medium-term risk - hence the need to identify the injury early and ensure safe and appropriate onward management - but there's been a growing recognition of possible long-term effects. This is particularly important to consider in the context of multiple concussions.

What do we know?

There have been long standing suspicions that multiple concussions can have long term effects upon brain function.
More recent research indicates that there is now little doubt that multiple minor traumatic brain injuries are linked to long-term poor brain health and higher risk of issues such as dementia. It's important to note though that there are other factors at play (genetics, lifestyle etc) and that emerging evidence is leaning more towards frequent low-level brain impacts – so called 'sub-concussive' incidents - being the biggest factor in long term issues rather than concussions specifically.

How many is too many? And what is the guidance?

There is no simple answer to this question. As it stands there are no definitive guidelines relating to continued participation in contact sport. It is important to consider each case individually, taking into account recovery times from previous concussions, and time between concussive episodes. If you have suffered two or more concussions in a short space of time your doctor may however recommend an extended Graduated Return to Sport (GRAS) longer period of time away from contact training. Whereas a standard GRTS would necessitate a minimum of 21 days off competitive sport, the extended process is outlined at the end of this document.

What does this mean for me?

Making the right decision when it comes to considering future participation in contact sports is not easy. Symptoms are often non-specific, and issues unrelated to brain recovery (vision and balance problems, neck muscle spasms etc.) often contribute to a prolonged recovery. Furthermore, there are individuals who seem to have a low personal threshold for symptom occurrence which may pre-dispose them to being symptomatic even at lower forces.

As it stands, it's not currently possible to accurately estimate the level of risk of continuing to play contact sports following repeated concussions. Ultimately it will be a personal decision between yourself and your parents.

How can I find out more?

If you would like to discuss specific concerns about yourself or a member of your family, please email support@return2play.org.uk and one of our team will be in touch.

Frequently Asked Questions (FAQs)

If I wear a scrum cap will that reduce my future risk of a concussion?

Scrum caps reduce the risk of cuts and scrapes to the head, but they do not reduce rates of concussion. Some companies have demonstrated in lab tests a reduced rate of force with their scrumcaps, but there is currently no definitive evidence of concussion prevention.

I've had previous concussions recorded, but I don't think these were actually concussions.

There is no perfect test for a concussion, and there are times when a cautious approach is appropriate. Whilst this may complicate the absolute number of concussions sustained, it still remains an important management strategy. If you would like to discuss your concussion history in more detail, this can be arranged via support@return2play.org.uk

Does neck strengthening prevent concussions?

This causes no end of debate! Some studies have demonstrated that strengthening of the neck can reduce rates of concussion, whereas others have suggested that it has little effect. Ensuring strength and flexibility of the neck is likely to be beneficial regardless, however. Specific exercises for the neck can be found here.

I've heard about 'Smart' mouthguards? Can these reduce risk?

IMGs (instrumented mouthguards) are able to measure force of head impacts or collisions, and are currently undergoing trials in both professional and amateur rugby. Whilst they will be able to provide useful data with regards to training load and cumulative force, they are not yet able to diagnose concussion or reduce risks of head impacts.

What is CTE?

Chronic Traumatic Encephalopathy (CTE) is a neurodegenerative disease involving buildup of an abnormal protein called Tau in the brain. It can be related to repeated head traumas, but currently can only be diagnosed at post-mortem. It can lead to memory issues, impaired judgment and confusion. Understanding of the condition is still evolving, and it is impossible to predict accurately who will be affected.

Do I need a scan of my brain?

Brain scans such as CT or MRI are sometimes advised in the immediate aftermath of a head injury, but this is to rule out issues such as a bleed on the brain. Concussions do not show up on scans such as these, are they generally aren't considered helpful in terms prognosticating future issues. There are more specialised scans which are sometimes offered in cases of concussion, but how specific any findings are for a concussive injury is unclear.

What is the extended Graduated Return to Sport (GRTS)?

This is often recommended in patients who have sustained concussions in quick succession. The process is outlined in the infographic below. Please note that this is for guidance only and may be subject to change depending on your individual situation.

Return to Activity & Sport Pathway (summary)
Following two concussions in quick succession

Part of Meliora Medical Group

Time since injury (earliest day)	Activity Level
0-2 days	**Relative rest**
	Medical Assessment *to confirm diagnosis and give recovery advice*
3-7 days	**Light activity** Gentle walks etc. ***Activity level shouldn't leave you breathless***
Day 8 onwards	**Low risk exercise & training** Gradual increase in self-directed exercise – running, stationary bike, swimming, supervised weight training etc. ***Focus on fitness*** Can introduce static training drills (eg passing/kicking). Only drills with ***NO*** predictable risk of head injury
	R2P Doctor Assessment *to assess fitness to start a formal return to sport and advise on timeframes* ***If any concerns around recovery then referral to Complex Case Clinic***
15-21 days	**Further 7 days of low-risk exercise & training, building up intensity as outlined above.**
21-35 days	**Gradual return to sports training – extended to 14 days** Starting with non-contact and gradually building up complexity and intensity. Suggest first week of GRTS = non-contact, second week introducing contact elements if relevant.
	R2P Doctor Assessment *to assess fitness to return to unrestricted sport, including matches*
Day 35 onwards	**Earliest return to competitive sport/matches** Only if symptom free at rest for at **least 21 days** and has completed gradual return to sports training without any recurrence in symptoms