CAPE SPORTS MEDICINE

WHAT IS CONCUSSION

Sport-related concussion (SRC) is a mild traumatic brain injury, caused by either a direct or indirect blow to the head, face or body (e.g. head-head, shoulder/knee/hip-head). It is more commonly seen in contact sports such as rugby, but can often be seen in other collision sports such as field hockey. It can in fact also be sustained by falling off skate-boards, off jungle-gyms etc.

Concussion is becoming a player welfare focus in many sports. Some international Federations, such as World Rugby, are investing huge amounts of money into research in how to reduce the incidence of concussions. As concussion is being more accurately recognised, the incidence appears to be increasing.

SRC is what is known as a 'Functional Brain Injury'. This means that although the brain may look normal on imaging such as CT and MRI scans, it is not functioning / working properly. The analogy is that your laptop may look perfectly normal from the outside if it has a software problem, but it just won't work properly! The challenge with SRC is that it is an invisible injury, which makes it difficult for parents / coaches, teachers and other players to understand what you are going through if you have a concussion.

HOW COMMON IS CONCUSSION?

More common than you think! Children and adolescents are more susceptible to concussion and take longer to recover than adults. Data from South African youth rugby weeks show an overall incidence (in those players who are under 19) of 6.8 concussions per 1000 playing hours i.e. we expect almost 7 concussions for every 1000 players who play an hour of rugby. Many of these are missed and not recognised in weekend rugby matches. We expect most adolescents to recover from their concussion within 3-4 weeks.

HOW DO WE RECOGNISE A CONCUSSION?

Firstly – a concussion won't be recognised if you don't know what to look for, so educating everyone who is involved in contact sports is a KEY point. In fact, some countries take it so seriously (e.g. all 50 US states, and Canada), that it is legislated i.e. A LAW, that all athletes who participate in contact sports need to undergo annual concussion education.

One therefore has to be alert to the circumstances that we know are involved with concussions e.g. high tackles in rugby, tip / spear tackles or falls from a height (e.g. falling from a lineout lift).
There are some obvious on-field signs that can indicate a concussion / suspected concussion:

- A loss of consciousness or suspected loss of consciousness e.g. player falling flat on their face without putting their hands out to protect themselves. This would be seen as the player lying motionless, but ONLY 10% of concussions have a loss of consciousness.
- Slow to get up after a direct / indirect hit to the head
- Balance problems / lack of co-ordination
- Disorientation / confusion
- Loss of memory
- Blank / vacant look
- Having a fit, or seizure
- Facial injury together with a knock to the head

Sometimes symptoms can take up to 24 hours to evolve after the injury.

Symptoms can be divided into 4 different categories, and not everyone has symptoms from each one. Physical or mental activity may aggravate symptoms. The main parts of the brain affected by concussion are those associated with memory, concentration and balance.

1) PHYSICAL

- Headache
- Nausea / persistent vomiting
- Blurred vision
- Fatigue / tiredness
- Off balance
- Feeling of pressure inside your head
- Neck pain
- Light / noise sensitivity

2) COGNITIVE

- Feeling 'slowed down' or feeling 'in a fog'
- Memory issues (sometimes the memory of the event never returns, as the memory center had 'switched off' during the injury, so the memory was never actually made)
- Concentration issues

3) EMOTIONAL

- Feeling sad / nervous or anxious
- Irritable

4) SLEEP DISTURBANCES

- Trouble falling asleep
- Sleeping too much or too little

CONCUSSION

RECOGNISE AND REMOVE

Players with suspected concussion **MUST** be removed from the field of play and not be allowed to return to the field on the same day, even if the symptoms resolve. Other than some elite sports where there are laws in certain competitions which allow for a pitch-side Head Injury assessment, there is NO SUCH assessment at school or club level in South Africa.

IF IN DOUBT SIT THEM OUT!

I THINK MY CHILD / FELLOW PLAYER MAY HAVE A CONCUSSION - WHAT DO I DO?

Call an ambulance / take them to an Emergency Unit immediately if they have any of the following red flag symptoms:

- A seizure / fit / convulsion
- Weakness or tingling/burning of arms / legs
- Double vision
- Severe / increasing headache
- Loss of consciousness
- Deteriorating state of consciousness
- Increasingly restless, agitated or combative

If none of the above:

- Do not leave them alone, especially for the first few hours
- Do not let them drink any alcohol
- Do not let them drive
- Only give them Panado (paracetamol) for headaches – no prescription / recreational drugs
- Let them rest their body (no sport / physical activity) and their brain – try to limit screen time as much as possible and no 'gaming'

Make an appointment to see a doctor (***who understands concussion***) who can assess the athlete properly, at the earliest opportunity – this does not need to be on the same day as the injury.

You may phone 021 659 5644, or email info@cape-sportsmed.com to make an appointment at Cape Sports Medicine, where ***our doctors are all experienced in concussion management***. If you are not in Cape Town you can find a Dr on the following Concussion website www.sportsconcussion.co.za

After assessing the athlete, the doctor will decide whether any scans are necessary (to rule out structural brain injuries e.g. brain bleeds, skull or facial fractures) and whether the athlete should see a physiotherapist as well. They will also give you a certificate which will guide the school / club on expected further management.

WHAT CAN I EXPECT AS PART OF CONCUSSION MANAGEMENT?

We follow the Concussion R's:

1. Recognise
2. Remove – from play (and no return on the same day)
3. Rest: for 24 – 48 hours
4. Review
5. Refer – for imaging / specialist assessment if necessary
6. Rehabilitation – this may be by the physiotherapists for vestibular (eye / balance) or neck rehabilitation
7. Recover – brain injuries require time to recover. Some sports such as Rugby have mandatory time periods before the player may enter their GRTS (Graded Return to Sport). In children and adolescents we are more cautious and don't start their GRTS before 14 days.
8. Return to Learn (Graded RTL) – at school / college – this is a stepwise approach and communication is essential with the athlete's place of learning – they are only allowed light activity which does not cause / aggravate symptoms during this time. Allowance may need to be made for not writing assessments or going home from school early. Ideally, the schools should have a concussion register which keeps track of where learners are in their road to recovery.
9. Return to Sport –this must be in a graded manner (GRTS) – see table, and only once the learner has completed their GRTL.

Athletes should be cleared by their doctor before they enter their GRTS.

GRTL (Gradual Return To Learn/Work)

	Mental Activity	Activity At Each Step	Goal of Each Step
1	Daily activities that do not give the athlete symptoms	Typical activities that the athlete does during the day as long as they do not increase symptoms (e.g. reading, texting, screen time). Start with 5-15 minutes at a time and gradually build up.	Gradual return to typical activities.
2	School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3	Return to school part-time	Gradual introduction of school-work. May need to start with partial school day or with increased breaks during the day.	Increase academic activities.
4	Return to school full-time	Gradually progress school activities until a full day can be tolerated.	Return to full academic activities and catch up on missed work.

GRTS (Graduated Return To Sport Strategy)

Exercise Step	Functional exercise at each step	Goal of each step
1 Symptom-limited activity	Daily activities that do not provoke the symptoms.	Gradual reintroduction of work/school activities.
2 Light aerobic exercise	Walking or stationary cycling at slow to medium pace. No resistance training.	Increase heart rate.
3 Sport-specific exercise	Running, cycling or rowing drills. NO head impact activities.	Add movement.
4 Non-contact training drills	Harder training drills e.g. passing drills. These may start will progressive resistance training & gym work.	Exercise, co-ordination and increased thinking.
5 Full contact practice	Following medical clearance, participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6 Return to play/sport	Normal game play.	

IS THERE A SPECIAL 'CONCUSSION TEST'?

Sadly not.

Sports doctors make the diagnosis based on the history of what the athlete can tell them happened on field, or what was witnessed on field, together with any symptoms they have after the injury. So a lot of it relies on the athlete being honest about their symptoms. We know most players are just keen to get back on the field and play, but it is our responsibility, together with all the other role players, such as parents, coaches and teachers, to keep them safe and only return to sport when they are fully recovered. There is some promising research to show that saliva tests may help to diagnose concussion – but this is still far away from being used in an everyday capacity.

WHAT ABOUT THIS COMPUTERISED 'BASELINE TEST'? CAN'T WE REDO IT AFTER THE INJURY TO CHECK IF THE PLAYER IS CONCUSSED?

NO.

The computerised test, which we offer at Cape Sports Medicine, is a BASELINE test of concentration and brain function. We repeat it when we think the athlete is ready to go back to sport, at the beginning of their GRTS. It does not work to say whether the athlete is concussed, because as described earlier, not all athletes have symptoms from each category. And we also know that in those adolescents who have physical symptoms, their brains take about another 3-5 days to return to normal function after the physical symptoms have settled.

WHAT HAPPENS IF THE ATHLETE RETURNS TO SPORT TOO EARLY?

We know that a concussed brain is more vulnerable to further injury – so only a light blow may cause much worse symptoms. It can rarely be fatal – there is a condition called Second Impact Syndrome (SIS), which is where an athlete (usually an adolescent) gets a second knock when they have not yet recovered from the first, and it upsets the blood pressure regulation in the brain.

This is thankfully rare, but premature return to play can cause prolonged symptoms and even a post-concussion syndrome. Players can have reduced co-ordination and judgement on the field, which can affect their performance (and that of the team), as well as increasing their risk of other injuries. There is also concern about the long-term effects of multiple concussions and neuro-degenerative disorders such as Alzheimers dementia, mood disorders such as depression, and epilepsy.

HOW CAN WE PREVENT / REDUCE CONCUSSION?

1. In contact games such a rugby, correct tackle technique is essential e.g. tackling with your head 'on the wrong side' increases the risk of concussion.

2. Athletes must be properly conditioned – there is good evidence that appropriate conditioning helps reduce the risk of concussion, as well as other soft-tissue injuries – see ***Activate****

3. Neck muscle strengthening helps – the stronger the athlete's neck, the more he / she is able to withstand a force to the head / body (and reduce the whiplash effect).

4. Scrum caps DO NOT HELP in protecting against concussion – they do help with protecting the scalp from scratches / cauliflower ears.

5. Gum guards -they definitely help reduce tooth / dental injury. As yet, there is not much evidence yet that gum guards help prevent concussions.

REMEMBER: One match is not worth a lifetime of brain function!

CLICK BELOW TO VISIT THE WORLD RUGBY INJURY PREVENTION EXERCISE PROGRAM