

The Management of Concussion In Rugby League



For Trainers, First-Aid Providers, coaches and parents

These Guidelines are based on the Consensus Statement produced following the 5th International Conference on Concussion in Sport held in Berlin in October 2016. The Guidelines should be followed at all times and any decision regarding return to play after concussive injuries should only be made by a doctor, preferably with experience in dealing with such injuries.

Summary

The most important element in the management of concussion **MUST ALWAYS** be the welfare of the player - in both the short and long term.

Concussion is a disturbance in brain function resulting from trauma that is transmitted to the brain either directly or indirectly. There is no absolute need for direct head impact for a concussion to occur. There are no structural changes and the changes that do occur are temporary and should recover spontaneously if managed appropriately.

Complications can occur if the player is allowed to continue playing before they have fully recovered from the concussion. Therefore, a player who is suspected of having a concussion must be taken out of the game or training session immediately. Such a player should not be returned to play in the same game, even if they appear to have recovered. Concussion is an evolving condition over minutes to hours (and sometimes days). Some symptoms/signs may resolve only to be replaced by others later.

The management of head injuries may be difficult for non-medical personnel. It is often not clear whether you are dealing with concussion, or there is a more severe structural head injury, especially in the early phases of the injury. Concussion is considered a medical condition and therefore needs to be assessed and managed by a medical professional.

It is therefore imperative that ALL players with concussion, or suspected of having a concussion, need **URGENT** medical assessment.

In the period following a concussion, a player should not be allowed to return to play or train until they have had a formal medical clearance by a doctor.

Important points in the management of concussion include:

- » Suspecting the diagnosis in a player with symptoms such as confusion or headache after an apparent head injury (direct or indirect knock to the head)

- » Referral of the player for medical evaluation
- » The player must have medical clearance by a doctor before being allowed to return to a graded training program.
- » The player must have a further medical clearance by a doctor before being allowed to return to contact training and matches.

Players suspected of having a concussion must not be allowed to drive, operate machinery, drink alcohol, take anti-inflammatory medication (including aspirin and Ibuprofen), or use strong painkillers or sleeping tablets until they have been medically cleared to do so by a doctor.

Background

When considering the management of concussion, the welfare of the player - both in the short and long term - MUST always remain paramount.

Since 2001, there have been five international conferences addressing the key issues in the understanding and management of concussion. After each meeting, a summary has been published to improve the safety and health of athletes who suffer concussive injuries during participation in sport". The most recently published conference was held in Berlin in October 2016. The summary from the Berlin meeting provides guidelines for current best practice management of concussion⁽¹⁾. The NRL's current guidelines for the management of concussion are based on the Berlin conference, as well as research conducted on concussion in NRL, World Rugby and AFL over a number of years.

What is Concussion?

"Traumatic Brain Injury" (TBI) is the term used to describe injuries to the brain that are caused by trauma. The most severe injuries involve structural damage e.g. fractures of the skull, bleeding in or around the brain. These structural injuries require urgent medical attention.

Concussion falls into the milder spectrum of TBI (mTBI = mild traumatic brain injury) and involves a disturbance of brain function with no structural damage or probable permanent injury to the brain.

Concussion is caused by trauma to the brain, which can be either direct contact with the head (e.g. head clash) or indirect by a force to any part of the body transmitted to the head (e.g. shoulder charge or tackle). When the force is transmitted to the brain it can "stun" the nerve tissue and affect the way the nerves work. This can result in a number of symptoms and signs depending on the area of brain that is affected. Concussions, therefore, present in many different ways and the symptoms and signs often change or evolve over time.

Symptoms include headache, blurred vision, dizziness, nausea, poor balance, fatigue and feeling "not quite right". A concussed player may also exhibit confusion, memory loss and reduced ability to think clearly and process

information. Loss of consciousness is not common and occurs in less than 10% of cases of concussion. ***It is important to understand that a player does not have to lose consciousness to have concussion.***

The essential injury in concussion is functional disturbance rather than structural damage. The changes that occur are temporary and usually recover spontaneously if managed correctly. The recovery period and process varies from person to person and injury to injury. Most cases of concussion in Rugby League recover within 7-14 days from the time of injury, although in a small number of cases the recovery time may be weeks to months. Children and adolescents (18 years old and younger) may take longer to recover.

How common is concussion in Rugby League?

Concussion is relatively common in Rugby League. In the past 4-5 years the incidence in the NRL's elite competition has been 5-7 concussions per team per season.

What are the potential complications following concussion?

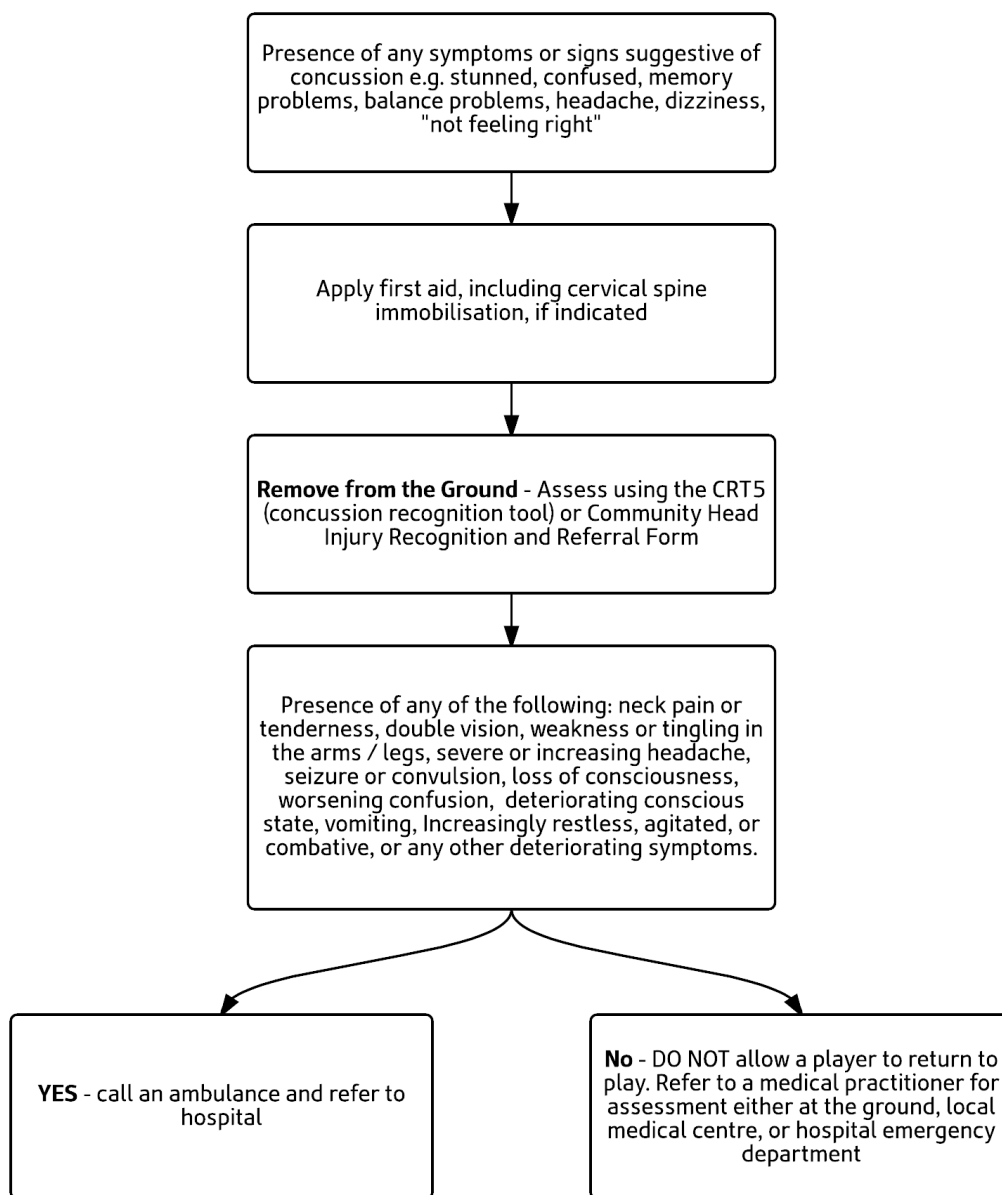
The complications which can possibly occur following a concussion include:

- » Increased risk of other musculoskeletal injury (possibly due to reduction in reaction time) or repeated concussion (with the second injury often much more severe than the first);
- » Prolonged symptoms;
- » Symptoms of depression, anxiety and other psychological problems;
- » Severe brain swelling (especially in young players); and
- » Potentially long-term brain malfunction (not currently proven).

Complications are not common, however, the risk of complications is increased by allowing the player to return to play (or training) before they have recovered completely. It is therefore essential to recognise a possible concussion, make the diagnosis, and keep the player out of training and competition until the player has recovered completely.

Concussion can cause problems with memory and processing of information, which interferes with the player's ability to learn in the classroom, therefore, a child should not return to school until cleared by a medical practitioner to do so. A successful return to school should occur before attempting a return to training/sport.

Steps in the Management of Concussion



NOTE: Any player with a loss of consciousness, basic first aid principles should be applied i.e. Danger, Response, Send for help, Airway, Breathing, Circulation and +/- CPR (DRSABC). Care must always be taken with the player's neck, as it may have also been injured in the collision. An ambulance should be called and the player(s) transported to hospital for assessment and management.

Game Day Management

The most important steps in the early management of concussion include:

1. Recognising the injury;
2. Removing the player from the game; and
3. Referring the player to a medical practitioner (doctor) for assessment.

Recognising the injury – (making the diagnosis)

1. Visible Clues - when to suspect concussion:
 - Loss of consciousness or non-responsive
 - Lying on the ground - not moving, or slow to stand
 - Unsteady on feet / balance problems / poor coordination
 - Grabbing / clutching at head
 - Dazed, blank or vacant look
 - Confused / not aware of plays or events
2. Loss of consciousness, confusion and disturbance of memory are classical features of concussion, but it is important to remember that they are not present in every case.
3. There are several non-specific symptoms that may be present and which should raise the suspicion of concussion: headache, blurred vision, balance problems, dizziness, feeling “dazed” or “light headed”, “don’t feel right”, drowsiness, fatigue and difficulty concentrating.
4. Tools such as the pocket Concussion Recognition Tool 5 (see attachment) can be used to help make the diagnosis of concussion.
 - <http://bjsm.bmj.com/content/bjsports/early/2017/04/26/bjsports-2017-097508CRT5.full.pdf>
5. It is important to understand that brief sideline evaluation tools (such as Concussion Recognition Tool 5 and SCAT5) are designed to help make the diagnosis of concussion. It is still imperative to arrange a more comprehensive medical assessment by an appropriately experienced medical practitioner. The SCAT5 is a medical practitioner (doctor) only assessment tool.

Removing the player from the game

1. Initial management must always follow first aid rules, including airway, breathing, circulation and spinal immobilisation.
2. Any player who is suspected of having a concussion must be removed from the game and be assessed by the first aider (Sports Trainer).
3. A player who has suffered a concussion (or suspected concussion) must not be allowed to return to play in the same game. The assessor should not be swayed by the opinion of the player, coaching staff or anyone else

suggesting premature return to play. Concussion is an evolving condition and symptoms and signs can vary over minutes to hours and days.

Referring the player to a medical practitioner for assessment

1. The management of a head injury is difficult for non-medical personnel. Following an injury it is often not clear if you are dealing with a concussion or with a more severe underlying structural head injury;
2. ALL players with concussion - or a suspected concussion - need an URGENT medical assessment by a medical practitioner. This can be done by a doctor present at the venue (if available) or local general practice or medical centre or hospital emergency department;
3. It is useful to have a list of local doctors, (who are willing to see injured players) and emergency departments close to the ground where the game is to be played;
4. A pre-game checklist of the appropriate services;
5. Local Doctors or medical centres;
6. Local Hospital Emergency Departments; and
7. Ambulance Services (000).

Management of an unconscious player

1. First Aid principles of DRSABC (+/- CPR) should be used. It is extremely important to treat all unconscious players as though they also have a neck injury (Spinal Immobilisation).
2. An unconscious player must only be moved (onto a stretcher) by qualified health professionals, trained in spinal immobilisation techniques. If no qualified person is present, **do not move the player** - wait for the ambulance and paramedics.
3. Urgent hospital referral is necessary if there is concern regarding the risk of a serious or structural head or neck injury --- **ring 000**.
4. Any player with ANY of the following in the context of a possible head injury should be referred to a hospital urgently, via Ambulance:
 - Loss of consciousness
 - Seizures / fits or convulsions
 - Severe or increasing headache
 - Double vision
 - Vomiting
 - Deterioration of conscious state after being injured, e.g. increased drowsiness
 - Report of neck pain / tenderness

- Burning, numbness, tingling or weakness in arms/legs. (potential spinal cord symptoms)
- Increasingly restless, agitated or combative

If, at any time, there is any doubt, the player should be referred to hospital.

Follow-up Management

- A player who has sustained a concussion **MUST NOT** be allowed to return to school or play before getting a medical clearance;
- Return to learning and school should take precedence over return to sport;
- The decision regarding the timing of return to training should always be made by a medical practitioner (doctor);
- In cases of uncertainty about the player's recovery, always adopt a more conservative approach, "*if in doubt sit them out*".

Return to Play/Sport

- Players should not return to play until they have returned to school/ learning without worsening symptoms;
- Return to training/ play should be gradual;
- Rehabilitation after a concussion should be supervised by a medical practitioner and should follow stepwise symptom limited progression.
- Initially, **complete rest for the first 24 to 48 hours** – including mental and physical rest (recovery), should be adhered to. Children and adolescents should be treated more conservatively, so 48 hours rest is recommended;
- A 6 stage Graded Return To Sport (GRTS) Program can look like the following (it can be commenced after the initial rest period of 24 to 48 hours):
 1. Symptom-limited activity – Daily activities that do not provoke or worsen symptoms;
 2. Light Aerobic Exercise – e.g., walk, exercise bike with Heart Rate less than ~70% max (no resistance/weight training);
 3. Sport Specific Exercise – e.g. running drills without risk of head contact;
 4. Non-contact training and start resistance (weight) training;
 5. Full contact training – **ONLY** after medical clearance by a doctor – coaching staff should assess tackling technique and other skills;
 6. Return to play/games.

Each stage should be a minimum of 24 hours' duration, meaning a period of 7 to 8 days as a minimum time frame to return to full contact sport in the community level of the game is recommended. Longer time

frames are suggested in children and adolescents 18 years old and younger.

If symptoms return, then the player should drop back to the previous symptom-free stage once symptoms have resolved. **Player honesty** is important when questioning about symptoms. Remember that playing or training with symptoms of concussion can increase the risk of injury, result in concussion complications and prolonged symptoms, result in reduced performance, increase the risk of other injuries (musculoskeletal) and could potentially be catastrophic.

Children and adolescents (18 years old and younger)

The same principles regarding recognition/detection, management and return to sport apply to children and adolescents, however, it is widely accepted that children and adolescents with concussion should be managed more conservatively. This includes longer initial rest and slower return to train and play programs. Additionally, a successful symptom-free return to school/learn should be completed before a graded return to play/train is commenced.

Reference:

¹ McCrory P, Meeuwisse W, Dvorak J et al. Consensus statement on concussion in sport - the 5th International Conference on Concussion in Sport held in Berlin, October 2016. Br J Sports Medicine . 2017;51:838-847.

Date: 23rd November 2017