Concussion Guidance

Introduction

This World Rugby Concussion Guidance document has been developed to provide guidance and information to persons involved in the non-elite level of the game of Rugby regarding concussion and suspected concussion.

Individual member Unions are strongly encouraged to develop their own guidelines and policies, and must use this Concussion Guidance as minimum standards.

This rugby-specific guidance acknowledges the existence in certain countries of national concussion management guidelines which should be observed as a minimum standard of care.

These guidelines apply to all male and female Rugby players including adults (over 18 years), adolescents (18 and under) and children (12 and under). Unions can adjust these age levels upwards at their discretion.

CONCUSSION FACTS

- **A concussion is a traumatic brain injury.**
- **All concussions are serious.**
- **Concussions can occur without loss of consciousness.**
- **All athletes with any new symptoms following a head injury**
  - **must be removed from playing or training**
  - **must not return to playing or training until symptom free or until all concussion-related symptoms have cleared or have returned to pre-concussion level**
  - **must complete a Graduated Return To Play programme**
  - **should be assessed by a medical practitioner**
- **Specifically, return to play or training on the day of a concussion or suspected concussion is forbidden.**
- **Recognise and Remove to help prevent further injury or even death.**
- **Head injuries can be fatal - do not return to play if symptoms persist.**
- **Most players with concussion recover with physical and mental rest.**

World Rugby strongly recommends that all players seek the highest level of medical care available following concussion or suspected concussion (see definition of Advanced Care below).

Concussion information

What is concussion?

Concussion is a traumatic brain injury resulting in a disturbance of brain function. There are many symptoms and signs of concussion, common ones being headache, dizziness, memory disturbance or balance problems.

Loss of consciousness (being knocked out), occurs in less than 10% of concussions. Loss of consciousness is not a requirement for diagnosing concussion but is a clear indication that a concussion has been sustained.

Typically standard brain scans are normal for someone with concussion and therefore a normal brain scan is not a reliable test of whether or not a player has concussion or suspected concussion.

What causes concussion?

Concussion can be caused by a direct blow to the head, but can also occur when blows to other parts of the body result in rapid movement of the head, e.g. whiplash type injuries.

Who is at risk?

Concussions can happen at any age. However, children and adolescent athletes:

- are more susceptible to concussion
- take longer to recover
- are reported to have more significant memory and mental processing issues
- are more susceptible to rare and dangerous neurological complications, including death caused by a single or second impact

Recurrent or multiple concussions

Players with a history of two or more concussions within the past year are at greater risk of further brain injury and slower recovery and should seek medical attention from practitioners experienced in concussion management before return to play.

In addition, a history of multiple concussions or players with unusual presentations or prolonged recovery should be assessed and managed by health care providers with experience in sports-related concussions.

Onset of symptoms

It should be noted that the symptoms of concussion can be delayed but typically become evident in the first 48 hours following a head injury.

How to recognise concussion or suspected concussion

Everyone involved in the game (including side-line medical staff, coaches, players, parents and guardians of children and adolescents) should be aware of the signs, symptoms and dangers of concussion. If any of the following signs or symptoms are present following a head injury the player should at least be suspected of having concussion and be immediately removed from play or training.

Clear indicators of concussion / suspected concussion – what you see or hear immediately

Any one or more of the following clearly indicate a concussion:

- Seizure (fits)
- Loss of consciousness – confirmed or suspected
- Unsteady on feet or balance problems or falling over or poor coordination
- Confused
- Disorientated – not aware of where they are or who they are or the time of day
- Dazed, blank or vacant look
- Behavioural changes e.g. more emotional or more irritable

Other signs of concussion / suspected concussion – what you see

Any one or more of the following may suggest a concussion:

- Lying motionless on ground
- Slow to get up off the ground
- Grabbing or clutching of head
- Injury event that could possibly cause concussion

Symptoms of concussion / suspected concussion - what you are told

Presence of any one or more of the following signs and symptoms may suggest a concussion:

- Headache
- Dizziness
- Mental clouding, confusion, or feeling slowed down
- Visual problems
- Nausea or vomiting
- Fatigue
- Drowsiness/feeling like “in a fog“/difficulty concentrating
- “Pressure in head”
- Sensitivity to light or noise

What questions you ask adults and adolescents

Failure to answer any of these questions correctly is a strong indication of concussion or at least suspected concussion.

- "What venue are we at today?" "Which half is it now?"
- "Who scored last in this game?"
- "What team did you play last week/game?" "Did your team win the last game?"

What questions you ask children (12 years and under)

Failure to answer any of these questions correctly is a strong indication of concussion or at least suspected concussion.

- "Where are we now?"
- "Is it before or after lunch?"
- "What was your last lesson / class?" or "Who scored last in this game?" "What is your teacher's name?" or "What is your coach's name?"

Recognise and remove and if in doubt, sit them out.

Managing concussion or suspected concussion

On field management of concussion or suspected concussion at training or during a match

Any player with concussion or suspected concussion should be **immediately and permanently removed from training or play**. Appropriate emergency management procedures must be followed especially if a neck injury is suspected. In this instance the player should only be removed by emergency healthcare professionals with appropriate spinal care training.

Once safely removed, the injured player must not return to any activity that day and **should be medically assessed.**

Side-line medical staff, coaches, players or parents and guardians who suspect that a player may have concussion must do their best to ensure that the player is removed from the field of play in a safe manner.

Immediate management of concussion or suspected concussion

If any of the following are reported or noticed, then the player should be transported for urgent medical assessment at the nearest hospital:

- player complains of severe neck pain
- deteriorating consciousness (more drowsy)
- increasing confusion or irritability
- severe or increasing headache
- repeated vomiting
- unusual behaviour change
- seizure (fit)

- double vision
- numbness, tingling, burning or weakness in the arms or legs'
- slurred speech

In all cases of concussion or suspected concussion it is strongly recommended that the player is referred to a medical or healthcare professional for diagnosis and guidance regarding management and return to play, even if the symptoms resolve. **It should only be in rare and exceptional circumstances that a player with concussion or suspected concussion is not medically assessed.**

Players with concussion or suspected concussion:

- **should not be left alone** in the first 24 hours
- **should not consume alcohol** in the first 24 hours and thereafter should avoid alcohol until provided with medical or healthcare professional clearance or if no medical or healthcare professional advice is available the injured player should avoid alcohol until symptom free
- **should not drive a motor vehicle** and should not return to driving until provided with medical or healthcare professional clearance or if no medical or healthcare professional advice is available should not drive until symptom free.

Rest and symptom-free activity

In the first 24 hours after a concussion players should have relative physical and cognitive rest limited to routine daily activities (no exercises or taxing 'thinking activities').

Recent research has shown that players should be encouraged to participate in light exercise (activity that does not significantly aggravate symptoms) from 24-48 hours after the event.

ADULTS

Any ADULT Player with concussion or suspected concussion:

- must be immediately and permanently removed from training or the field of play; and
- should be assessed by a medical practitioner or an approved healthcare professional (as approved in the relevant jurisdiction); and
- must not return to training or to play in a Match on the same day and until symptom free; and
- should have relative physical and cognitive rest limited to routine daily activities (no exercises or taxing 'thinking activities') for 24 hours; and
- should be encouraged to participate in light exercise (activity that does not significantly aggravate symptoms) from 24-48 hours before commencing an individualised rehabilitation programme referred to at 10.1.1(f)-(g) below. The Player must be symptom free before commencing the high intensity components of the individualised rehabilitation programme (Stage 4); and
- must successfully follow and complete an individualised rehabilitation programme to safely return to activity (see below).

- should receive clearance from a medical practitioner or approved healthcare professional prior to commencing the full contact training stage of the individualised rehabilitation programme.
- The minimum return to play time for adult players (who have completed an appropriate individualised rehabilitation programme) returning from a concussion is 21 days.

The only exceptions to the requisite 21-day rest period and the completion of an individualised rehabilitation programme are set out in the description of 'advanced level of concussion care' below.

CHILDREN AND ADOLESCENTS

Any CHILD or ADOLESCENT Player (aged 18 years or less) with concussion or suspected concussion:

- must be immediately and permanently removed from training or the field of play (this is known as 'Recognise and Remove'); and
- should be medically assessed by a medical practitioner or an approved healthcare professional (as approved in the relevant jurisdiction); and
- must not return to training or to play in a Match on the same day and until symptom free; and
- should have relative physical and cognitive rest limited to routine daily activities (no exercises or taxing 'thinking activities') for 24 hours; and
- should be encouraged to participate in light exercise (activity that does not significantly aggravate symptoms) from 24-48 hours before commencing an individualised rehabilitation programme referred to at 10.1.1(f)-(g) below. The Player must be symptom free before commencing the high intensity components of the individualised rehabilitation programme (Stage 4); and
- must successfully follow and complete an individualised rehabilitation programme to safely return to activity (see below).
- should receive clearance from a medical practitioner or approved healthcare professional prior to commencing the full contact training stage of the individualised rehabilitation programme.
- The minimum return to play time for adolescent and child players (who have completed an appropriate individualised rehabilitation programme) returning from a concussion is 21 days.

Returning to play after concussion or suspected concussion

Any child, adolescent or adult player with a second concussion within 12 months, a history of multiple concussions, players with unusual presentations or prolonged recovery must be assessed and managed by health care professionals (multi-disciplinary) with experience in sports-related concussions and no further participation in Rugby must take place until the player is cleared by a medical practitioner with experience in concussion management. In rare and exceptional circumstances where there is no access to such health care professionals in the country where the player is playing rugby, they must contact their Union for further advice before returning to play.

ADULTS

- A player with concussion or suspected concussion should be assessed medically immediately after their injury and prior to returning to contact training and playing.
- An individualised rehabilitation programme must be completed by ALL players (once symptom free) who have been concussed or had suspected concussion.
- If any symptoms are present or reappear the Individualised rehabilitation programme should not be started, or if started it should be stopped until symptoms resolve.

Exceptions for adults:

- The minimum 21-day return to play time is obligatory regardless of whether the adult Player has become symptom free, unless the adult Player has successfully accessed an ‘Advanced level of concussion care’ (as defined below) and has received medical advice that the one week rest period is not required.
- The completion of an individualised rehabilitation programme is obligatory except in cases of suspected concussion where the adult Player has accessed an ‘Advanced level of concussion care’ (as defined at below) and has been medically cleared to return to training or to play on the grounds that the Player had not in fact been concussed.

CHILDREN AND ADOLESCENTS

- Children and adolescents (defined as 18 years and under) with concussion or suspected concussion should be assessed medically immediately after their injury and prior to returning to contact training and playing
- An individualised rehabilitation programme must be completed by ALL players (once symptom free) who have been concussed or had suspected concussion.
- If any symptoms are present or reappear the Individualised rehabilitation programme should not be started, or if started it should be stopped until symptoms resolve.

Individualised Rehabilitation

The goal of early management of concussion is to settle symptoms and return to normal activities of daily living (which do not provoke symptoms) as soon as possible. Research now shows that prolonged periods of inactivity are not helpful. Rest is now best described as ‘relative rest’.

- Rest after a diagnosed concussion and within 24 hours of the injury means normal activities of daily living which do not worsen symptoms. Vigorous activity should be avoided. Relative cognitive rest, limiting screen time etc.- ensure symptoms continue to improve or remain absent.
- which is defined as "activity below the level at which physical activity or cognitive activity provokes symptoms”.

The individualised rehabilitation process should aim to move the player through gradually increasing exercise intensity, ensuring it is tolerated. As with all rehabilitation processes there is no one correct way to complete this rehabilitation process. Below is an example of a return to sport process published following the Amsterdam 2022 International Consensus Statement on Concussion in Sport. This highlights a staged approach to increasing activity and also advises on managing possible mild symptom exacerbation during exercise phases.

An example of a return to play process:

Step	Exercise Strategy	Activity at Each Step	Goal
1	Symptom-limited activity.	Daily activities that do not exacerbate symptoms (e.g. walking).	Gradual reintroduction of work/school.
2	Aerobic exercise **2A – Light** (up to approx.. 55% max GHR) **then** **2B – Moderate** (up to approx. 70% max HR).	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate.
3	Individual sport-specific exercise **NOTE:** if sport-specific exercise involves any risk of head impact, medical determination of readiness should occur prior to step 3.	Sport-specific training away from the team environment (e.g. running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement. Change of direction.
Steps 4-6 should begin after resolution of any symptoms, abnormalities in cognitive function, and or any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills.	Exercise to high intensity including more challenging training drills (e.g. passing drills, multiplayer training). Can integrate into team environment.	Resume usual intensity of exercise, coordination, and increased thinking.
5	Full contact practice.	Participate in normal training activities	Restore confidence and assess functional skills by coaching staff.
6	Return to sport.	Normal game play.	

In this example that steps 1-3 are in fact exercise-based treatments which are part of recovery from concussion. Here, progression to stages 4-6 should happen only when the player has fully returned to baseline for symptoms, cognitive function, clinical findings, and the supervising medical staff are satisfied that the player is normalizing.

Players may begin Step 1 (i.e., symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours.

If more than mild exacerbation of symptoms (i.e., an increase of no more than 2 points on a 0-10 point scale for less than an hour when compared with the baseline value reported prior to physical activity) occurs during Steps 1 -3, the athlete should stop and attempt to exercise the next day.

A player should be symptoms free before commencing Step 4 of the return to exercise.

If a player experiences concussion-related symptoms during Steps 4-6, they should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities.

The player's rehabilitation should be personalized based on their history, presentation and symptom burden at the time of diagnosis.

It is strongly recommended that, in all cases of concussion or suspected concussion, the player is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

Advanced level of concussion care

World Rugby strongly recommends that all players seek the highest level of medical care available following concussion or suspected concussion. This highest level of concussion care is supplied in an advanced care setting and shall include at least all of the following:

- medical doctors with training and experience in recognising and managing concussion and suspected concussion; and
- access to brain imaging facilities and neuroradiologists; and
- access to a multidisciplinary team of specialists including neurologists, neurosurgeons, neuropsychologists, neurocognitive testing, balance and vestibular rehabilitation therapists.

An adult player with concussion or suspected concussion must have the minimum required one week rest referred to above unless that player accesses an advanced level of concussion care as verified by their Union and has received medical advice that the 21-day return to play period is not required.

Advanced care is generally available within professional Rugby teams and allows for a more individualised management of concussion.

Even if advanced care is available, an adult player who has been concussed must not return to play until they have been medically cleared to do so and is symptom free.

Notes

1. The minimum standards are set out in this Concussion Guidance. A Union has discretion to introduce more stringent criteria.
2. This rugby-specific guidance acknowledges the existence in certain countries of national concussion management guidelines which should be observed as a minimum standard of care.
3. The definition of an adolescent for the purposes of this guidance is 18 years and under. The definition of a child for the purposes of this guidance is 12 years and under. Unions are at liberty to increase (but not decrease) this age threshold at their discretion.
4. If rest periods and GRTP stage lengths are more stringent within a member Union, the player must adhere to their respective Union's guidelines or policy.
5. World Rugby strongly recommends that players seek the highest level of medical care available especially when a player's condition deteriorates, concussions occur repeatedly or more easily in the same player, symptoms fail to resolve or the diagnosis is uncertain.
6. Only in World Rugby approved elite adult matches is temporary replacement for a head injury assessment (HIA) applicable. **The HIA and temporary replacement Law does NOT apply to community rugby at any level or age or to any matches or tournaments which have not been approved by World Rugby.**