

Australian Rugby Union Concussion Guidance (Rugby Public – Standard Care Pathway)

The advice within this document is based on the World Rugby Concussion Guidance dated August 2015. The advice in this document has been adapted to reflect best practice for the management of concussion for rugby at community levels of the game in Australia.

The purpose of this document is to provide guidance on concussion to those involved in rugby union in Australia. This document incorporates the recent changes to the World Rugby Concussion Laws (Regulation 10, Law 3.11 - Implementation August 1, 2015), and **World Rugby's Operational Definition of Concussion (British Journal of Sports Medicine, March 2016)**

This document is prepared for the rugby public. **This is not a medical document.**

Players, parents, coaches and officials need to act in the best interest of player safety and welfare at all times. Taking responsibility for the **recognition, removal** and **referral** of players to a medical doctor and then ensuring concussion is appropriately managed is fundamental to the ARU Concussion Guidance. It is recommended that all players who suffer a concussion seek the highest level of medical care reasonably available to ensure concussion is managed appropriately.

This document supersedes previous ARU Concussion Guidance and in cases of ambiguity, this document is over-riding for rugby sanctioned by the ARU. This advice may be altered from time to time by the Australian Rugby Union based on the evolution of the scientific evidence about this injury.

In this document the term "potential head injury" refers to an injury that has the potential to cause concussion or a more severe injury to the brain. This can be caused by:

1. a direct blow to the head or
2. indirect force transmitted to the head from a blow to another part of the body that transmits force to the head (e.g. a whiplash injury)

Potential head injury or concussion **must** be considered possible whenever a player receives an injury to the head, either from a direct blow or indirectly.

Minor bumps and grazes to the head may not necessarily require medical review (unless the player exhibits features of potential head injury or concussion – see signs and symptoms in the "Recognise section" below) but any injury to the head or face that requires medical attention (e.g. a laceration requiring suturing or a fractured facial bone or nose) must also be assessed for possible concussion associated with this injury.



This document outlines the **Standard Care Pathway** applicable to the vast majority of rugby participation in Australia.

World Rugby defines exceptions to the standard care pathway are for adult players only, who can access an advanced level of concussion care. In Australia, an advanced level of concussion care is only available for professional players playing Test Rugby, Super Rugby, National Sevens Rugby, National U20s and who can access ARU approved advanced care practitioners.

CONCUSSION INFORMATION

- **A concussion is a brain injury.**
- Concussion causes a disturbance of brain function.
- Children and adolescents are more susceptible to concussion, take longer to recover, have more significant memory and mental processing issues and are more susceptible to rare and dangerous neurological complications, including death caused by a single or second impact.
- Concussion usually follows a head collision, but can occur with a collision to other parts of the body.
- Symptoms can come on at any time, but usually within 24-48 hours after a collision.
- Concussion can occur without the player being “knocked out” i.e. losing consciousness.
- **If a player is “knocked out”, they have a concussion.**
- Most concussions recover with physical and mental rest.
- **Concussion that is ignored or not recognised can be fatal.**

Therefore,

- All concussions must be taken seriously.
- Children and adolescents must be treated more conservatively than adults.
- All players with potential head injury or concussion must be removed from the field immediately.
- Return to play or training on the same day is not permitted for any potential head injury or concussion.

CONCUSSION MANAGEMENT

The management of concussion involves the following steps; each step must be followed and completed before moving to the next step.

On the day of injury

RECOGNISE

REMOVE

REFER

Then, if concussion is diagnosed:

REST

RECOVER

RETURN

RECOGNISE

A potential head injury or concussion must be acknowledged if a player has any of the following signs, symptoms or fails to answer any of the memory questions after a head or body collision.

Signs (what may be seen)	Symptoms (players may report)	Memory (questions to ask)
<ul style="list-style-type: none"> ▪ Dazed, blank or vacant look ▪ Lying motionless on ground / Slow to get up ▪ Unsteady on feet / Balance problems or falling over / Uncoordinated ▪ Loss of consciousness or unresponsive ▪ Confused / Not aware of plays or events ▪ Grabbing / Clutching of head ▪ Seizure (fits) ▪ More emotional / Irritable than normal for that person 	<ul style="list-style-type: none"> ▪ 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 	<ul style="list-style-type: none"> ▪ "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?"

REMOVE

- Any player with signs or symptoms of a potential head injury or concussion **must** be removed from the rugby field immediately.
- The player **must not** take further part in any rugby training or games (including other sports) on this day.
- **Any player with a potential head injury or concussion may also have a neck injury. If a neck injury is suspected, the player must only be removed by experienced health care providers with spinal care training**
- Once a player has been removed from the training or playing field with signs or symptoms of a potential head injury or concussion, no person (eg physio, coach, trainer or doctor) can over-ride the requirement of a player to remain off the field.
- A medical doctor who is experienced in the assessment and management of concussion (see below) can only apply *return to field protocols* under the **Advanced Care Pathway**.
- For the avoidance of doubt, *return to field protocols* are only accessible under the **Advanced Care Pathway** and only apply to a medical doctor who is experienced in the assessment and management of concussion. In Australia, the Advanced Care Pathway is only available for professional players playing Test Rugby, Super Rugby, National Sevens Rugby, National U20s and who can access ARU approved advanced care practitioners. Return to field protocols **do not** apply to the National Rugby Championships, Australian domestic Under 20s tournament, Club Rugby at any level, representative rugby (apart from those listed above) or any children and adolescents – age 18 years and under (including those playing senior and professional rugby)
- Similarly, the Head Injury Assessment process is **available ONLY for the elite levels of the game**; in Australia it is limited to Test rugby, Super Rugby, Sevens World Series, Under 20s Junior World Cup playing internationally
- The Head Injury Assessment process is **NOT available** for National Rugby Championships, Australian domestic Under 20s tournament, Club Rugby at any level, representative rugby (apart from those listed above) or any children and adolescents – age 18 years and under (including those playing senior and professional rugby)

**RECOGNISE AND REMOVE
IF IN DOUBT, SIT THEM OUT.**

REFER

- All players with potential head injury or concussion **must** be referred to a **medical doctor** or **emergency department** as soon as possible.
- This referral must happen even if symptoms or signs have disappeared.
- Ideally, the medical doctor who reviews the player should have experience in the assessment and management of sports concussion.
- The player **must at all times**;
 - ✓ Be in the care of a responsible adult.
 - ✓ Must not consume alcohol.
 - ✓ Must not drive a motor vehicle.

If any of the following **warning signs (“red flags”)** of **significant** head injury appear, the player must be taken to the closest Emergency department immediately or a responsible adult must call an ambulance (000):

- ✓ Severe neck pain
- ✓ Deteriorating consciousness
- ✓ Increasing confusion or irritability
- ✓ Worsening headache
- ✓ Vomiting more than once
- ✓ Unusual or uncharacteristic behaviour
- ✓ Seizure (fitting)
- ✓ Double vision
- ✓ Weakness or tingling or burning in arms or legs

A medical doctor who assesses a player for concussion should be experienced in the assessment and management of sports related concussion and should have a good working knowledge of this ARU Concussion Guidance, World Rugby Concussion Guidance (August 2015) and World Rugby’s Operational Definition of Concussion (March 2016).

Specifically a medical doctor assessing a player must be aware that the World Rugby Operational Definition of Concussion;

- *has been developed and adapted for elite rugby but the principles of this definition may be applied to all levels of rugby*
- *includes a three-stage diagnostic process (at the time of injury, 3 hours after injury and 36-48 hours after injury)*
- *emphasises that a concussion following a head injury cannot be excluded until an assessment is completed at 36–48 hours post injury*
- ***includes the recommendation that any abnormal assessment (either at the time of injury, 3 hours after injury or 36-48 hours after injury) be considered as being due to concussion***
- *for the avoidance of doubt, any player who has criteria for permanent removal from the field at the first assessment (at the time of injury) is considered to have concussion – **this cannot be over-ruled**, no matter what the results of subsequent assessments are*

- *if a player has no criteria for permanent removal from the field at the time of first assessment (at the time of injury) but has abnormal assessments at 3 hours after injury and/or 36-48 hours after injury, these abnormal assessments are considered to be due to concussion unless the medical doctor making these assessments determines that the abnormal assessment is not related to a concussion – this implies the doctor can identify an alternative diagnosis for the abnormal assessment(s).*

IF ANY PLAYER IS DIAGNOSED AS HAVING CONCUSSION, THE FOLLOWING STEPWISE PROCESS MUST BE FOLLOWED:

There are differences in the process undertaken between adults and children and adolescents.

- *For the purpose of this guidance document, adults are all players aged 19 and over*
- *Children and adolescents are all players aged 18 and under*
- *For the avoidance of doubt, anyone playing schools rugby must follow the guidelines for children and adolescents.*
- *Players aged 18 or under playing adult rugby including “Colts” rugby must follow the guidelines for children and adolescents.*

REST

- REST is crucial to recover from concussion.
- Most concussions will recover if players rest for long enough.
- **THE PLAYER SHOULD REST UNTIL ALL SYMPTOMS AND SIGNS OF CONCUSSION HAVE DISAPPEARED.**

What does rest mean?

- Reducing physical and mental activity to the level that symptoms can settle
- World Rugby defines that the first 24 hours following a concussion must be complete physical and cognitive rest but a longer period of modified activity (i.e. relative rest) may be required to allow symptoms to settle
- This means avoiding any physical and mental activity that worsens symptoms
- Examples of rest include:
 - Resting quietly at home
 - Missing a day or two from school, study or work.
 - Going for a walk outside / around the block
 - Limit any tasks that require prolonged focus, memory or concentration
 - Avoid excessive TV, use of mobile devices, gaming, computers and phones as these can aggravate symptoms.

How long should the player reduce physical and mental activity?

- Players must rest (that is reduce physical and mental activity) until all their signs and symptoms have disappeared **AND** they have stopped all medication required for treatment for their concussion symptoms (e.g. pain killers for headaches).

- The minimum rest time is **24 hours for adults**.
- **Children and adolescents** require a longer rest period.
- The required time of rest varies from player to player so a medical doctor will specify the minimum time of rest for each case.

RECOVER

- The focus in the recovery phase is about getting back to normal life, school, study or work, but NOT hard physical exercise.
- Once symptoms and signs are settled and medications are stopped, the player then returns to **activities of normal daily living** (school, study or work).
- The player **must not** perform any exercise during school (recess, breaks) or any organised sport during or after school. This includes all sporting activities, not just rugby.
- If any **symptoms re-occur** during recovery, the player will need more rest time.
- If symptoms re-occur the player should be **reviewed** by their medical doctor.

World Rugby has specified in Regulation 10, minimum time periods for players to rest and recover. These are a minimum and a guide, so the Rest and Recover phases may be longer than specified.

Regulation 10.1.1.

*10.1.1 Any **ADULT Player** with concussion or suspected concussion:*

(d) must have complete physical and cognitive rest for 24 hours; and

(e) must have relative physical rest (activity that does not induce or aggravate symptoms) for at least one week (including the initial 24 hour period of complete physical and cognitive rest) before commencing a graduated return to play (GRTP) programme

Regulation 10.1.6.

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

(d) must have complete physical and cognitive rest for 24 hours; and

(e) must have relative physical rest (activity that does not induce or aggravate symptoms) for at least two weeks (including an initial 24 hour period of complete physical and cognitive rest) before commencing the graduated return to play (GRTP) programme.

RETURN

- Exercise **can only** start after a player has returned to **activities of normal daily living** without signs or symptoms of concussion and **does not require** medication for their symptoms.
- The best way to return to sport is to follow a gradual re-introduction of exercise in a step wise progression known as a graduated return to play programme (**GRTP**) as per the following:

Stage	Exercise Mode	Example of Exercise Activity	Progression
1	Rest	Complete rest of the brain and body	Medical doctor decides on amount of time needed.
2	Light cardiovascular exercise	Light jogging for 10-15 minutes, swimming or stationary cycling at low to moderate intensity. No weights training	If no symptoms, start Stage 3 after minimum of 24 hours. If symptoms occur, rest 24 hours & repeat Stage 2.
3	Rugby specific exercise	Individual running drills and skills without contact No weights training	If no symptoms, start Stage 4 after minimum of 24 hours. If symptoms occur, rest 24 hours & repeat Stage 2, then progress
4	Rugby specific non-contact training	More complex training drills e.g. passing drills May start progressive (low level) weights training	If no symptoms, review by a medical doctor and presentation of a medical certificate required before Stage 5. If symptoms occur, rest 24 hours & repeat Stage 3, then progress
5	Rugby practice	Full contact practice following medical clearance certificate being handed to the club or school sport master	Player, coach, parent to report any symptoms to medical doctor. If symptoms occur, then medical doctor to review
6	Rugby game	Full contact game	Monitor for recurring symptoms or signs

Rest and Recovery (GRTP Stage 1)

- Stage 1 is the rest and recovery period.
- The amount of rest will be determined by the medical doctor who assesses the player initially.
- Depending on the player's progression, a follow up consultation with a medical doctor to decide when the player can progress to level 2 may be required but does not need to be in person, e.g. it may be done in liaison with the player's family, or team physiotherapist.

Return to exercise (GRTP Stages 2 – 4)

- Stages 2 to 4 of the GRTP are the stages where the player returns to light general exercise initially then increases the volume, intensity and specificity of exercise
- A player can only proceed to the next stage of the GRTP if they have no signs or symptoms of concussion at the time of exercise, later that day (after exercise) and on waking the following day.
- The minimum time between stages is **24 hours**, although children and adolescents may require a longer period of time between stages.
- If there is a recurrence of symptoms at any time during the GRTP the player must:
 - ✓ Rest for a minimum of 24 hours until all symptoms and signs have settled.
 - ✓ Return to the previous stage at which they had no symptoms.
 - ✓ Recommence the progression of the GRTP.
 - ✓ If a player has a recurrence of severe symptoms (e.g. requiring them to miss school, study or work) or repeatedly (more than once) during the GRTP, or if the recurrent symptoms are prolonged (more than 24 hours), the player should be reviewed by their medical doctor.

Return to contact training (GRTP Stage 5)

- The player **must** have a medical **certificate** from a medical doctor to start contact training (Stage 5).
- Ideally the same medical doctor who consulted the player after the initial injury will review the player and decide on their fitness to return to contact training
- Alternatively this certificate may be provided by a medical doctor with experience in assessment and management of sports concussion and knowledge of the ARU concussion guidance
- It is not ideal to seek medical clearance from inexperienced medical doctors who do not know the medical history of the player (eg junior hospital emergency room doctors)
- This certificate must be given to the **club** or **school Sport Coordinator**.
- Players 18 years and under **cannot** return to **contact** training (Stage 5) for **at least 18 days** after all symptoms and signs have disappeared.

This restriction to return to contact training and playing applies to all players aged 18 years and under including those playing adult rugby.

- Adult players, 19 years and over, **cannot** return to **contact** training (Stage 5) for **at least 11 days** after all symptoms and signs have disappeared.

Return to play (GRTP Stage 6)

A player should only return to play when they have fully recovered from concussion. This means the player **must**:

- Not have any signs or symptoms of concussion at rest or in normal daily activities (school, study or work).
- Have followed the mandatory required rest time away from contact training.
- Have successfully completed the GRTP without any symptoms or signs of concussion (during or after training and contact training).
- Players 18 years and under **cannot** return to **play** (Stage 6) for **at least 19 days** after all symptoms and signs have disappeared.
- Adult players, 19 years and over, **cannot** return to **play** (Stage 6) for **at least 12 days** after all symptoms and signs have disappeared.

Under the ARU Concussion Guidance (Rugby Public) and World Rugby Regulation 10, the following tables outline the minimum and expected graduated return to play processes after a diagnosed concussion. The table illustrates a concussion occurring on a Saturday game:

▪ **Table 1: Children and Adolescents (aged 18 years and under)**

Week	SAT	SUN	MON	TUES	WED	THUR	FRI
0	Concussion or 'head injury' occurrence	Rest	Rest	Recover	Recover	Recover	Recover
1	Recover	Recover	Recover	Recover	Recover	Recover	Recover
2	Recover	GRTP Stage 2	GRTP Stage 3	GRTP Stage 4	GRTP Stage 5	GRTP Stage 6	
3	Return to Play						

▪ **Table 2: Adult Participants (aged 19 years and over)**

Week	SAT	SUN	MON	TUES	WED	THUR	FRI
0	Concussion or 'head injury' occurrence	Rest	Recover	Recover	Recover	Recover	Recover
1	Recover	GRTP Stage 2	GRTP Stage 3	GRTP Stage 4	GRTP Stage 5	GRTP Stage 6	
2	Return to Play						

Complex concussion scenarios

A standard care pathway only applies to players who have suffered their first concussion in a 12 - month period. Certain players may have the potential for more complex injuries. Players must see a medical doctor experienced in sports concussion management to follow an individualised management plan if they have:

- ✓ ≥ 2 concussions in 12 months.
- ✓ Multiple concussions over their playing career.
- ✓ Concussions occurring with less collision force.
- ✓ Concussion symptoms lasting longer than expected i.e. a few days.

SUMMARY

RECOGNISE and REMOVE

Any player with signs or symptoms of a potential head injury or concussion must be removed from training and playing and not return to rugby or other sport or physical activity on the same day.

REFER

Any player with signs or symptoms of a potential head injury or concussion must see a medical doctor as soon as possible. This doctor should have experience in the management of concussion and should be aware of this ARU Concussion guidance, World Rugby Concussion Guidance and World Rugby's Operational Definition of Concussion (see links below).

REST

Players diagnosed with concussion must rest until all signs and symptoms of concussion have disappeared. World Rugby has defined minimum rest periods for adults and children and adolescents.

RECOVER

The concussed player must first recover from all concussion signs and symptoms at rest and return to activities of normal daily living before starting hard physical exercise.

RETURN

Follow the graduated return to play (G RTP) protocol after being able to participate in activities of normal daily life, and after the minimum rest and recovery periods as defined by World Rugby:

- ✓ Start light exercise (Stage 2) when appropriate.
- ✓ Progress through the G RTP without any symptoms or signs recurring.
- ✓ Start contact training (Stage 5) after receiving a medical certificate from a medical doctor.
- ✓ Medical clearance should be accordance with the ARU Concussion Guidance around return to contact training when applying the standard care pathway.

Further information

Refer to World Rugby Documents - <http://playerwelfare.worldrugby.org/concussion>

Refer to – “It is time to give concussion an operational definition: a 3-step process to diagnose (or rule out) concussion within 48 h of injury: World Rugby guideline”; British Journal of Sports Medicine Online First, published on March 3, 2016 as 10.1136/bjsports-2016-095959