CONCUSSION MANAGEMENT
MEDICAL DOCTOR INFORMATION

PREAMBLE

This document is designed to guide medical doctors and staff how to manage concussion or suspected concussion in Australian Rugby. It is written for doctors and therefore uses medical terms and language.

The focus in concussion management in Australian Rugby is **COLLECTIVE RESPONSIBILITY** i.e. all parties have a role to play in identifying athletes with concussion and ensuring proper management.

IN CASE OF DOUBT AROUND THE DIAGNOSIS, RUGBY AUSTRALIA'S DEFAULT POSITION IS THAT A CONSERVATIVE APPROACH SHOULD BE TAKEN I.E., IN CASE OF DOUBT THE PLAYER SHOULD BE TREATED AS HAVING CONCUSSION.

This document is for medical staff and should be read in conjunction with:

1. Rugby Australia Concussion Guidance
2. Rugby Australia Concussion Management Procedure
3. World Rugby Operational Definition of Concussion
4. Sport Concussion Assessment Tool (SCAT5 and Child SCAT5)
5. Concussion Recognition Tool (CRT5)
6. Rugby AU Safety policy
7. Rugby AU Code of Conduct

INTRODUCTION

Concussion is recognised as a difficult medical condition to diagnose and manage. It is a clinical diagnosis whose assessment and management needs to be individualised within the framework provided within this document.

Concussion is complex pathophysiological process following trauma that results in a transient alteration in neurological function. It results in a disturbance of brain function (e.g., memory difficulty, balance problems or symptoms) rather than damage to structures such as blood vessels, brain tissue, or fractured skull.

For the avoidance of doubt, the processes described in this document are the processes to be followed by all involved in rugby in Australia and supersede previous documents and versions of this document.

The advice in this document is based on World Rugby Concussion Guidance dated April 2017 and Rugby Australia 2018. Please ensure you have the latest version of this 'Concussion Management Medical Doctors Information' document and all other associated documentation available at http://rugbyau.com/about/codes-and-policies/safety-and-welfare/concussion-management.
This document is divided into 3 sections. First, we will review the process of concussion management as defined by the Rugby AU concussion guidance. Second, we will review the practical setting of when a rugby player will present to a doctor. Finally, we will present some scenarios that address some of the frequently asked questions.

1. THE PROCESS OF CONCUSSION MANAGEMENT

How do medical professionals assess and diagnose concussion?
The diagnosis of concussion is a 3-step process extending over the 2 days following a potential concussive injury.

Concussion is a clinical diagnosis but this diagnosis can be assisted by the use of tools such as SCAT 5 or computerised testing. However, such tools NEVER replace the clinical suspicion of a doctor's assessment. There is NO sideline or other tool that can either diagnose or clear concussion adequately – they can only assist the doctor's clinical suspicion.

A player who has suffered an injury that potentially can cause concussion should be assessed on three occasions following this injury;

- At the time of injury (i.e. immediately following a trauma)
- 3 hours following the injury (on the day of injury)
- At 36 to 48 hours after the injury, after 2 sleeps

The diagnosis of concussion can be made at any point during this time-frame, but a minimum of two sleeps (following the incident) **must** be observed before any player can be assessed to exclude concussion, hence **NO** player can be cleared in a time frame less than this.

First assessment; at the time of injury

This assessment will often occur on the field or just after a player has been removed from the field. It may be performed by a doctor, physiotherapist, other medical professional or trainer who is trained in the assessment of concussion for Rugby in Australia. The decision to be made at this time is whether there are serious concerns about the player or if **warning signs ("red flags")** of **significant** head injury appear. If this is the case the player must be taken to the closest Emergency Department immediately or a responsible adult must call an ambulance (000).

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 (E.G., PHYSIOTHERAPIST, COACH, TRAINER, OR DOCTOR) CAN OVER-RIDE THE REQUIREMENT OF A PLAYER TO REMAIN OFF THE FIELD.

The following tools may assist with the diagnosis of concussion;

- CRT5

- World Rugby Criteria (see below)

World Rugby has defined the following signs and symptoms of concussion.

Criteria 1

1. Confirmed loss of consciousness
2. Suspected loss of consciousness*
3. Convulsion
4. Tonic posturing
5. Balance disturbance / ataxia**
6. Clearly dazed
7. Player not orientated in time, place, person
8. Definite confusion
9. Definite behavioural changes
10. Oculomotor signs
11. On-field identification of signs and symptoms of concussion

*SUSPECTED LOSS OF CONSCIOUSNESS can be identified by one of the following:

- Cervical hypotonia observed immediately following impact
- The player stays on the ground without movement until first support arrives on scene
- Reported loss of consciousness by witnessing own team players or match officials.

**BALANCE DISTURBANCE / ATAXIA is identified when an athlete is unable to stand steadily unaided or walk normally and steadily without support in the context of a possible concussive mechanism of injury

ANY CRITERIA 1 SIGN OR SYMPTOM IS CONSISTENT WITH A DIAGNOSIS OF CONCUSSION. THIS REQUIRES IMMEDIATE AND PERMANENT REMOVAL OF THE PLAYER FROM THE GAME.

Criteria 2

1. Suspicious mechanism of injury
2. Possible behaviour changes including being possibly dazed
3. Possibly confused
4. Head injury with the potential to cause a concussive injury
5. Other

Any player exhibiting Criteria 2 must be reviewed by medical staff; these symptoms are highly suspicious of concussion and if in doubt, the player should be removed from play and undergo further assessment, especially if a doctor is not present at the game.

IF NO MEDICAL STAFF ARE PRESENT AT THE GAME, ANY PLAYER WITH CRITERIA 2 SHOULD BE IMMEDIATELY AND PERMANENTLY REMOVED FROM THE GAME AND TREATED AS SUFFERING SUSPECTED CONCUSSION.

ALL PARTICIPANTS HAVE A 'COLLECTIVE RESPONSIBILITY' TO IDENTIFY SIGNS AND SYMPTOMS OF CONCUSSION.

Most rugby players in Australia are to be treated under "Recognise and Remove". That is, recognise that a concussion has occurred (or has potentially occurred) and remove the player from the game or training, and do not let them return on the same day.

"Recognise and Remove" is the World Rugby approach to concussion management when the Head Injury Assessment process is not available.

To be clear, the vast majority of rugby competitions in Australia **DO NOT** have the Head Injury Assessment (HIA) process available where players can be temporarily removed from the field, assessed by suitably trained medical staff, and then return to the field of play if cleared to do so.

The ONLY competitions that have the HIA in Australia are;

- International test matches (men and women)
- Super rugby (men only)
- World Rugby Sevens World Series (men and women)
- Australian Under 20s team when playing internationally (men only)
- Specific tournaments that receive specific permission (e.g., Brisbane Tens)

The Head Injury Assessment process is **NOT available** for Rugby at any level, apart from those listed above.

Second assessment; 2- 3 hours after injury (i.e. same day as injury)

The second assessment in the hours following a game should use the SCAT5 to assist the doctor's clinical assessment. Ideally (but not imperatively) any findings are compared to a baseline performed previously when the patient did not have concussion symptoms.

Any abnormality on SCAT5 testing is considered to be due to concussion unless the medical doctor can identify another cause of the patient's symptoms, and be willing to sign off on this diagnosis

ANY ABNORMALITY (ESPECIALLY FROM BASELINE) IN SECOND ASSESSMENT = CONCUSSION

Third assessment; 36 – 48 hours after injury (and after 2 night's sleep)

This assessment must be performed by a medical doctor.
Tools to be used

- Rugby AU Referral and Return form
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- Neurological assessment assisted by SCAT5 as a minimum; the symptom review section of the SCAT 5 should include a review of symptoms over the time since injury, not just on the day of assessment
- some practitioners may use computerised testing

As per previous assessments, this is a clinical assessment by the doctor using the above tools to assist them. Any abnormality at this third assessment is considered to be due to concussion unless the medical doctor can identify another cause of the patients' symptom and is willing to sign off on this diagnosis.

Ideally (but not imperatively) all results are compared to baseline assessments.

ANY ABNORMALITY IN THIRD ASSESSMENT = CONCUSSION

How should concussion be managed?

The process of concussion management in Australian Rugby in 2018 uses the 8 R's;

1. RECOGNISE
2. REMOVE
3. RECORD
4. REFER
5. REST
6. RECOVER
7. RECORD
8. RETURN TO PLAY

This process is detailed in the Rugby AU Concussion guidance and procedure documents.

2. WHEN WILL A DOCTOR SEE A RUGBY PLAYER?

A doctor may see a rugby player in several situations following a concussion injury for the purpose of assessment. These include;

1. During a game
2. Following a game
    - At the ground
    - In hospital
3. In the doctor's office

Expectations of medical staff and doctors in the assessment and management process

Rugby AU emphasises collective responsibility in the management of concussion.

Rugby AU Safety Policy emphasises that the primary consideration of all involved in the assessment and management of any injury (including concussion) is the player's safety. This implies that if there is any doubt about the assessment or progression of an injured player, the doctor should err on the side of caution and act conservatively.

It also implies that doctors will provide honest and thorough assessments of players with concussion (as would be expected with any other medical assessment). Doctors should feel empowered to provide the best medical advice possible and not pressured by the player, parents, coaches, or others to act outside the Rugby AU guidelines.

If a doctor feels that a player's, coaches', parent's or administrator's response to their medical advice is inappropriate, they are encouraged to contact Rugby AU for advice or may refer the case to

the Rugby AU Chief Medical Officer or Concussion Consultant for further consideration. All participants in Rugby AU competitions (including players, parents, coaches and administrators) are bound by the Rugby AU Code of Conduct and if required, may be referred to the Rugby AU Integrity Unit.

As per the previous section, if a doctor sees a player during a game or training or in the hours following a suspected injury, then the following should be the process:

1. **Assessing a player during a game –** i.e., seeing a player on the field or on the side of a field
- Use Criteria 1 or 2 to assist in the Recognise and Remove process
- This can be assisted by CRT5

2. **Assessing a player on the same day following a game**
- The player should have a full neurological examination assisted by the SCAT5

However, most doctors will see a player in their office for assessment. This will take the form of one of several scenarios;
- An initial assessment following a concussion injury
- A player or parent seeking advice on the best process to recover from concussion and Rugby AU's required mandatory rest periods or on the graduated return to play process
- A player or parent seeking clearance to return to full contact training and then match play

3. **In the office assessment**
    a. Initial assessment

    The initial assessment following a concussion requires a full neurological assessment assisted by the following tools;
        i. Rugby AU Referral and Return form
        ii. SCAT5; the symptom review section of the SCAT5 should include an assessment of symptoms from the time of injury, not just on the day of assessment

    The SCAT5 form is a standardised form that can help monitor a player over days or weeks as they recover. It provides a multi-modal assessment of the player, assessing their symptoms, their cognition, and their balance. It also provides an insight into their past concussion history and their past medical and family history as it relates to head injury and mental health. This is all very relevant to the appropriate assessment of a player.

    The SCAT5 can take some time to perform (up to 30 minutes, although this time can reduce as the practitioner becomes more used to performing it) so the player will require an appropriate appointment to undertake this.

    Some practitioners like to perform computerised testing although this is not mandatory. If a player is presenting for their second concussion in a 12-month period, Rugby AU recommends referring the player to a doctor who has experience

in dealing with concussion e.g., Sports and Exercise Physician, neuropsychologist, neurologist.

The outcome of the standard initial consultation is the confirmation of the diagnosis of concussion and whether any further investigations are required.
Advice can then be given to the athlete as to the appropriate amount of time to rest from school, study or work, and exercise (see below).

b. The graduated return to play process and the minimum rest periods for adults and children

As noted previously, the process of concussion management in Australian Rugby in 2018 uses the 8 R's;

1. RECOGNISE
2. REMOVE
3. RECORD
4. REFER
5. REST
6. RECOVER
7. RECORD
8. RETURN TO PLAY

The time frame for Rest, Recover, and Return is dependent on several factors including age.

- **Children and adolescents**
  The World Rugby Standard Care Pathway for Children and Adolescents involves two weeks mandatory rest followed by the Graduated Return to Play pathway;
    1. minimum time to return to contact is 18 days
    2. minimum time to return to play is 19 days

- **Adults** – adults are players aged 19 years and over
  The World Rugby Standard Care Pathway for Adults involves one-week mandatory rest followed by the Graduated Return to Play pathway;
    1. minimum time to return to contact is 11 days
    2. minimum time to return to play is 12 days

World Rugby defines an Advanced Care Pathway that is available to adults playing in elite rugby competitions, but this does not apply to the vast majority of players in Australian Rugby and is beyond the scope of this document.

ALL PATHWAYS ARE GUIDED BY THE RESOLUTION OF SYMPTOMS (RATHER THAN STRICT TIME FRAMES) AND CAN BE FOLLOWED AS LONG AS PLAYER'S SYMPTOMS DO NOT RETURN AS THEY INCREASE THEIR LEVEL OF ACTIVITY.

The Graduated Return to Play (GRTP) pathway guides the return of a player to full training following a concussion injury. This is detailed in the Rugby AU Concussion Guidance document, but the following is the outline of GRTP pathway.

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; mandatory rest periods as appropriate for players age
2	Light cardiovascular exercise	Light jogging for 10-15 minutes, swimming or stationary cycling at low to moderate intensity. No weights training	If no increased 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 increased symptoms, start Stage 4 after minimum of 24 hours. If symptoms reoccur or worsen, 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 increased symptoms, review by a medical doctor and presentation of a completed Rugby Australia Concussion Referral & Return Form required before Stage 5. If symptoms reoccur, rest 24 hours & repeat Stage 3, then progress
MEDICAL CLEARANCE IS REQUIRED PRIOR TO PROGRESSING TO STAGE 5			
5	Rugby practice	Full contact practice following medical clearance	Player, coach, parent to report any symptoms to medical doctor. If symptoms reoccur or worsen, then medical doctor to review
6	Rugby game	Full contact game	Monitor for recurring symptoms or signs

c. Clearing a player to return to contact training

A player requires a further assessment by a doctor prior to returning contact training (stage 5 of the GRTP).

This assessment should ensure that;

- the player has recovered from their concussion symptoms
- The player has successfully returned to normal school, study or work without a return of symptoms
- The player has successfully returned through stages 1-4 of the GRTP without signs or symptoms of concussion returning; following the mandatory rest periods above, players may progress through the GRTP with at least 24 hours between each level.

If the doctor is satisfied that a player has successfully passed through all the above stages they should sign the player's Rugby AU Referral and Return Form to allow the player to return to full contact training. If the player successfully completes full contact training without any return of symptoms of concussion (either at the time of this training, after training, or the following day) they may then proceed to match play. Ideally the doctor should be notified of the successful completion

of this contact training, but it is not necessary for the doctor to review the player after this contact training, unless there are concerns that symptoms or signs have returned. In this case the player should not play, should remain rested, and should be reviewed by their doctor as soon as possible.

d. Rugby AU Referral and Return form

The Rugby AU Referral and Return form was developed by Rugby AU to assist in the management of concussion (see attached).

All players referred to a doctor for assessment of concussion should present this form to the doctor. The form has 3 sections;

Section 1: an outline of the signs and symptoms seen on the day of the game or training that has resulted in the player being referred for medical assessment.

Rugby AU's default position is that any neurological signs or symptoms following a possible concussion injury are considered to be due to concussion, unless the doctor can provide an alternative diagnosis (see below).

Section 2: confirmation by the treating doctor after the initial assessment that the player has indeed suffered a concussion. The doctor is required to sign this section.

Section 3: a final clearance by the treating doctor (preferably the same doctor as at the initial assessment) that the player has successfully completed;

- The appropriate mandatory rest period for their age
- They have successfully completed the Graduated Return to Play program sections 1-4
- They are fit to return to full contact training.

The doctor should sign the clearance for the player to return to full contact training and return it to the player who will then forward it to his/her team official to then be sent to the competition manager. The doctor is not responsible for sending this form to anyone apart from the player (and/or their parent).

e. Blue Card

The Blue Card is an initiative by Rugby AU to improve the ability of the Recognise and Remove process. It is detailed on the Rugby AU website. This process was successfully trialled in Senior and Junior competitions by Rugby Australia in 2017 and from 1st March 2018 was extended to ALL Rugby matches involving players from the U13 age group older.

In short, the referee may issue a Blue Card to any player they suspect has suffered a concussion injury. The Blue Card is a 'visual cue' signifying a player is leaving the field due to a concussion or suspected concussion. The Blue Card ensures the recording of the incident and triggers an off-field process.

It is expected the following process will occur. On the day of the game, if a suspicious head injury occurs, the referee should first consult with the medical staff of a team of an injured player. It is expected that in the vast majority of cases there will be agreement between the referee and the medical staff on the appropriate course of action.

If, however, there is disagreement between the referee and the medical staff, the referee does have the final say. This means the player must be removed from the field of play, can take no further part in games on that day, and must enter the process for concussion management as per the Rugby AU guidelines. The player must be provided with the Rugby AU Referral and Return form which details why the blue card was issued. The player will also have their injury recorded.

The player MUST then present to a doctor with the Rugby AU Referral and Return form (Section 1 completed) and undergo assessment as above.

f. Alternative diagnosis

There may be occasions where a player is referred to a doctor for assessment of concussion (either through the Blue Card system or not), where the doctor identifies an ALTERNATIVE DIAGNOSIS to explain the players signs and symptoms. This is not expected to occur often and was not seen commonly during the trials of the process in 2017.

Rugby AU's default position is that any neurological signs and symptoms following an injury that could cause concussion are due to concussion unless an alternative diagnosis is deemed to be responsible. The treating doctor must be willing to sign off on that alternative diagnosis, and then manage that alternative diagnosis appropriately.

To make an alternative diagnosis, the treating doctor should be aware of the signs and symptoms the player had at the time of injury (via the Rugby Referral and Return form) and the outcome of further assessment on the day of injury (via a SCAT5 for example), as well as their own assessment.

The doctor making the ALTERNATIVE DIAGNOSIS must complete a Concussion Management Alternative Diagnosis Referral form. This form is completed online and available via this link https://form.jotform.co/71599043936871

The doctor will also need to cite any evidence (e.g. SCAT5, statements from trainers who first attended the player on the day of injury etc.) that contributes to their conclusion.

The doctor may receive further enquiries regarding their alternative diagnosis from the Competition or Member Unions appointed concussion consultant, Rugby AU CMO and/or the Rugby AU Concussion Consultant, or another person nominated by the Rugby AU CMO or Concussion Consultant.

As noted previously, the alternative diagnosis process was not a commonly required process in the Blue Card trial jurisdictions. This process is designed to overcome situations where concussion or suspected concussion was incorrectly diagnosed and reported.

It is not a process to circumvent the appropriate management of a concussion injury.

3. SCENARIOS AND FREQUENTLY ASKED QUESTIONS

The following scenarios illustrate the processes around concussion management for doctors.

SCENARIO 1
A player receives a head knock in a tackle. They get to their feet following the tackle, but then staggers and falls onto their hands and knees.
Assessment at the time of injury.

Question: What should the management of this player be?

Answer: This player has signs and symptoms suspicious of concussion following a head trauma. They have a criteria 1 sign – "ataxia or balance disturbance."

Action: This player should be removed from the field of play and must not return to play. They must be referred to a medical doctor.

Take-away: Any immediate criteria 1 signs or symptoms following a head trauma is considered to be due to concussion. This player is considered to have concussion, even if their symptoms and signs settle quickly.

SCENARIO 2
A player suffers a head clash during a game of rugby. At the time they do not report any symptoms and do not show any signs of concussion. They continue to play and complete the game. However, after the game they complain of nausea, feeling dizzy, and a headache.
Assessment on the same day.

Question: What should the management of this player be?

Answer: This player should be considered to have a signs and symptoms of concussion. They have developed signs and symptoms of concussion following a head clash.

Action – This player must not return to further play that day and should be referred to a medical doctor.

Take-away: the development of neurological signs or symptoms in the hours following a game where there has been a head trauma are considered to be due to concussion.

SCENARIO 3

A player suffered a head clash during a game and split their head. This was sutured at the time. They reported no other signs or symptoms of concussion at the time, later that day or the next day. However, after two nights sleep they report that they feel lethargic and "slowed down", like they are in a fog. They have a headache and both loud sounds and lights are bothering them.
Assessment in the office 2 days after an injury.

Question: What should the management of this player be?

Answer: This player has possible signs and symptoms of a delayed concussion. This can come on anytime following a head trauma but usually in the first 48 hours.

Action: This player should be assessed to determine if the signs and symptoms are due to concussion.

Take-away: The development of any neurological signs and symptoms following a trauma to the head is considered by Rugby AU to be due to concussion unless the medical doctor can provide an alternative diagnosis.

SCENARIO 4
A player presents to their doctor's office on a Monday following a Saturday rugby game.
They report that they were given a 'blue card' whilst playing rugby on Saturday.
Assessment in the office 2 days after an injury.

Question: What is the doctor expected to do?

Answer: The doctor is expected to examine the patient and assess whether the patient has signs and symptoms of concussion. A SCAT5 assessment or a computerised assessment may assist this.

The player should present a 'Rugby AU Referral and Return Form' to the doctor. This document outlines the reasons why a blue card was issued to the player. This information should allow the doctor to confirm the diagnosis of concussion.

Action: The doctor should sign the form to confirm the management of the player.

The player should bring the same form back to the doctor when they have progressed to the point of returning to contact training, so that the doctor can confirm the player is fit to return to full contact training and (if successful), then return to match play. The player will then return the form to their team manager who will forward it to the competition manager.

Take-away: Failure of a player to present a Referral and Return form to their treating doctor means that they will not be able to be signed off to return to contact training.

FREQUENTLY ASKED QUESTIONS
Q. As I doctor, what do I do if I do not believe that a concussion has occurred?
A. If you believe that upon assessment of the player that the reported signs and symptoms were not due to concussion then you **MUST** complete a Concussion Management Alternative Diagnosis Referral form. This is for a legitimate alternative medical diagnosis that is consistent with the patient's symptoms and signs and there is evidence presented to that effect. Rugby AU reserves the right to not accept an alternative diagnosis if the evidence presented does not support this alternative diagnosis.

Q. What happens when a patient, coach, or parent react in an aggressive manner about a diagnosis of concussion?
A. All participants in rugby are bound by the Rugby Australia's Code of conduct. This includes supporting doctor's decisions who are acting in the interests of player safety and welfare.

Q. What is required if the Referral and Return Form indicates that player has had more than one concussion in the last 12 months?
A. It is a requirement that all players suffering two or more concussions in a season be assessed by a medical doctor experienced in sports concussion management and confirmed that they have fully recovered from concussion prior to returning to contact sport participation. The appropriate Competition Manager or Member Union should be contacted for advice on the appropriate person to consult in such cases.

Q. What if a player who was concussed in Rugby plays another sport?
A. This is difficult. Rugby AU guidance for concussion is similar to the guidance by the Australian Institute of Sport and Australian Medical Association position statement on the management of concussion.
Rugby AU would recommend that players injured playing rugby adhere to the Rugby AU guidance for all sports, not just rugby.
Similarly, if a player injured in another sport wishes to play rugby following a concussion, they should follow the Rugby AU guidelines.

Q. Is there a Head Injury Assessment process in club or school Rugby in Australia?
A. No. The vast majority of rugby competitions in Australia DO NOT have the Head Injury Assessment (HIA) process available where players can be temporarily removed from the field, assessed by suitably trained medical staff, and then return to the field of play if cleared to do so.

The ONLY competitions that have the HIA in Australia are;

- International test matches (men and women)
- Super rugby (men only)
- World Rugby Sevens World Series (men and women)
- Australian Under 20s team when playing internationally (men only)
- Specific tournaments that receive specific permission (e.g. Brisbane Tens)

There is NO HIA in the Super W tournament, the AON University Sevens tournament, club rugby or schools' rugby at any level anywhere in Australia.

Q. Can I contact Rugby Australia if I need to?
A. Yes, you can email Rugby Australia at communityrugby@rugby.com.au

FURTHER INFORMATION

Refer to Rugby Australia Concussion Management at http://rugbyau.com/about/codes-and-policies/safety-and-welfare/concussion-management

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

**As of 19 March 2018*