POLICY & GUIDELINES FOR MANAGEMENT OF SPORT RELATED CONCUSSION

NATIONAL PROGRAMS & SUNCORP SUPER NETBALL COMPETITION

Version 3 – 31 March 2023

BACKGROUND

In considering the best practice management of sport-related concussion (**SRC**), the priority remains the short and long-term welfare of the player.

This Netball Australia Policy & Guidelines for Management of Sport Related Concussion – National Programs and Suncorp Super Netball (**SSN**) Competition (the **Guidelines**) for the management of SRC have continued to be modified and enhanced to ensure that they remain applicable to the sport of netball.

These updated Guidelines continue to adhere to the principles outlined in the most recent International Consensus Statement (5th International Conference on Concussion in Sport, Berlin 2016).

The 6th International Conference on Concussion in Sport was held in Amsterdam in October 2022. This update incorporates some of the key concepts presented at the meeting.

Further modifications to these Guidelines may be made when the Consensus Statement, updated assessment tools and systematic reviews, are published later in 2023.

In following the Guidelines, the diagnosis of concussion and subsequent return to play remains an individual decision by the treating doctor, following the protocols and principles set forth in this document, utilising good clinical judgment and the evaluation of all the information available to the doctor at the time of the player's assessment.

These Guidelines specifically apply to National Programs and the SSN, where National Programs includes the Australian Netball Diamonds Squad, Australian Development Squad, Australian 21/U Squad and National Underage Squads. Separate, but related guidelines are in place for the National Netball Championships and Australian Netball Championships (the *NNC/ANC Guidelines*).

These Guidelines are supported by Netball Australia's Policy & Position Statement on Concussion in Netball dated 31 March 2023 (the *Policy & Position Statement on Concussion*).

CLINICAL CONSIDERATIONS

SRC is a traumatic brain injury induced by biomechanical forces. There are several common features that may be utilised in clinically assessing for the presence of a concussive episode:

- SRC may be caused by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.
- SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. In some cases, signs and symptoms evolve over a number of minutes to hours.
- The acute clinical symptoms and signs generally reflect a functional disturbance rather than a structural injury, and as such, no abnormality is seen on neuroimaging.

Diagnosis in this setting can be challenging for the clinician because:

- Clinical symptoms and signs may evolve over time.
- Many of the features are not specific to concussion, and may represent other injury.
- Structural brain injury can present with identical clinical features and cannot always be ruled out on initial assessment.
- Players may not always be forthcoming with symptom reporting due to a desire to remain on court.

In practical terms, a player with any neurological symptoms or signs, or video signs of concussion, and/or a disturbance of cognitive function or mental disturbance following a trauma (including indirect trauma with the potential for force translation) is considered to have a concussion requiring medical assessment and management. Consideration should always be given to a structural head injury, and the player assessed accordingly. If concussion is diagnosed appropriate, clinical management should follow and return to play protocols, as outlined in this document, should be completed.

PRE-SEASON SCREENING

Assessment of players during pre-season medical review for: number of concussions, history of prolonged recovery from concussion, and the player's previous management is essential.

It is recommended that all players have pre-season baseline neurological assessment, SCAT5 and Cognigram. Baseline testing facilitates education of players and interpretation of post-injury test scores, which ultimately enhances decisions regarding diagnosis and assessment of recovery. Without baseline tests for comparison, a more conservative approach to diagnosis and return to play must be used.

More detailed baseline testing (including formal neuropsychological testing) is strongly recommended for any player with a significant concussion history (either number of concussions or history of prolonged recovery).

EDUCATION

It is important to provide concussion education to players, coaches and other medical staff (e.g. trainers).

Players should be provided with information so that they can recognise the common symptoms of concussion and know to report them, both during a match and in the subsequent days. Players, coaches and team physios also need to understand these guidelines including requirement for immediate removal for assessment if there is any suspicion of concussion (observed directly, observed on video or reported by other players/staff).

GAME DAY MANAGEMENT PROTOCOLS

These Game Day Management Protocols are not intended to limit the application of the World Netball 'Rules of Netball' (2020) or the SSN Rules of the Game.

National Programs are subject to World Netball Rules.

A summary of these Game Day Management Protocols is set out at Appendix 1.

1. OBSERVATION

A doctor must be in attendance at all National Programs and SSN games (in the SSN, usually the home team's doctor or may be an independent doctor, unless the away Team travels with its own doctor).

The match day doctor should be positioned on the field of play, with available access to the Reserve Umpire and both teams, unless providing treatment to a player. If the match day doctor does not have visibility of the court (ie in circumstances where they are treating another player in the changerooms), they should take the tablet (see below) with them so that they can continue to view the game to the extent possible. Whilst the match day doctor is treating a player, the team physiotherapist should be closely observing the game for head impacts.

Without limitation, the doctor may be notified of a concerning incident by a player, the team physiotherapist or other bench staff. Other National Programs/SSN medical staff watching the game may also notify the team doctor of a possible concussive event.

The incident can be reviewed (including on replay) on the tablet with broadcast footage that is to be made available to the match day doctor on game day by the home team manager.

The match day doctor should also utilise the broadcast footage to evaluate further a possible or suspected concussion. Video review allows direct observation of the mechanism of the injury as well as identifying any acute signs of concussion that may have been too brief to witness in real time. This is best performed prior to the removal of the player from the court to ensure there is no clear or possible signs of concussion on the video replay which would warrant a full SCAT5 assessment.

2. INITIAL RESPONSE

After observing, or being notified of a possible concussion, the doctor must decide whether the player requires immediate removal from play for further assessment.

In the event that a possible concussion or head impact is sustained during an SSN Match, the match day doctor has the authority to call time (through the Reserve Umpire) and remove any player from the court for assessment and management of concussion.

A player MUST be removed from play and undertake a SCAT5 assessment if they have clear signs of concussion (SEE CATEGORY 1) or if they have possible signs of concussion (SEE CATEGORY 2).

This can take place following direct observation or video review or after a sideline review of a player. If the match day doctor has any clinical suspicion that the player may have sustained a concussion, they must undertake a further assessment by way of a SCAT5, performed to assist with diagnosis.

The match day doctor may perform a brief initial sideline clinical assessment of the player, including an assessment of concussion symptoms and player orientation which may include the Maddocks Questions (Appendix 2), where there has been suspicion or direct observation of a head impact that could lead to a concussion but there are no clear or possible signs on direct observation or video review.

If a match day doctor determines that the player does not require further assessment with a SCAT5, they may clear the player to return to play, through a rolling substitution, another time out, new injury time or interval as per the current rules.

The Head Injury Assessment (HIA) form should also be completed by the match day doctor regardless of whether a diagnosis of concussion was made (Appendix 3). All HIA's should be uploaded to the player's AMS profile. The clinical features of concussion may be delayed or evolve over several hours, all head impacts assessed by the match day doctor must be communicated to the away team doctor following the game to ensure there is ongoing monitoring of the player in relation to a delayed concussion.

CATEGORY A: Clear diagnosis of concussion. Requires immediate removal and no return to play

- Loss of consciousness
- Lying motionless for more than 5 seconds
- No protective action was taken by the player in a fall to the ground
- Impact seizure or tonic posturing
- Confusion or disorientation

- Memory impairment/amnesia
- Balance disturbance or motor incoordination
- Dazed, blank or vacant stare or player not their normal selves
- Player reports significant, new or progressive concussion symptoms
- Behaviour change atypical of the player

CATEGORY B: Possible (likely) diagnosis of concussion. Requires removal from play for further assessment, including SCAT5

- Lying motionless for more than 2 seconds but less than 5 seconds
- Possible tonic posturing or impact seizure
- Possible no protective action
- Possible motor incoordination
- Possible dazed, blank/vacant stare
- Possible behaviour change atypical of player
- Any clinical impression from doctor that the player is not quite right following a trauma

The match day doctor should be alert to other signs that have been validated as correlating with a possible diagnosis of concussion. These signs include:

- Clutching at head/face
- Slow to get up
- Poor decision making/unusual errors on court

If a player is removed from play by the match day doctor, the player must not re-enter the court, until cleared, without interference of the physiotherapist or other performance staff.

If a player is not cleared by the match day doctor to return to play, this must be clearly communicated to the SSN team physiotherapist and coach as soon as practicable. This decision must always be made with the player's safety and wellbeing in mind.

3. ASSESSMENT AND MANAGEMENT

A. Where there is a clear diagnosis of concussion:

- The player should be medically evaluated in accordance with standard emergency management principles, with attention given to excluding a cervical spine injury.
- Assessment for a structural head injury should be undertaken, and the player transported to hospital via an ambulance if there are abnormal neurological signs or signs of a structural head/neck injury.
- The player must be re-assessed for deterioration.
- When practical (e.g. a major break, after the match or the following day), a SCAT5 should be performed on the player.
- **The player must not be returned to the court on the day of injury.**

B. Where the diagnosis is possible/likely:

- The player should be removed from the court.
- Assessment should take place in a quiet, distraction free environment.

- The player should be allowed to rest for a couple of minutes prior to assessment if feasible.
- Video review must be undertaken (via tablet).
- The player should be fully assessed, using the SCAT5* and compared with baseline.

(Note: baseline SCATs should be accessible by the match day doctor on AMS and be available as a hard copy from the away team physiotherapist.)

- In the case that a full assessment has taken place (history, full assessment +/- video review where available) and no diagnosis of concussion is made, the doctor can then make the decision to return the player to play.

(*The SCAT5 is not in itself diagnostic, but a tool to assist with decision making. If there is any clinical suspicion by the assessing doctor, but the player has recorded a 'normal' SCAT5, a cautious approach is recommended. The diagnosis of concussion remains a clinical decision based on the serial assessment in a range of domains including symptoms, signs, cognitive impairment and neuro-behavioural changes.)

C. Suspicion or direct observation of a head impact that could lead to a concussion but there are no clear or possible signs on direct observation:

- Video review must be undertaken (via tablet) to exclude clear or possible signs of concussion
- Call a Head Injury Substitution by notifiying the reserve umpire to hold time for the player to leave the court.
- Perform a sideline clinical assessment on player (assess for reported symptoms of concussion, observe for signs). The match day doctor can determine where this is best to take place based on the venue and the needs of the player (in some circumstances it may be appropriate to undertake on the team bench, but in others, they may wish to undertake the assessment in a quiet corridor or area) and as per the match day doctor's discretion.
- Assess for memory imparment with tool such as Maddock's Questionnaire
- Continue to monitor throughout the game, and remove from play for further assessment if clinical concerns evolve regarding a possible concussion.

4. FOLLOW UP

A. For diagnosed concussion

If an away team player: match day doctor to discuss initial management with team physiotherapist and then hand over to player's club doctor (if not in attendance) as soon as able.

Home team player: match day doctor to organise follow up review.

National Programs: team doctor will manage the concussion.

B. If concussion is not diagnosed and player returned to play on the day

Because symptoms can evolve over time, the player must be observed and reassessed throughout, after, and in the days following the match for symptoms, with appropriate hand over and follow up with the club physiotherapist and doctor.

RETURN TO PLAY – POST DAY OF INCIDENT

Decisions regarding return to sport (training or match play) following SRC rely on a multi-faceted clinical approach managed by the Team/Club Doctor. The Team/Club Doctor must

provide clearance for the player to resume training and match play in line with these Guidelines.

The minimum requirement is that a player must have: baseline level of symptoms and cognitive performance (if available), had resolution of all neurological signs, and have completed a graded loading program without recurrence of symptoms or signs of SRC.

Early management following SRC is focused on relative rest to allow the player to recover from their injury. This is followed by a graded loading program which is designed to allow a conservative approach to recovery, with incremental increases in physical +/- cognitive load to ensure that concussion-related symptoms or signs do not recur.

A player with SRC cannot commence a graded loading program (.e.g full team training) without recording a SCAT5 that has returned to baseline (without the requirement for pharmacotherapy to treat concussion-related symptoms). A player cannot return to match play without successfully completing a Cognigram test. Computerised screening cognitive tests provide a practical method to assist with the assessment of cognitive recovery.

In following these guidelines, the earliest that a player can return to play after a concussion is 12 days.

For players with concussion-related symptoms or clinical signs that persist beyond 48 hours a slower return to play strategy should be adopted (e.g. by extending the number of non-contact, limited contact and full contact training sessions that the player participates in before clearance for unrestricted return to play).

A more conservative approach is important in cases where symptoms or clinical features persist beyond 48 hours; or those with any “modifying” factors i.e. young players, multiple concussions, learning disabilities, high symptom burden in the first few days after injury etc. In these cases, a greater period of initial rest may be required; and each stage of the graduated loading program should be conducted over a longer period of time (e.g. by extending the number days between progressions, or increasing the number of days held at each stage of the graded return to play).

DIFFICULT OR COMPLICATED CASES

Cases in which symptoms or clinical features (e.g. cognitive deficit) persists for more than seven days; complicated cases; second or subsequent concussions in one season or cases involving decisions regarding retirement due to SRC, should be managed in a multi-disciplinary manner. In any such case, it is strongly recommended that the Team/Club Doctor involve an independent clinician with expertise in concussion management, to assist in management decisions. Formal neuropsychological testing should be considered for players with recurrent concussions or there is uncertainty regarding a player’s clinical or cognitive recovery.

INVESTIGATIONS

The Netball Australia Chief Medical Officer, in their absolute discretion, may initiate an investigation into any alleged breaches of the Guidelines.

Disciplinary action under contract or the Suncorp Super Netball Team Participation Agreement may be pursued by Netball Australia on the advice of the Netball Australia Chief Medical Officer, in consultation with the Netball Australia Head of Integrity.

Table 1: Guideline for minimum return to play following concussion

STEP	REST	RECOVERY	GRADED LOADING – INDIVIDUAL PROGRAM			GRADED LOADING - FULL TEAM TRAINING					
Components	Rest	Symptom-limited activity	Light aerobic exercise	Moderate aerobic exercise	Sport-specific exercise	Non-contact training	Recovery	Limited contact training	Recovery	Full contact	Recovery
Goal		Daily activities that do not provoke symptoms	Light aerobic exercise (e.g. walking / jog / cycling at slow to medium pace) No resistance training	Moderate aerobic exercise (i.e. Increased heart rate) No resistance training	Increased intensity and duration of activity Add sports specific drills (e.g. passing, shooting) Commence light resistance training	Return to full team training sessions – non-contact only	Can participate in other components of the training program (e.g. weights)	Full team training – but able to participate in drills with incidental contact	Can participate in other components of the training program (e.g. weights)	Full team training	Can participate in other components of the training program (e.g. weights)
Duration	24-48 hours	Minimum 24 hours	Minimum 24 hours	Minimum 24 hours	Minimum 24 hours	At least 1 day between sessions to monitor for recurrence of symptoms		At least 1 day between sessions to monitor for recurrence of symptoms		At least 1 day between sessions to monitor for recurrence of symptoms	
Requirements to move to next stage		Resolution or improvement of concussion related symptoms and medical clearance to enter graded loading program	Resolution or no worsening of any concussion-related symptoms with exercise	Resolution or no worsening of any concussion-related symptoms with exercise	Resolution of all concussion-related symptoms and medical clearance to commence full team training including a SCAT5 that has returned to baseline	Remain completely free of any concussion-related symptoms – and player confident to participate in training		Remain completely free of any concussion-related symptoms – and player confident		Remain completely free of any concussion-related symptoms – player confident to participate in training – and medical clearance for unrestricted return to play. Successful completion of Cognigram test.	

SUMMARY

- Player health and welfare must remain at the centre of decision making.
- In the event that a concussion is sustained during an SSN Match, the Match Day Doctor has the authority to call time (through the Reserve Umpire) and remove any player from the court for assessment and management of concussion. If a player is removed by the match day doctor, the player must not re-enter the court, until cleared by the match day doctor.
- If a concussion has been diagnosed, then that player cannot return to play the same day and must complete the graded return to play protocol with ongoing monitoring by their club doctor. Medical clearance is required prior to any resuming training and match play.
- The SCAT5 is a diagnostic tool, and must be assessed along with the mechanism of injury and overall clinical impression to make a decision on a diagnosis.
- If in doubt, a cautious approach is recommended.
- Video review of the incident is required as part of diagnosis.
- Follow up with the player's club doctor must be arranged for all players with a head impact, regardless of whether a concussion was diagnosed
- The game day (including the HIA form) and subsequent assessment should be included in AMS notes by club doctors.

DEFINITIONS

Lying Motionless

Lying without purposeful movement on the playing surface for more than two seconds. Does not appear to move or react purposefully, respond or reply appropriately to the game situation (e.g. team mates, umpires or medical staff). Concern may be shown by other players or match officials

Tonic Posturing

Involuntary sustained contraction of one or more limbs (typically upper limbs), so that the limb is held stiff despite the influence of gravity or the position of the player. The tonic posturing could involve other muscles such as the cervical, axial, or lower limb muscles. Tonic posturing can be observed whilst the player is on the playing surface, or in the motion of falling.

No Protective Action

Falls to the playing surface in an unprotected manner without stretching out hands or arms to minimise the impact of the fall, after direct or indirect contact to the head. The player demonstrates loss of motor tone before landing on the playing surface.

Impact Seizure

Involuntary clonic movements that comprise periods of asymmetric and irregular rhythmic jerking of axial or limb muscles.

Slow to get up

Remains sitting or lying on the court despite play continuing.

Motor Incoordination

Appears unsteady on feet including losing balance, staggering/stumbling, struggling to get up or falling. This may also occur in the upper limbs which will be observed as fumbling.

Incoordination can occur both in the motion of getting up off the court or in the motion or walking or running.

Blank/Vacant Look

Player exhibits no facial expression or apparent emotion in response to environment.

Facial injury

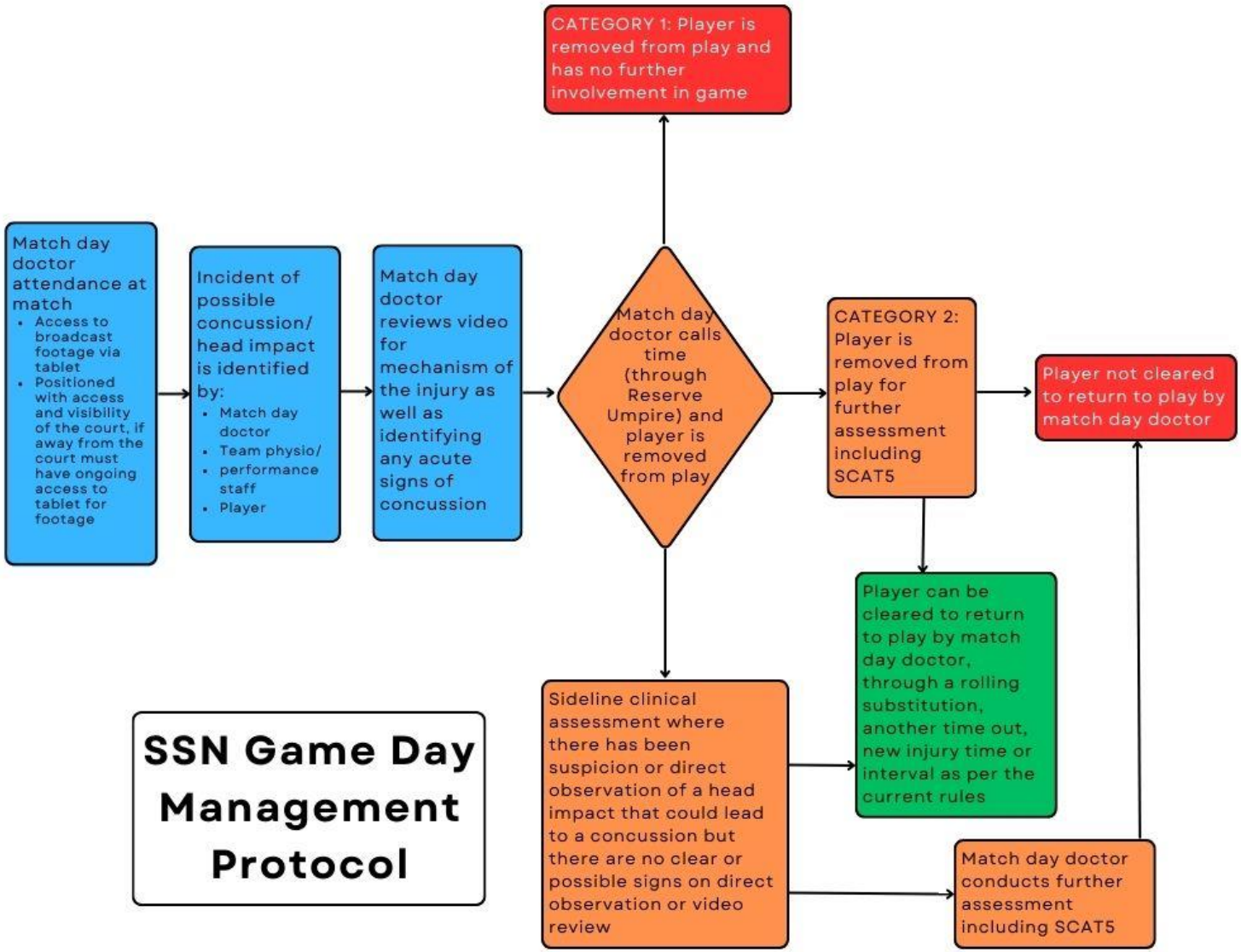
Any facial laceration, facial bleeding, blood coming from mount, epistaxis or apparent eye injury.

REFERENCES

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 Med 2017 doi: 10.1136/bjsports-2017-097699
2. Patricios J, Fuller GW, Ellenbogen R, et al. What are the critical elements of sideline screening that can be used to establish the diagnosis of concussion? A systematic review. Br J Sports Med 2017 doi: 10.1136/bjsports-2016-09744

Reference Number:	HP005.01
Title:	Policy & Guidelines for Management of Sport Related Concussion – National Programs and SSN
Effective Date:	31 March 2023
Author:	Chief Medical Officer
Owner:	EGM Performance (or comparable position)
Approval Level:	NA Board
Date Last Reviewed:	February 2022
Scheduled Review Date:	Annual
Supersedes:	All previous policies, guidelines and/or statements

Appendix 1: Summary of Game Day Management Protocol



Appendix 2: Maddocks Questions

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

Appendix 3: Match Head Injury Assessment (HIA)

To be completed by the Match Day Doctor for a suspected head or neck injury during a match and upload to the athlete's AMS as soon as practical. The form **must** be completed when:

- A player's head forcefully hits another player, the ground or an object (ie the ball); or
- The Match Day doctor attends a player or the player leaves the field of play following a head knock (whether observed directly, via video review)

This form does not replace the SCAT5 which must be performed in any case of suspected or diagnosed concussion.

A. GENERAL INFORMATION

Player Name: Club:

Doctor Name: Date:

Quarter: Approximate Time in Quarter:

B. STRUCTURAL HEAD OR NECK INJURY

1. Are there clinical features including abnormal neurological signs of a serious or structural head and/or neck injury requiring emergency management and hospital transfer (GCS, etc are indicated)? ☐ Yes ☐ No

C. REMOVAL FROM PLAY

The player **must** be removed from play with **any** of the following clinical features observed directly or from video review (all tests below to be completed) and club support staff **must** report all observations to the club doctor:

a. Clear diagnosis of concussion requiring immediate removal and no return to play

	Observed Directly	Reported	Video Review	No
2. Loss of consciousness	☐	☐		☐
3. No protective action in fall to ground[1]	☐	☐	☐	☐
4. Impact seizure[2] or tonic posturing[3]	☐	☐	☐	☐
5. Motor incoordination[4]	☐	☐	☐	☐
6. Dazed or blank/vacant stare[5]	☐	☐	☐	☐

1 Falls to the playing surface in an unprotected manner (i.e. without stretching out hands or arms to lessen or minimise the fall) after direct or indirect contact to the head. The player demonstrates loss of motor tone (which may be observed in the limbs and/or neck) before landing on the playing surface.
2 Involuntary clonic movements that comprise periods of asymmetric and irregular rhythmic jerking of axial or limb muscles.
3 Involuntary sustained contraction of one or more limbs (typically upper limbs), so that the limb is held stiff despite the influence of gravity or the position of the player. The tonic posturing could involve other muscles such as the cervical, axial, and lower limb muscles. Tonic posturing may be observed while the athlete is on the playing surface, or in the motion of falling, where the player may also demonstrate no protective action
4 Appears unsteady on feet (including losing balance, staggering/stumbling, struggling to get up, falling), or in the upper limbs (including fumbling). May occur in rising from the playing surface, or in the motion of walking/running.
5 Player exhibits no facial expression or apparent emotion in response to the environment (may include a lack of focus/attention of vision). Blank/vacant look is best appreciated in reference to the athlete's normal or expected facial expression.

7. Behaviour change atypical of the player	☐	☐	☐	☐
8. Confusion or disorientation	☐	☐		☐
9. Memory impairment (e.g. fails Maddocks questions)	☐	☐		☐
10. Player reports significant, new or progressive concussion symptoms	☐	☐		☐

b. Requires <u>immediate removal from play for further assessment</u>

	Observed Directly	Reported	Video Review	No
11. Lying motionless (>2 seconds)[6]	☐	☐	☐	☐
12. Possible no protective action in fall to ground[1]	☐	☐	☐	☐
13. Possible impact seizure[2] or tonic posturing[3]	☐	☐	☐	☐
14. Possible motor incoordination[4]	☐	☐	☐	☐
15. Possible dazed or blank/vacant stare[5]	☐	☐	☐	☐
16. Possible behaviour change atypical of the player	☐	☐	☐	☐
17. Any clinical impression or uncertainty from the team doctor that the player is not quite right following trauma	☐		☐	☐

Doctor's comments regarding the above findings:

D. OUTCOME AND ACTION

If 'Yes' is selected for items 1-10, clear diagnosis of brain injury or concussion and no return to play ☐

If 'Yes' is selected for items 11-17, requires removal from play for SCAT5* ☐

If 'No' is selected for items 1-17, no criteria for removal for concussion or SCAT5 assessment* ☐

*A player cleared to play requires regular medical checks at least every 30 minutes and removal for SCAT5 assessment with any deterioration

E. SIGNATURE OF EXAMINING DOCTOR

Signed: Date: Time completed:

[6] Lying without purposeful movement on the playing surface for >2 seconds. Does not appear to move or react purposefully, respond or reply appropriately to the game situation (including teammates, opponents, umpires or medical staff). Concern may be shown by other players or match officials.