POLICY & GUIDELINES FOR MANAGEMENT OF SPORT RELATED CONCUSSION

NATIONAL NETBALL CHAMPIONSHIPS & AUSTRALIA NETBALL CHAMPIONSHIPS

Version 1 - September 2021

BACKGROUND

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

The Netball Policy and Guidelines for the management of SRC have continued to be modified and enhanced. The basic concepts however adhere to the general principles of management outlined in the Consensus Statement from the 5th International Conference on Concussion in Sport (Berlin, 2016).

They have been refined to ensure they are applicable to the sport of Netball, and the rules of the 2021 National Netball Championships (*NNC*) and 2021 Australian Netball Championships (*ANC*), referred to as the ***NNC/ANC Guidelines***.

In following the Guidelines, the diagnosis of concussion and subsequent return to play remains an individual decision by a 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 NNC/ANC Guidelines specifically apply to the NNC and the ANC. Separate, but related guidelines are in place for National Programs and the Suncorp Super Netball (*SSN*) (collectively, with the NNC/ANC Guidelines, referred to as the ***Guidelines***).

The Guidelines are supported by Netball Australia's Policy & Position Statement on Concussion in Netball dated 3 September 2021 (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.
- Athletes may not always be forthcoming with symptom reporting due to a desire to remain on court.

In practical terms, an athlete 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 athlete 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:

- the number of concussions;
- history of prolonged recovery from concussion; and
- the athlete's previous management is essential.

It is recommended that all players have pre-season baseline neurological assessment and SCAT5. 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 athlete with a significant concussion history (either number of concussions or history of prolonged recovery).

EDUCATION

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

Athletes 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. Athletes, coaches and team physios also need to understand the NNC/ANC Guidelines including requirement for immediate removal for assessment if there is any suspicion of concussion (observed directly, observed on video or reported by other athletes/staff).

GAME DAY MANAGEMENT

1. OBSERVATION

Each Team participating in the NNC and ANC will travel with a team physiotherapist, who is in attendance at all NNC/ANC games.

Each physiotherapist is responsible for observing play. The physiotherapist can also be notified of a concerning incident by the other team or bench staff. Other medical staff watching the game may also notify the team physiotherapist of a possible concussive event.

2. INITIAL RESPONSE

After observing, or being notified of a possible SRC, the physiotherapist must decide whether the athlete requires immediate removal from play for further assessment. This decision can be difficult, as it may involve stopping play, or recommending the athlete is substituted off. If an athlete requires removal from play, this should be clearly communicated with the Team coaching staff on the bench. Coaches should be aware that this may occur in the interests of player welfare.

Notwithstanding the above, where the NNC/ANC Doctor is in attendance, the NNC/ANC has the authority to call time and remove any athlete from the court for assessment and management of concussion. If an athlete is removed by the NNC/ANC Doctor, the athlete must not re-enter the court, until cleared by the NNC/ANC Doctor, without interference of the physiotherapist or other support staff. Removal from play can be considered under the following categories:

A. Clear diagnosis of concussion. Requires immediate removal and no return to game

- Loss of consciousness

- No protective action on falling to the ground
- Impact seizure
- Motor incoordination
- Dazed or vacant look or athlete not her normal self
- Behaviour change atypical of the athlete
- Confusion or disorientation

B. Possible (likely) diagnosis of concussion. Requires removal from play for further assessment and no return to game until a medical assessment is performed

- Lying motionless for > 2 seconds
- Possible tonic posturing or impact seizure
- Possible motor incoordination
- Any clinical impression from doctor that the player is not quite right following a trauma
- Facial injury

C. Unclear but concerned. e.g. head clash. Requires assessment at next available opportunity (rotate off or break in game) and decision on return to play

The physiotherapist 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

3. ASSESSMENT AND MANAGEMENT

A. Where there is a clear diagnosis of concussion:

- The athlete 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 athlete 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.
- 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.
- The player must not be returned to the court until a formal medical assessment is performed

C. Unclear but some concerns:

- Assess at next available opportunity.
- Obtain history of the incident from player (symptoms, memory impairment, use Maddocks questions).

- If concussion is suspected the athlete should be removed from play and not returned until a formal medical assessment is performed.
- Even if this initial assessment does not indicate concussion, the athlete should continue to be monitored throughout the game, and removed from play for further assessment if clinical concerns evolve regarding a possible concussion.

4. FOLLOW UP

A NA NNC/ANC Doctor (available at venue during specific clinic times) will be appointed to conduct all concussion assessments and to discuss initial management with the team physiotherapist at the NNC/ANC.

Because symptoms can evolve over time, the athlete must be observed and reassessed throughout, after, and in the days following the incident for symptoms, with appropriate follow up with the physiotherapist and NA NNC/ANC Doctor.

If an athlete has returned to their home state, they must be referred to their local doctor for ongoing observation and reassessment. Ideally, the doctor will have some experience in concussion management, however, this is not mandatory.

RETURN TO PLAY

Once SRC has been formally diagnosed, decisions regarding return to sport (training or match play) rely on a multi-faceted clinical approach managed by a doctor.

The minimum requirement is that an athlete must:

- have returned to baseline level of symptoms and cognitive performance);
- 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 athlete 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.

An athlete with SRC cannot commence a graded loading program without symptoms having returned to baseline (without the requirement for pharmacotherapy to treat concussion-related symptoms), ideally with comparison to a baseline SCAT5.

In following these guidelines, the earliest that an athlete can return to play a netball game after a concussion is 12 days.

For athletes 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 athlete 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 athletes, 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 NA CMO is consulted to ensure that a clinician with expertise in concussion management is available to assist in management decisions.

INVESTIGATIONS

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

Disciplinary action may be pursued by Netball Australia in accordance with the Netball Integrity Framework 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		24 hours completely free of concussion related symptoms and medical clearance to enter graded loading program	Remain completely free of any concussion-related symptoms	Remain completely free of any concussion-related symptoms	Remain completely free of any concussion-related symptoms and medical clearance to commence full team training	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	

SUMMARY

- Athlete welfare must remain at the centre of decision making.
- Where the NNC/ANC Doctor is in attendance, the NNC/ANC Doctor has the authority to call time and remove any athlete from the court for assessment and management of concussion. If an athlete is removed by the NNC/ANC Doctor, the athlete must not re-enter the court, until cleared by the NNC/ANC Doctor.
- Where there is no NNC/ANC Doctor in attendance, the team physiotherapist has the authority to call time and remove any athlete from the court for assessment and management of concussion. If an athlete is removed by the team physiotherapist, the athlete must not re-enter the court, unless cleared by the team physiotherapist.
- If a concussion has been diagnosed, then that athlete cannot return to play the same day. The athlete must have a medical assessment and then progress through the graduated return to play protocols.
- If there is a possible/likely diagnosis of concussion the athlete cannot return to play until concussion has been excluded by the NA NNC/ANC Doctor or their local doctor (if returned to home state).
- If there is an incident where it is unclear whether concussion has occurred and the initial assessment by the team physiotherapist indicates no concussion, the athlete should still be monitored for the development of symptoms over the next 24 hours and a medical assessment must be performed if any symptoms develop.
- 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 strongly recommended, where possible.
- The game day and subsequent assessment should be included in AMS notes by team physiotherapists and the NA NNC/ANC Doctor.

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 athlete. 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.

RELATED DOCUMENTS

Netball Australia's Position Statement on Concussion in Netball dated 16 June 2021

Guidelines for the Management of Sports Related Concussion – Suncorp Super Netball

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

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