netball AUSTRALIA

CONCUSSION POLICY

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Netball Australia (NA) is the peak body responsible the development and promotion of netball nationally. NA recognises the need for a *Concussion Policy* to guide the response and treatment of concussion at national level events and competitions. NA also recognises a need for advice and information to assist netball states, associations and clubs address concussion at the community level.

Although rare in netball, concussion has increasingly become a significant public health issue, particularly relevant to sport. The primary purpose of the policy is at all times to protect the welfare of netball athletes. Accurate diagnosis and management is needed to ensure that a concussed player is appropriately treated.

This policy sets out are the guidelines, procedures, information and references that can be used by medical staff, athletes, coaches, support staff, and parents responding to players who have received a concussion.

The policy comprises of:

1. Important Facts on Concussion
2. Mandatory procedures for Netball Australia Competitions
3. Reference Cards
4. Useful Links / Resources
5. Further Information on Concussion

Acknowledgements

This policy could not be completed without the excellent resources and information from the joint Australian Institute of Sport and Australian Medical Association statement on concussion as well as the resources provided by the British Journal of Sports Medicine.

IMPORTANT FACTS ON CONCUSSION

What is Concusion

Concussion, as defined by the Concussion in Sport Group (CISG) international consensus statement,[1] is a complex pathophysiological process affecting the brain, induced by biomechanical forces. It is known to be complex injury and can be challenging to evaluate and manage.

Concussion is a disturbance in the brain's ability to acquire and process information. The reduced function of the brain represents damage to nerve cells (neurons). Either a direct or indirect blow to the head can cause this injury. A direct blow can cause the brain to rotate and/or move forward and backward. Indirect impact to the body can transfer an impulsive force to the brain.

The effect that this has on the player can vary from person to person, depending on which part of the brain is affected. The impact can cause concussion signs visible to those who witnessed the collision.

Key Points on Concussion

- Concussion can occur in traditional contact sports and sports such as basketball, netball, horse riding, skiing and hockey.
- 90% of concussions occur in competitive matches.
- Women are twice as likely to suffer concussion as men.
- Most concussions are not reported.
- Concussion may go undetected due to the subtlety and widespread occurrence of the typical signs and symptoms of concussion.
- Concussion symptoms can manifest immediately or hours and even days later.
- Not all athletes develop the same symptoms or signs of concussion.

MANDATORY PROCEDURES FOR TEAMS PARTICIPATING IN NETBALL AUSTRALIA EVENTS

Before the season/event starts club medical/support staff will

- Prepare for the sports season by studying up on concussion.
- Have the resources with you that allow easy recognition of possible concussion.
    - Pocket Recognition Tool (refer to Attachment A)
    - Management of Concussion Medical/Non-medical On-field/Off-field Reference cards (refer to Attachment B, C, D, E)
- Have easy access to a checklist of the warning signs of structural brain injury.
- Know where the closest emergency department or medical practice is in relation to your current location.

- Ideally all players should undergo computerised testing, although this is not compulsory. Netball Australia is aware of the cost and time required for this.
- At **Suncorp Super Netball** level every player needs to complete a SCAT 5 assessment (refer to Attachment F) to be used as a baseline for returning an athlete to play post concussive episode. At **other competition levels** ideally every player should complete a SCAT5 assessment as a baseline. This however is a recommendation only. Netball Australia are aware of the cost and time needed for a baseline SCAT5 to be completed for every player.

Suspected concussion at a game or training:

If a concussion is suspected, a standard primary survey and cervical spine precautions should be used. Once safe to do so, the player must be removed from play and assessed in a quiet, safe environment. A Sideline Modified Maddock Score should be performed along with a SCAT5 and a Netball Australia Head Injury Assessment Form (refer to Attachments F, G, H).

If the player successfully completes these assessments, within 15 minutes from injury, and remains asymptomatic they can return to play if the medical doctor present at the game believes it is medically safe to do so. Once returned to play, the player must be closely monitored for evolving signs of concussion.

A player may only return to the field of play after being cleared by a medical practitioner. If a doctor is not present at the match the player must remain out of play until they have had a chance to be medical assessed.

If the player fails these assessments, a diagnosis of concussion is made and they must be removed from play and monitored as below. Please follow Management of Concussion Medical/Non-medical On-field/Off-field Reference cards (refer to Attachment B, C, D, E).

Take Home Message
A player does not have to lose consciousness to have a concussion.

Take Home Message

All players with suspected concussion should be removed from play or training and see a medical doctor as soon as possible.

Any player diagnosed with concussion should be removed from the event and not return to sport or training that day.

IF IN DOUBT SIT THEM OUT

Signs to watch for:

Problems could arise over the first 24-48 hours. A player should not be left alone and must be seen by doctor or go to a hospital at once if they:

- Have a headache that gets worse (and doesn't resolve with Panadol).
- Are very drowsy or can't be awakened.
- Can't recognize people or places.
- Have repeated vomiting.
- Behave unusually or seem confused; are very irritable.
- Have seizures (arms and legs jerk uncontrollably).
- Have weak or numb arms or legs.
- Are unsteady on your feet; have slurred speech.

Mandatory Return to Play Protocol:

When returning athletes to play, they should follow a stepwise symptom-limited program, with stages of progression (Refer to Attachment I).

1. Rest until asymptomatic (physical and mental rest)
2. Light aerobic exercise (e.g. stationary cycle)
3. Sport-specific exercise (e.g. light ball and court work)
4. Non-contact training drills (start light resistance training also)
5. Full contact training after medical clearance
6. Return to competition (game play)

There should be 24 hours (or longer) for each stage and the athlete should return to the previous, asymptomatic stage if symptoms recur. Resistance training should only be added in the later stages.

Children and adolescents may be more susceptible to concussion and take longer to recover. A more conservative approach should be taken with those aged 18 years or younger and the symptom-free rest period should be extended from 24 to 48 hours in this group. The graduated return to sport protocol should be extended such that the child does not return to contact training, sport, or play in less than 14 days.

A concussed child must return to learn and return to school before starting the return to play protocol. Before returning to school, the child's symptoms must not be exacerbated by reading or using a computer. Only after successful return to school without worsening of symptoms may the child be allowed to commence the return to play protocol (Please refer to Attachments J, K).

No player can return to play without being cleared by a Sport and Exercise Physician or a recognised Netball Australia medical practitioner.

OTHER USEFUL FACTS:

- The diagnosis of concussion should be based on a clinical history and examination that includes a range of domains including mechanism of injury, symptoms and signs, cognitive functioning, neurology including balance assessment.
- The early onset of a concussion headache is most effectively treated with paracetamol painkillers. Avoid anti-inflammatories, especially within the first 24 to 72 hours, as they have been associated with rebound headaches and bleeding of the brain.
- Limited use of computers, mobile phones and television is recommended when suffering from concussion.
- If suitably managed, the majority of concussive symptoms should resolve in 7–10 days. After a minimum of 24 hours without any symptoms the patient can commence a return to cognitive and physical activity.
- Blood tests are not indicated for uncomplicated concussion. Medical imaging is not indicated unless there is suspicion of more serious head or brain injury.

REFERENCE CARDS

- A: Pocket Recognition Tool
- B: Medical Assessment of Concussion On-field
- C: Non-medical Assessment of Concussion On-field
- D: Medical Assessment of Concussion Off-field
- E: Non-Medical Assessment of Concussion Off-field
- F: SCAT 5
- G: Modified Maddocks Questions
- H: Head Injury Assessment Form
- I: Return to Play Protocol Adult
- J: Return to Play Protocol Child
- K: Return to Learn Plan Child – template

Useful Links / Resources

AIS/AMA position statement on concussion in sport
https://concussioninsport.gov.au

The 4th International Conference on Concussion in Sport: Consensus Statement
http://bjsm.bmj.com/content/47/5/250.full

NICE: Head injury assessment & management in children
https://www.nice.org.uk/guidance/cg176/chapter/1-recommendations

Pocket Recognition Tool
http://bjsm.bmj.com/content/47/5/267.full.pdf

SCAT5 Adult – Sport Concussion Assessment Tool
http://bjsm.bmj.com/content/47/5/259.full.pdf

SCAT5 Child – Sport Concussion Assessment Tool
http://bjsm.bmj.com/content/47/5/263.full.pdf

Further Information on Concussion

Concussion, as defined by the Concussion in Sport Group (CISG) international consensus statement,[1] is a complex pathophysiological process affecting the brain, induced by biomechanical forces. It is known to be complex injury and can be challenging to evaluate and manage.

In Australia, common participation sports such as Australian Rules Football, Rugby League and Rugby Union have amongst the highest rates of head injury of any team sports in the world. The reported incidence of concussion in these sports ranges from about 3 to 10 concussive injuries per 1000 player hours,[2-4] which equates to an average of five injuries per team per season, regardless of the level of competition. This represents a significant public health issue in active communities.

Since 2001, international conferences have been held to address key issues in the understanding and management of concussion in sport. After each of these meetings, a consensus statement provides the most up-to-date knowledge on concussion in sport.[1,5-7] The consensus statement outlines the current best practice management guidelines and provides practitioners with simple clinical tools to help manage a concussion.

Making a Diagnosis:

Concussion generally results from a knock, often to the head, face or neck, but may be anywhere on the body that transmits an impulsive force to the head. Diagnosis of concussion can be difficult because clinical symptoms and signs can change rapidly and may evolve over time. Many of the clinical features (especially symptoms) are not specific to concussion, and there is no reliable test or marker for an objective diagnosis.

Diagnosis of concussion relies on clinical assessment of symptoms, (e.g. headache, difficulty concentrating, feeling like being in a fog, emotionally labile), signs (e.g. loss of consciousness, balance disturbance), cognitive impairment (e.g. confusion, slowed reaction times) and neurobehavioural changes (e.g. irritability, feeling 'not quite right'). In some instances, it will be obvious that there has been a significant injury where the athlete loses consciousness, has a seizure, or has significant balance difficulties. However, concussion is often an evolving process. Subtle symptoms and signs often become more apparent and significant in the hours and days following the injury.

Recognising concussion is critical to correctly managing and preventing further injury. The Pocket Concussion recognition Tool, developed by the Concussion in Sport Group, should be used to help those without medical training detect concussion.

When an athlete is suspected of having a concussion, first-aid principles should be used, and a systematic approach to assessment of airway, breathing, circulation, disability and exposure should be used in all situations. Cervical spine injuries should be suspected if there is any loss of consciousness, neck pain, or a mechanism that could lead to spinal injury.

A medical practitioner should make the diagnosis of concussion after a clinical history and examination that includes a range of domains. These include mechanism of injury, symptoms and signs, cognitive functioning, and neurological assessment including balance testing. The Sport Concussion Assessment Tool[8] (SCAT5) is the internationally recommended concussion assessment tool and covers the above-mentioned domains. This should not be used in isolation, but as part of the overall clinical assessment.

Computerised neurocognitive testing can be undertaken as part of the assessment but again, should not be used in isolation. Baseline neurocognitive testing can be useful in the pre-season period for comparison with post-injury scores. Many programs however have reference ranges that can be applied in the absence of a baseline test.

There are currently no serum biomarkers that assist in the diagnosis of concussion. Blood tests are not indicated for uncomplicated concussion. Medical imaging is not indicated in the diagnosis or management of uncomplicated concussion. However imaging is recommended when there is suspicion of more serious head or brain injury.

Returning to Play:

Rest after a concussive injury is important to allow recovery. Physical activity, physiological stress (e.g. altitude and flying), and cognitive loads (e.g. school work, video games, computer) can all worsen symptoms and possibly delay recovery after a concussion.[1] Individuals should be rested from these activities in the early stages after a concussive injury.[1] In addition, the use of alcohol, sedatives or recreational drugs can exacerbate symptoms following head trauma, delay recovery or mask deterioration and should also be avoided.

After a concussive injury, players should be returned to play in a graded fashion. After a minimum of 24 hours without any symptoms the player can commence the staged return to cognitive and physical activity. Progression through the stepped program should occur with 24 hours at each stage. If the player has any recurrence of symptoms while progressing through their return-to-play program that they should drop back to the previous asymptomatic level and try to progress again after a further 24 hours of rest.

The steps in the activity phase are:

- Light aerobic activity
- Basic sport-specific drills which are non-contact and with no head impact
- More complex sport-specific drills without contact, may add resistance training
- Full contact practice following medical review normal competitive sporting activity.

Modifying Factors:

A range of clinical factors are known that may be associated with longer duration of symptoms or increased risk of adverse outcomes following a concussion.[9] These are known as modifying factors and are summarised in the table below[1]. The presence of any modifying factor after a concussive injury requires a more conservative approach, including more detailed assessment and slower time to return to sport. In difficult or complicated cases, a multidisciplinary team approach including referral to a neuropsychologist and or doctor with expertise in managing concussion should be considered.

Factors	**Modifier**
Symptoms	High number, long duration (>10 days), high severity
Signs	Prolonged loss of consciousness (>1minute), amnesia
Sequelae	Prolonged concussion convulsions
Temporal	Frequency: repeated concussions over time Timing: injuries close together in time 'Recency': recent concussion or traumatic brain injury
Threshold	Repeated concussions occurring with

	progressively less impact force or slower recovery after each successive concussion
Age	Child and adolescents <18
Co and pre-morbidities	Migraine, depression or other mental health disorders, ADHD, learning disabilities, sleep disorders
Medication	Psychoactive drugs, anticonvulsants
Behaviour	Dangerous style of play
Sport	High risk activity, contact and collision sport, high level sport

Concussion Management in Children and Adolescents:

Evidence shows that younger athletes take longer to recover after a concussive injury than adults.[10] Children and adolescents seem to be more vulnerable to concussion due to a variety of factors including decreased myelination, poor cervical musculature, and increased head to neck ratio.[11] The role of cerebral blood flow alterations in the pathophysiology of concussion may be more significant in children than in adults. There is also some evidence that components of cognitive function relating to executive functioning may be impaired in adolescents with concussion for up to two months after injury. The implications of this are not clear and further studies are required to confirm or refute this data. Therefore a more conservative approach is recommended in all concussed players under the age of 18 years, regardless of the level of competition in which they play.

Child SCAT5[12] has been developed for use in children aged 5 to 12 years old to accommodate for physical, cognitive and language development. For children aged 13 to 18 years, the SCAT5 should also be used. It should be noted that the Child SCAT5 includes both a child-report and parent-report symptom scale. It is important to include the parent, teacher, coach, or guardian in assessing the child with concussion.

The priority for a concussed child is successful return to learn and return to school before considering return to play. Before returning to school, the child's symptoms must not be exacerbated by reading or using a computer. In most instances, a child will only require absence from school for 1 to 2 days however, longer periods of rest may be needed. The child requires medical clearance before return to school. Parents and teachers need to make plans

to accommodate the child for example shorter school days, regular breaks, and longer time to complete assignments. Only after successful return to school without worsening of symptoms may the child be allowed to commence return to sport.

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