

## Purpose

The purpose of this Policy is to:

1. Provide World Netball (WN) team healthcare practitioners with best practice guidance for the recognition and management of Sport-Related Concussion (SRC).
2. To safeguard and protect the short and long-term health and safety of players from the potential risks of SRC and repeat head impacts

## Background

World Netball (WN) recognises that Sport-related Concussion (**SRC**, also referred to as concussion in this Policy) is a significant public health issue and that safeguarding the short and long-term health and wellbeing of netball players at all levels of competition is important.

This Policy adheres to the principles outlined in the most recent International Consensus Statement ([6th International Conference on Concussion in Sport, Amsterdam 2022](#)), the **6th Consensus Statement**. Consequently, this Policy incorporates the key concepts from the 6<sup>th</sup> Consensus Statement including evidence derived from the systematic reviews and updated assessment tools.

This Policy will continue to be modified and enhanced to ensure that it remains applicable to the sport of Netball and is up to date with scientific evidence.

The diagnosis of concussion and subsequent return to play remains an individual decision by the treating medical practitioner, following the protocols and principles set forth in this document, utilising good clinical judgment, reviewing video replay of the incident and the evaluation of all the information available to the medical practitioner at the time of the player's assessment.

This Policy specifically applies to play at the Elite Level.

## Definitions

In this policy, the following definitions apply:

**Primary care person** is the team official who is qualified to diagnose and treat injury or illness and does not have any other roles (including as a player).

**Team Doctor** is an additional primary care person who is qualified in sports medicine acting expressly in a medical capacity and is both legally permitted and insured to administer concussion protocols consistent with the latest *Consensus Statement on Concussion in Sport*.

**Independent Concussion Observer (ICO)** is a neutral medical professional arranged by the event organiser who is qualified in sports medicine and is both legally permitted and insured to administer concussion protocols consistent with the latest *Consensus Statement on Concussion in Sport*.

**Elite Level** see International play.

**Event Organiser** is the person/s with responsibility for the organisation of the match.

**Match** is a contest between two teams played according to the Rules of Netball.

**Head Injury Assessment (HIA)** facilitates a standardised process of assessment and management of players following head trauma during a match. The HIA is a rapid sideline

screening tool for a suspected concussion. As such, it should be used in conjunction with a SCAT6 and clinical judgement

**International Play** is a match between two countries of any age group specifically including fixtures where WN ranking points are contested.

**Team Bench** is the place where team officials and any players not on the court are located during a match.

**Team Officials** are up to five persons (or exactly six persons if a team doctor is used) at least one of who is a Primary Care Person.

**Lying Motionless** means 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. teammates, umpires or medical staff). Concern may be shown by other players or match officials.

**Tonic Posturing** means 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, where the player may also demonstrate no protective action.

**No Protective Action** means 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** means involuntary, clonic movements that comprise periods of asymmetric and irregular rhythmic jerking of axial or limb muscles.

**Slow to Get Up** means remains sitting or lying on the court despite play continuing.

**Motor Incoordination** means 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 of walking or running.

**Blank/Vacant Look** means the player exhibits no facial expression or apparent emotion in response to environment.

**Facial injury** means any facial laceration, facial bleeding, blood coming from mouth, epistaxis or apparent eye injury.

### **What is Sport Related Concussion?**

The 6<sup>th</sup> Consensus Statement defines SRC as '*a traumatic brain injury caused by a direct blow to the head, neck or body resulting in an impulsive force being transmitted to the brain that occurs in sport and exercise-related activities*'.

The impact of a SRC may result in structural injury, but most often the acute clinical signs and symptoms reflect a functional disturbance and, as such, no abnormality is seen on standard neuroimaging studies such as Computerised Tomography (CT) or Magnetic Resonance Imaging (MRI).

SRC results in a range of reported symptoms and observable signs that may or may not involve loss of consciousness.

Symptoms and signs of SRC may present immediately, or evolve over minutes or hours, and commonly resolve within days, but may be prolonged.

### **Diagnosis**

SRC represents a broad spectrum of brain injury rather than a single diagnostic entity. There is variability in the presentation and clinical course of SRC between individuals which can result in challenges in diagnosis as well as making management of SRC potentially complex. Therefore, it is imperative that clinicians maintain a high level of suspicion and manage each case individually.

Diagnosis can be challenging for the clinician because:

- clinical symptoms and signs are not consistent and may evolve over time;
- many of the features are not specific to concussion;
- structural brain injury can present with identical clinical features and cannot always be ruled out on initial assessment; and
- currently there is no one test or biomarker that can be relied on for an immediate diagnosis of SRC.

The diagnosis of concussion remains a clinical decision by the treating medical practitioner based on serial assessment of multiple domains including symptoms, signs, cognitive impairment and neurobehavioural changes. In practical terms, a player who reports neurological symptoms or exhibits signs, or video signs of concussion, and/or a disturbance of cognitive function or mental disturbance following a biomechanically plausible mechanism of injury 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 program, as outlined in this Policy, should be completed.

Diagnosis of concussion is the responsibility of the Team Doctor or ICO (without interference of any coach or other support staff). It is a breach of this policy for any coach or other support staff to interfere or attempt to interfere with the diagnosis of a concussion.

### **Screening**

WN recommends baseline screening of all players by Team Doctors in preseason or prior to the tournament commencing. Baseline screening should include the player's concussion history, any history of prolonged recovery, relevant neurological and psychological history recording, a neurological screen, and the Sport Concussion Assessment Tool 6<sup>th</sup> edition ([SCAT6](#)). Annual baseline testing facilitates education of players and interpretation of post-injury test scores, which ultimately enhances decisions regarding diagnosis and assessment of recovery. More detailed baseline testing including a Sport Concussion Office Assessment Tool 6<sup>th</sup> edition ([SCOAT6](#)), Vestibular Ocular Motor Screening (VOMs), formal neuropsychological testing +/- structural brain MRIs should be considered for any player with a significant concussion history (either number of concussions or history of prolonged recovery).

When a player does not have a baseline SCAT6 assessment, a more conservative approach to diagnosis and return to play must be used.

Players should sign informed consent (in the PTOPA) to allow Team Doctors and/or the ICO access to baseline SCAT6 assessments on match day.

### **Education**

It is important to provide concussion education to players, coaches and other support staff. Players should be provided with information so that they can recognise the common symptoms of concussion and importance of reporting symptoms, both during a match and in the subsequent days. There should be education on the short-term effects and potential long-term outcomes that may result from SRC. Team Primary Care Persons should receive education on recognising signs of a possible concussion. Players, coaches and high performance staff should receive education on the requirements of this Policy including match day assessment protocols as well as graded return to play protocols and should be educated that clearance to return to play is **strictly a medical decision**.

### **Day of Injury Management**

#### **OBSERVATION**

An ICO should be in attendance at all matches sanctioned by WN as international play. A team may choose to have a Team Doctor. The ICO must introduce themselves to each Team's Doctor and Primary Care Person prior to a match.

All Doctors and Primary Care Persons providing medical care for international play must receive education on this Policy including the match day protocol.

It is recommended that a mobile device/tablet with broadcast and/or other video footage is made available for both the Team Doctor and ICO on match day by the event organiser. 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. The Team Doctor and ICO should utilise any footage to evaluate further a possible or suspected concussion. This is best performed before removing the player from the court to ensure there are clear or possible signs of concussion on the video replay, which would warrant a full SCAT6 assessment.

#### **INITIAL RESPONSE**

After observing or being notified of a possible concussion, the Team Doctor and/or the ICO 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 a match, the following two mechanisms are permitted to remove the player from the match:

- The Team Doctor and/or the ICO approaches the reserve umpire (or match manager where applicable) to stop play to facilitate the substitution of any on-court player due to a suspected concussion; or
- The Team Doctor discusses with the team coach, who in turn organises a substitution of the suspected concussed player. If a team does not have a Team Doctor, the ICO will approach the team Primary Care Person, before the reserve umpire is approached to stop play, to advise the player will be removed from the court for a suspected concussion so the team can organise an appropriate substitution.



A player **MUST** be removed from play and undertake an assessment, including a SCAT6 assessment if they have **clear signs of concussion** (see CATEGORY 1) or **possible signs or likely signs of concussion** (see CATEGORY 2). This assessment can take place following direct observation or video review. The player should be guided to a quiet space (team changing room or similar space allocated for such purposes) for further assessment. The player cannot return to play within 10 minutes after being removed to undergo a SCAT6 assessment.

<b>CATEGORY 1: Clear diagnosis of concussion. Requires immediate removal and no return to play</b>	<ul style="list-style-type: none"> <li>Loss of consciousness</li> <li>No protective action in fall to the court</li> <li>Impact seizure or tonic posturing</li> <li>Motor incoordination</li> <li>Dazed, blank or vacant stare or player not their normal selves</li> <li>Behaviour changes atypical of the player</li> <li>Confusion or disorientation (e.g fails Netball Maddock's questions)</li> <li>Memory impairment</li> <li>Player reports significant, new or progressive concussion symptoms</li> </ul>
<b>CATEGORY 2: Possible (likely) diagnosis of concussion. Requires removal from play for further assessment, including SCAT6</b>	<ul style="list-style-type: none"> <li>Lying motionless for more than 2 seconds</li> <li>Possible tonic posturing or impact seizure</li> <li>Possible no protective action in fall to court</li> <li>Possible motor incoordination</li> <li>Possible dazed, blank/vacant stare</li> <li>Possible behaviour changes atypical of player</li> <li>Any clinical impression from doctor that the player is not quite right following a trauma</li> </ul>

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 of concussion on direct observation or video review, the Team Doctor and/or ICO may perform a brief initial sideline clinical assessment of the player, including an assessment of concussion symptoms and player orientation, which may include the Netball Maddocks Questions (Appendix 1). At the discretion of the treating medical practitioner based on clinical judgement, this may take place immediately with a player substitution or at the next break in play. Based on the Maddocks response, if the Team Doctor or ICO has any clinical suspicion that the player may have sustained a concussion, they guide the player to a quiet space (team changing room or similar space allocated for such purposes) and must undertake a further assessment by way of a SCAT6, performed to assist with diagnosis. If the Team Doctor and ICO determines that the player does not require further assessment with a SCAT6, they may clear the player to return to play who shall take up their position initially on the Team Bench. The player can then return to court through a substitution in accordance with the Rules.

If a player is not cleared by the Team Doctor or ICO to return to play, this must be clearly communicated to the team officials as soon as practicable. They should be aware that this decision is made in the interests of player safety and wellbeing.

If there is a failure to reach consensus on diagnosis between the Team Doctor and IOC, the most conservative opinion should prevail.

The WN Head Injury Assessment (HIA) form should be completed by the assessing medical practitioner regardless of whether a concussion diagnosis was made (Appendix 2). All HIA forms should be given to the WN Medical Represent at the end of the match.

## **ASSESSMENT AND MANAGEMENT**

### **Where there is a clear diagnosis of concussion (Category 1 sign):**

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 should be transported to the hospital via an ambulance if there are abnormal neurological signs or signs of a structural head/neck injury.

The player must be educated on the signs of and re-assessed for deterioration.

**The player must not be returned to the court on the day of the injury and not until declared medically fit to return by a medical practitioner following the below graded return to play protocol.**

### **Where the diagnosis is possible/likely (Category 2 sign):**

The player should be removed from the court.

Assessment should take place in a quiet, distraction-free space (team changing room or a similar space allocated for such purposes).

The player should be allowed to rest for a few minutes before assessment if feasible.

Video review should be undertaken.

The player should be fully assessed, using the SCAT6 and compared with baseline if available. This assessment take a minimum of 10 minutes to complete. The player cannot return to play within this timeframe.

If a full assessment has taken place, and no concussion diagnosis is made, the Team Doctor and IOC can then decide to return the player to play.

The SCAT6 is not in itself diagnostic but a tool to assist with decision-making. A cautious approach is recommended if there is any clinical suspicion by the assessing medical practitioner even in the event of the player recording a 'normal' SCAT6.

The diagnosis of concussion remains a clinical decision based on the serial assessment in various domains, including symptoms, signs, cognitive impairment, and neuro-behavioural changes.

### **Head impact injury without witnessed clear or possible signs of concussion:**

Video review should be undertaken to exclude clear or possible signs of concussion.

The player should be assessed at the next available opportunity.

A history of the incident should be obtained from the player (symptoms, memory impairment).

The player should be continued to be monitored throughout the match and removed from play for further assessment if clinical concerns evolve regarding a possible concussion.

### **FOLLOW UP**

For diagnosed and suspected concussions in the absence of a Team Doctor, the IOC must discuss initial management with the team Primary Care Person and ensure appropriate medical care is provided as soon as possible.

For teams with a Team Doctor, they are required to continue care and manage follow-up.

Because symptoms can evolve over time, the player must be observed by the Team Doctor and /or Primary Care Person and re-assessed throughout, after, and in the days following the match for symptoms by the Team Doctor or Primary Care Person.

All players who have had a concussion assessment during the match and are returned to play, must be regularly medically assessed during the match and when clinically indicated undergo a repeat SCAT6 assessment at the completion of the match (or the following day).

### **Management and Return to Play**

Decisions regarding return to sport (training or match play) following SRC rely on a multi-faceted clinical approach managed by the Team Doctor or other treating medical practitioner. The Team or treating medical practitioner must provide clearance for the player to resume training and match play in line with this Policy.

Measurement of recovery has challenges as domains typically recover independently and many tools used to measure clinical recovery lack sensitivity. **A conservative approach to return to play is therefore recommended.**

The minimum requirement is that a player 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.

The SCAT6 is a useful tool to facilitate assessment in the first 72 hours after a concussion.

Use of the SCOAT6 in monitoring recovery is recommended after this point and provides a more comprehensive assessment of domains that may be affected by SRC, providing a more complete tool to measure clinical recovery during the graded return to play process. Attention should be given to early identification and treatment of coexisting pathologies such as cervical spine injury, vestibular deficits and psychological factors which may contribute to ongoing symptoms.

The graded return to play protocol consists of three stages (as outlined in Table 1) and is designed to provide graded progression to return to play that considers the player’s clinical presentation and recovery, within a high performance environment that facilitates close medical monitoring.

Players must be monitored medically as they progress through the graded return to play protocol and should have at least 24 hours between each step.

The earliest that a player can return to play after a concussion is on the 12<sup>th</sup> day from when the concussion was sustained. The time frame for clinical recovery following a concussion is typically 7-10 days. Therefore, the average time to return to play is expected to be 2-3 weeks.

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. multiple concussions, learning disabilities or mood disturbance, high symptom burden in the first few days after injury etc. In these cases, it is recommended the player be clear of any concussion-related symptoms, signs or deficits for at least 2 weeks before clearance to return to play (e.g. the duration of Stage 3 should be doubled in these cases).

<b>STAGE 1: REST</b>	<p>A brief period of relative rest for 24-48 hours.</p> <p>Players should be allowed to engage in their activities of daily living following injury.</p> <p>Screen time should be minimised in the first 48 hours.</p>
<b>STAGE 2: RECOVERY</b>	<p>A recovery period with symptom-limited, progressive increases in physical and cognitive over a minimum of 4 days.</p> <p>Physical activity should be encouraged and used therapeutically but should be done under guidance of the healthcare team in a safe environment.</p> <p>The recovery phase can be individualised to the players symptoms, level of function and training requirements. The focus of each stage should be progressive cognitive and cardiovascular loads.</p> <p>No team-based training drills can be included in this stage.</p> <p>Mild but brief exacerbation of symptoms is acceptable (i.e. an increase of no more than 2 points on a 0-10 point scale for less than an hour) however if more than mild exacerbation of symptoms, the player should stop and attempt to exercise in 24 hours.</p>
<b>STAGE 3: GRADED LOADING PROGRAM</b>	<p>This stage consists of six steps prior to medical clearance for unrestricted return to play.</p> <p>Players must have medical clearance to enter stage 3 and have fully clinically recovered including completion of a SCAT6 that has returned to baseline.</p> <p>The final decision regarding fitness to return to play is a medical decision based on clinical judgement.</p>

### **Role of neuropsychological testing, imaging & other investigations**

Computerised screening cognitive tests provide a practical method to assist with the assessment of cognitive recovery and have been validated for use following SRC (e.g. Cognigram). It is important however that computerised screening tests form only one component of the assessment and they do not replace the need for a full history and clinical examination.

Given that concussion affects multiple domains and there is currently no single objective test of recovery, consideration should be given to assessment using psychological screening tools, advanced imaging, formal neuropsychological and VOMs testing.

Conventional imaging (CT or MRI) should be considered in cases where there is a concern regarding an underlying structural head injury. If a structural MRI is ordered, at a minimum, the following sequences should be obtained: Sagittal T1, Axial T2, Axial DWI, Axial FLAIR, Axial SWI (or similar sequence) and Axial dual echo T2.

### **Difficult or Complicated Cases**

Cases in which symptoms or clinical features (e.g. cognitive deficit) persists for more than 4 weeks; 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.

These cases are often complex and may require assessment of multiple domains including mental health, vestibular ocular function or autonomic assessment. In any such case, it is required that the Team Doctor involve an independent clinician with expertise in concussion management, to assist in management decisions. Neuroimaging and neuropsychology testing is strongly recommended in these players.

### **Investigations**

At their absolute discretion, the WN Medical Representative may initiate an investigation into any alleged breaches of the Policy. Disciplinary action may be pursued.

### **Policy Review**

This Policy will be reviewed annually or as directed by WN Medical Advisory Panel.

### **VERSION HISTORY**

<b>Reference Number:</b>	
<b>Guidelines:</b>	Guidelines for the Management of Sport Related Concussion
<b>Effective Date:</b>	16 September 2024
<b>Approved by:</b>	WN Medical Advisory Panel & WN Board
<b>Responsibility:</b>	WN Medical Advisory Panel
<b>Date Last Reviewed:</b>	July 2024
<b>Scheduled Review Date:</b>	March 2026
<b>Supersedes:</b>	March 2022

# Management of Sport Related Concussion September 2024

**Table 1: Return to play program following concussion**

STEP			STAGE 1: REST			STAGE 2: RECOVERY			STAGE 3: GRADED LOADING PROGRAM		
Components	Relative Rest	Symptom-limited activity	Symptom-limited activity	Symptom-limited activity	Symptom-limited activity	Non-contact training	Recovery day	Limited contact training	Recovery day	Full contact	Recovery day
Goal	Limit further injury & allow recovery	Activities of daily living	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 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	Minimum 24 hours	Minimum 24 hours	Minimum 24 hours	Minimum 24 hours	Minimum 24 hours	Minimum 24 hours
Requirement to Continue Progression Through Program		Concussion-related symptoms resolved or not worsened from the previous level (either during activity or by the next day)	Concussion-related symptoms resolved or not worsened from the previous level (either during activity or by the next day)	Concussion-related symptoms resolved or not worsened from the previous level (either during activity or by the next day)	Recovery of all concussion-related symptoms and signs at rest and with activity & must have a medical clearance including a SCAT6 that has returned to baseline to progress to Stage 3	Remain completely free of any concussion-related symptoms & player confident to return to training	Remain completely free of any concussion-related symptoms & player confident to return to training	Remain completely free of any concussion-related symptoms & player confident to return to training	Remain completely free of any concussion-related symptoms & player confident to return to training	Remain completely free of any concussion-related symptoms & player confident to return to training	Remain completely free of any concussion-related symptoms & player confident to return to match play & medical clearance



**Appendix 1: Netball Maddocks Questions**

- What venue are we at today?
- Which quarter is it now?
- What position did you play in the last quarter?
- Which post is your team shooting at this quarter?
- Did your team win the last game?

**Appendix 2: Match Head Injury Assessment (HIA)**

To be completed by the assessing medical practitioner for a suspected head or neck injury during a match and a copy provided to the WN Representative following the match. The form **must** be completed when:

- A player's head forcefully hits another player, the ground or an object (i.e. the ball); or
- The assessing medical practitioner 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 SCAT6 which must be performed in any case of suspected or diagnosed concussion.

**A. GENERAL INFORMATION**

Player Name:  Team:

Doctor Name:  Date:

Quarter:  Approximate Time in Quarter:

**B. STRUCTURAL HEAD OR NECK INJURY**

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 player support staff **must** report all observations to the medical practitioner:

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

	Observed Directly	Reported	Video Review	No
1. Loss of consciousness	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
2. No protective action in fall to ground <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Impact seizure <sup>2</sup> or tonic posturing <sup>3</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> 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.

<sup>2</sup> Involuntary clonic movements that comprise periods of asymmetric and irregular rhythmic jerking of axial or limb muscles.

<sup>3</sup> 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

4. Motor incoordination <sup>4</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Dazed or blank/vacant stare <sup>5</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Behaviour changes atypical of the player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Confusion or disorientation	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
8. Memory impairment (e.g. fails Netball Maddocks questions)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
9. Player reports significant, new or progressive concussion symptoms	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

**b. Requires immediate removal from play for further assessment**

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

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

<sup>4</sup> 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.

<sup>5</sup> 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.

<sup>6</sup> 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.

Medical practitioner'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 SCAT6\*

If 'No' is selected for items 1-17, no criteria for removal for concussion or SCAT6 assessment\*

\*An player cleared to play requires regular medical checks at least every 30 minutes and removal for SCAT6 assessment with any deterioration

**E. SIGNATURE OF ASSESSING MEDICAL PRACTITIONER**

Signed:  Date:

Time completed:

# SCAT6™



## Sport Concussion Assessment Tool For Adolescents (13 years +) & Adults

### What is the SCAT6?

The SCAT6 is a standardised tool for evaluating concussions designed for use by Health Care Professionals (HCPs). The SCAT6 cannot be performed correctly in less than 10-15 minutes. Except for the symptoms scale, the SCAT6 is intended to be used in the acute phase, ideally within 72 hours (3 days), and up to 7 days, following injury. If greater than 7 days post-injury, consider using the SCAT6/Child SCAT6.

The SCAT6 is used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCAT6.

If you are not an HCP, please use the Concussion Recognition Tool 6 (CRT6).

Preseason baseline testing with the SCAT6 can be helpful for interpreting post-injury test scores but is not required for that purpose. Detailed instructions for use of the SCAT6 are provided as a supplement. Please read through these instructions carefully before testing the athlete. Brief verbal instructions for each test are given in *blue italics*. The only equipment required for the examiner is athletic tape and a watch or timer.

This tool may be freely copied in its current form for distribution to individuals, teams, groups, and organizations. Any alteration (including translations and digital re-formatting), re-branding, or sale for commercial gain is not permissible without the expressed written consent of BMJ.

### Recognise and Remove

A head impact by either a direct blow or indirect transmission of force to the head can be associated with serious and potentially fatal consequences. If there are significant concerns, which may include any of the Red Flags listed in Box 1, the athlete requires urgent medical attention, and if a qualified medical practitioner is not available for immediate assessment, then activation of emergency procedures and urgent transport to the nearest hospital or medical facility should be arranged.

### Completion Guide

Orange: Optional part of assessment

### Key Points

- Any athlete with suspected concussion should be REMOVED FROM PLAY, medically assessed, and monitored for injury-related signs and symptoms, including deterioration of their clinical condition.
- No athlete diagnosed with concussion should return to play on the day of injury.
- If an athlete is suspected of having a concussion and medical personnel are not immediately available, the athlete should be referred (or transported if needed) to a medical facility for assessment.
- Athletes with suspected or diagnosed concussion should not take medications such as aspirin or other anti-inflammatories, sedatives or opiates, drink alcohol or use recreational drugs and should not drive a motor vehicle until cleared to do so by a medical professional.
- Concussion signs and symptoms may evolve over time; it is important to monitor the athlete for ongoing, worsening, or the development of additional concussion-related symptoms.
- The diagnosis of concussion is a clinical determination made by an HCP.
- The SCAT6 should NOT be used by itself to make, or exclude, the diagnosis of concussion. It is important to note that an athlete may have a concussion even if their SCAT6 assessment is within normal limits.

### Remember

- The basic principles of first aid should be followed: assess danger at the scene, athlete responsiveness, airway, breathing, and circulation.
- Do not attempt to move an unconscious/unresponsive athlete (other than what is required for airway management) unless trained to do so.
- Assessment for a spinal and/or spinal cord injury is a critical part of the initial on-field evaluation. Do not attempt to assess the spine unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.

For use by Health Care Professionals Only

SCAT6™

Developed by: The Concussion in Sport Group (CISG)

Supported by:





# SCAT6™ Sport Concussion Assessment Tool

For Adolescents (13 years +) & Adults

**Athlete Name:** \_\_\_\_\_ **ID Number:** \_\_\_\_\_

**Date of Birth:** \_\_\_\_\_ **Date of Examination:** \_\_\_\_\_ **Date of Injury:** \_\_\_\_\_

**Time of Injury:** \_\_\_\_\_ **Sex:** Male  Female  Prefer Not To Say  Other \_\_\_\_\_

**Dominant Hand:** Left  Right  Ambidextrous  **Sport/Team/School:** \_\_\_\_\_

**Current Year in School (if applicable):** \_\_\_\_\_ **Years of Education Completed (Total):** \_\_\_\_\_

**First Language:** \_\_\_\_\_ **Preferred Language:** \_\_\_\_\_

**Examiner:** \_\_\_\_\_

### Concussion History

**How many diagnosed concussions has the athlete had in the past?:** \_\_\_\_\_

**When was the most recent concussion?:** \_\_\_\_\_

**Primary Symptoms:** \_\_\_\_\_

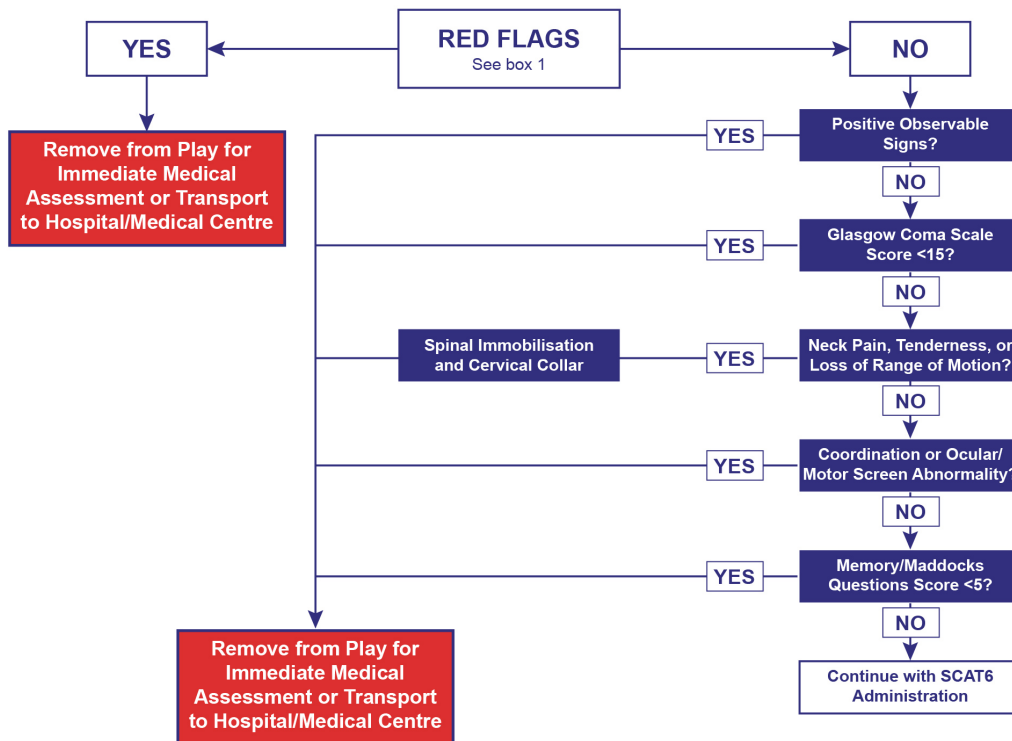
**How long was the recovery (time to being cleared to play) from the most recent concussion?:** \_\_\_\_\_ (Days)

### Immediate Assessment/Neuro Screen (Not Required at Baseline)

The following elements should be used in the evaluation of all athletes who are suspected of having a concussion prior to proceeding to the cognitive assessment, and ideally should be completed "on-field" after the first aid/emergency care priorities are completed.

If any of the observable signs of concussion are noted after a direct or indirect blow to the head, the athlete should be immediately and safely removed from participation and evaluated by an HCP.

The Glasgow Coma Scale is important as a standard measure for all patients and can be repeated over time to monitor deterioration of consciousness. The Maddocks questions and cervical spine exam are also critical steps of the immediate assessment.



For use by Health Care Professionals only

British Journal of  
Sports Medicine



**Step 1: Observable Signs**Witnessed  Observed on Video 

Lying motionless on playing surface	Y	N
Falling unprotected to the surface	Y	N
Balance/gait difficulties, motor incoordination, ataxia: stumbling, slow/laboured movements	Y	N
Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N
Impact seizure	Y	N
High-risk mechanism of injury (sport-dependent)	Y	N

**Step 2: Glasgow Coma Scale**

Typically, GCS is assessed once. Additional scoring columns are provided for monitoring over time, if needed.

Time of Assessment: Date of Assessment: 

Best Eye Response (E)			
No eye opening	1	1	1
Eye opening to pain	2	2	2
Eye opening to speech	3	3	3
Eyes opening spontaneously	4	4	4
Best Verbal Response (V)			
No verbal response	1	1	1
Incomprehensible sounds	2	2	2
Inappropriate words	3	3	3
Confused	4	4	4
Oriented	5	5	5
Best Motor Response (V)			
No motor response	1	1	1
Extension to pain	2	2	2
Abnormal flexion to pain	3	3	3
Flexion/withdrawal to pain	4	4	4
Localized to pain	5	5	5
Obeys commands	6	6	6
Glasgow Coma Score (E + V + M)			

**Box 1: Red Flags**

- Neck pain or tenderness
- Seizure or convulsion
- Double vision
- Loss of consciousness
- Weakness or tingling/burning in more than 1 arm or in the legs
- Deteriorating conscious state
- Vomiting
- Severe or increasing headache
- Increasingly restless, agitated or combative
- GCS <15
- Visible deformity of the skull

**Step 3: Cervical Spine Assessment**

In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed and spinal precautions taken.

Does the athlete report neck pain at rest?	Y	N
Is there tenderness to palpation?	Y	N
If NO neck pain and NO tenderness, does the athlete have a full range of ACTIVE pain free movement?	Y	N
Are limb strength and sensation normal?	Y	N

**Step 4: Coordination & Ocular/Motor Screen**

Coordination: Is finger-to-nose normal for both hands with eyes open and closed?	Y	N
Ocular/Motor: Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Are observed extraocular eye movements normal? If not, describe:	Y	N

**Step 5: Memory Assessment Maddocks Questions<sup>1</sup>**

Say "I am going to ask you a few questions, please listen carefully and give your best effort. First, tell me what happened?"

Modified Maddocks questions (Modified appropriately for each sport; 1 point for each correct answer)

What venue are we at today?	0	1
Which half is it now?	0	1
Who scored last in this match?	0	1
What team did you play last week/game?	0	1
Did your team win the last game?	0	1
<b>Maddocks Score</b>	/5	

Note: Appropriate sport-specific questions may be substituted



## Off-Field Assessment

Please note that the cognitive assessment should be done in a distraction-free environment with the athlete in a resting state **after** completion of the Immediate Assessment/Neuro Screen.

**Step 1: Athlete Background**

Has the athlete ever been:

Hospitalised for head injury? (If yes, describe below)	Y	N	Diagnosed with attention deficit hyperactivity disorder (ADHD)?	Y	N
Diagnosed/treated for headache disorder or migraine?	Y	N	Diagnosed with depression, anxiety, or other psychological disorder?	Y	N
Diagnosed with a learning disability/dyslexia?	Y	N			

Notes:

Current medications? If yes, please list:

**Step 2: Symptom Evaluation**

Baseline:  Suspected/Post-injury:  Time elapsed since suspected injury:  mins/hours/days

The athlete will complete the symptom scale (below) after you provide instructions. Please note that the instructions are different for baseline versus suspected/post-injury evaluations.

**Baseline:** Say *“Please rate your symptoms below based on how you typically feel with “1” representing a very mild symptom and “6” representing a severe symptom.”*

**Suspected/Post-injury:** Say *“Please rate your symptoms below based on how you feel now with “1” representing a very mild symptom and “6” representing a severe symptom.”*

**PLEASE HAND THE FORM TO THE ATHLETE**

Symptom	Rating
Headaches	0 1 2 3 4 5 6
Pressure in head	0 1 2 3 4 5 6
Neck pain	0 1 2 3 4 5 6
Nausea or vomiting	0 1 2 3 4 5 6
Dizziness	0 1 2 3 4 5 6
Blurred vision	0 1 2 3 4 5 6
Balance problems	0 1 2 3 4 5 6
Sensitivity to light	0 1 2 3 4 5 6
Sensitivity to noise	0 1 2 3 4 5 6
Feeling slowed down	0 1 2 3 4 5 6
Feeling like “in a fog”	0 1 2 3 4 5 6
“Don’t feel right”	0 1 2 3 4 5 6
Difficulty concentrating	0 1 2 3 4 5 6
Difficulty remembering	0 1 2 3 4 5 6
Fatigue or low energy	0 1 2 3 4 5 6
Confusion	0 1 2 3 4 5 6
Drowsiness	0 1 2 3 4 5 6
More emotional	0 1 2 3 4 5 6
Irritability	0 1 2 3 4 5 6
Sadness	0 1 2 3 4 5 6
Nervous or anxious	0 1 2 3 4 5 6
Trouble falling asleep (if applicable)	0 1 2 3 4 5 6

Do your symptoms get worse with physical activity?  Y  N

Do your symptoms get worse with mental activity?  Y  N

If 100% is feeling perfectly normal, what percent of normal do you feel?

If not 100%, why?

Do your symptoms get worse with physical activity?  Y  N

Do your symptoms get worse with mental activity?  Y  N

If 100% is feeling perfectly normal, what percent of normal do you feel?

If not 100%, why?

**PLEASE HAND THE FORM BACK TO THE EXAMINER**

Once the athlete has completed answering all symptom items, it may be useful for the clinician to revisit items that were endorsed positively to gather more detail about each symptom.

Total number of symptoms:  of 22      Symptom severity score:  of 132



### Step 3: Cognitive Screening (Based on Standardized Assessment of Concussion; SAC)<sup>2</sup>

#### Orientation

What month is it?	0	1
What is the date today?	0	1
What is the day of the week?	0	1
What year is it?	0	1
What time is it right now? (within 1 hour)	0	1
<b>Orientation Score</b>	<b>of 5</b>	

#### Immediate Memory

All 3 trials must be administered irrespective of the number correct on Trial 1. Administer at the rate of one word per second.

Trial 1: Say "I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order."

Trials 2 and 3: Say "I am going to repeat the same list. Repeat back as many words as you can remember in any order, even if you said the word before in a previous trial."

Word list used: A  B  C

List A	Trial			Alternate Lists	
	Trial 1	Trial 2	Trial 3	List B	List C
Jacket	0 1	0 1	0 1	Finger	Baby
Arrow	0 1	0 1	0 1	Penny	Monkey
Pepper	0 1	0 1	0 1	Blanket	Perfume
Cotton	0 1	0 1	0 1	Lemon	Sunset
Movie	0 1	0 1	0 1	Insect	Iron
Dollar	0 1	0 1	0 1	Candle	Elbow
Honey	0 1	0 1	0 1	Paper	Apple
Mirror	0 1	0 1	0 1	Sugar	Carpet
Saddle	0 1	0 1	0 1	Sandwich	Saddle
Anchor	0 1	0 1	0 1	Wagon	Bubble
<b>Trial Total</b>					

**Immediate Memory Score** of 30 **Time Last Trial Completed:**

**Step 3: Cognitive Screening (Continued)****Concentration****Digits Backward:**

Administer at the rate of one digit per second reading DOWN the selected column. If a string is completed correctly, move on to the string with next higher number of digits; if the string is completed incorrectly, use the alternate string with the same number of digits; if this is failed again, end the test.

Say *"I'm going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7. So, if I said 9-6-8 you would say? (8-6-9)"*

Digit list used: A  B  C

List A	List B	List C			
4-9-3	5-2-6	1-4-2	Y	N	0 1
6-2-9	4-1-5	6-5-8	Y	N	0 1
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0 1
3-2-7-9	4-9-6-8	3-4-8-1	Y	N	0 1
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0 1
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N	0 1
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0 1
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N	0 1
				<b>Digits Score</b>	of 4

**Months in Reverse Order:**

Say *"Now tell me the months of the year in reverse order as QUICKLY and as accurately as possible. Start with the last month and go backward. So, you'll say December, November... go ahead"*

Start stopwatch and CIRCLE each correct response:

December    November    October    September    August    July    June    May    April    March    February    January

Time Taken to Complete (secs):

Number of Errors:

1 point if no errors and completion under 30 seconds

Months Score:  of 1

**Concentration Score (Digits + Months)**  of 5

**Step 4: Coordination and Balance Examination****Modified Balance Error Scoring System (mBESS)<sup>3</sup> testing**

(see detailed administration instructions)

Foot Tested: Left  Right  (i.e. test the non-dominant foot)

Testing Surface (hard floor, field, etc.):

Footwear (shoes, barefoot, braces, tape etc.):

**OPTIONAL** (depending on clinical presentation and setting resources): For further assessment, the same 3 stances can be performed on a surface of medium density foam (e.g., approximately 50cm x 40cm x 6cm) with the same instructions and scoring.



### Step 4: Coordination and Balance Examination (Continued)

#### Modified BESS

(20 seconds each)

Double Leg Stance:  of 10  
 Tandem Stance:  of 10  
 Single Leg Stance:  of 10  
 Total Errors:  of 30

#### On Foam (Optional)

Double Leg Stance:  of 10  
 Tandem Stance:  of 10  
 Single Leg Stance:  of 10  
 Total Errors:  of 30

**Note:** If the mBESS yields normal findings then proceed to the **Tandem Gait/Dual Task Tandem Gait**.

If the mBESS reveals abnormal findings or clinically significant difficulties, **Tandem Gait** is not necessary at this time.

Both the **Tandem Gait** and optional **Dual Task** component may be administered later in the office setting as needed (see SCOAT6).

#### Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed. Please complete all 3 trials.

**Say** *“Please walk heel-to-toe quickly to the end of the tape, turn around and come back as fast as you can without separating your feet or stepping off the line.”*

Single Task:

Time to Complete Tandem Gait Walking (seconds)				
Trial 1	Trial 2	Trial 3	Average 3 Trials	Fastest Trial
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

#### Dual Task Gait (Optional. Timed Tandem Gait must be completed first)

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed.

**Say** *“Now, while you are walking heel-to-toe, I will ask you to count backwards out loud by 7s. For example, if we started at 100, you would say 100, 93, 86, 79. Let’s practise counting. Starting with 93, count backward by sevens until I say “stop.”* Note that this practice only involves counting backwards.

**Dual Task Practice:** Circle correct responses; record number of subtraction counting errors.

Task													Errors	Time
Practice	93	86	79	72	65	58	51	44						

**Say** *“Good. Now I will ask you to walk heel-to-toe and count backwards out loud at the same time. Are you ready? The number to start with is 88. Go!”*

**Dual Task Cognitive Performance:** Circle correct responses; record number of subtraction counting errors.

Task													Errors	Time (circle fastest)	
Trial 1	88	81	74	67	60	53	46	39	32	25	18	11	4		
Trial 2	90	83	76	69	62	55	48	41	34	27	20	13	6		
Trial 3	98	91	84	77	70	63	56	49	42	35	28	21	14		

Alternate double number starting integers may be used and recorded below.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

Starting Integer:  Errors:  Time:



### Step 4: Coordination and Balance Examination (Continued)

Were any single- or dual-task, timed tandem gait trials not completed due to walking errors or other reasons?

Yes  No

If yes, please explain why:

### Step 5: Delayed Recall

The Delayed Recall should be performed after **at least 5 minutes** have elapsed since the end of the Immediate Memory section: **Score 1 point for each correct response.**

Say *“Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order.”*

Time started:

Word list used: A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>		Alternate Lists	
List A	Score	List B	List C
Jacket	0 1	Finger	Baby
Arrow	0 1	Penny	Monkey
Pepper	0 1	Blanket	Perfume
Cotton	0 1	Lemon	Sunset
Movie	0 1	Insect	Iron
Dollar	0 1	Candle	Elbow
Honey	0 1	Paper	Apple
Mirror	0 1	Sugar	Carpet
Saddle	0 1	Sandwich	Saddle
Anchor	0 1	Wagon	Bubble
<b>Delayed Recall Score</b>		<b>of 10</b>	

### Total Cognitive Score

Orientation:  of 5

Immediate Memory:  of 30

Concentration:  of 5

Delayed Recall:  of 10

Total:  of 50

If the athlete was known to you prior to their injury, are they different from their usual self?

Yes  No  Not applicable  (If different, describe why in the [clinical notes](#) section)

For use by Health Care Professionals only





### Step 6: Decision

Domain	Date:	Date:	Date:
Neurological Exam (Acute Injury evaluation only)	Normal/Abnormal	Normal/Abnormal	Normal/Abnormal
Symptom number (of 22)			
Symptom Severity (of 132)			
Orientation (of 5)			
Immediate Memory (of 30)			
Concentration (of 5)			
Delayed Recall (of 10)			
Cognitive Total Score (of 50)			
mBESS Total Errors (of 30)			
Tandem Gait fastest time			
Dual Task fastest time			

**Disposition**

Concussion diagnosed?

Yes  No  Deferred

### Health Care Professional Attestation

I am an HCP and I have personally administered or supervised the administration of this SCAT6.

Name:

Signature:  Title/Speciality:

Registration/License number (if applicable):  Date:

### Additional Clinical Notes

**Note:** Scoring on the SCAT6 should not be used as a stand-alone method to diagnose concussion, measure recovery, or make decisions about an athlete's readiness to return to sport after concussion. Remember: An athlete can score within normal limits on the SCAT6 and still have a concussion.

# SCOAT6™



## Sport Concussion Office Assessment Tool For Adults & Adolescents (13 years +)

### What is the SCOAT6?\*

The SCOAT6 is a tool for evaluating concussion in a controlled office environment by Health Care Professionals (HCP) typically from 72 hours (3 days) following a sport-related concussion.

Brief verbal instructions for some components of the SCOAT6 are included. Detailed instructions for use of the SCOAT6 are provided in an accompanying document. Please read through these instructions carefully before using the SCOAT6.

The diagnosis of concussion is a clinical determination made by an HCP. The various components of the SCOAT6 may assist with the clinical assessment and help guide individualised management.

The SCOAT6 is used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCOAT6.

This tool may be freely copied in its current form for distribution to individuals, teams, groups, and organisations. Any alteration (including translations and digital re-formatting), re-branding, or sale for commercial gain is not permissible without the expressed written consent of BMJ and the Concussion in Sport Group (CISG).

### Completion Guide

Blue: Complete only at first assessment

Green: Recommended part of assessment

Orange: Optional part of assessment

Athlete's Name:

Date of Birth:  Sex: Male  Female  Prefer Not To Say  Other

Sport:

Occupational or Educational Status:

Current or Highest Educational Level or Qualification Achieved:

Examiner:  Date of Examination:

Referring Physician's Name:

Referring Physician's Contact Details:

\* In reviewing studies informing the SCOAT6 and Child SCOAT6, the period defined for the included papers was 3–30 days. HCPs may choose to use the SCOAT6 beyond this timeframe but should be aware of the parameters of the review.

For use by Health Care Professionals Only

SCOAT6™

Developed by: The Concussion in Sport Group (CISG)

Supported by:





# SCOAT6™

## Sport Concussion Office Assessment Tool For Adults & Adolescents (13 years +)



### Current Injury

Removal From Play: Immediate  Continued to play for \_\_\_\_\_ mins   
 Walked off  Assisted off  Stretchered off

Date of Injury:

Description - include mechanism of injury, presentation, management since the time of injury and trajectory of care since injury:

Date Symptoms First Appeared:

Date Symptoms First Reported:

### History of Head Injuries

Date/Year	Description - include mechanism of injury, presentation, management since the time of injury and trajectory of care since injury	Management - including time off work, school or sport

### History of Any Neurological, Psychological, Psychiatric or Learning Disorders

Diagnosis	Year Diagnosed	Management Including Medication
<input type="checkbox"/> Migraine		
<input type="checkbox"/> Chronic headache		
<input type="checkbox"/> Depression		
<input type="checkbox"/> Anxiety		
<input type="checkbox"/> Syncope		
<input type="checkbox"/> Epilepsy/seizures		
<input type="checkbox"/> Attention deficit hyper-activity disorder (ADHD)		
<input type="checkbox"/> Learning disorder/ dyslexia		
<input type="checkbox"/> Other _____		



**List All Current Medications - including over-the-counter, naturopathic and supplements**

Item	Dose	Frequency	Reason Taken

**Family History of Any Diagnosed Neurological, Psychological, Psychiatric, Cognitive or Developmental Disorders**

Family Member	Diagnosis	Management Including Medication
	<input type="checkbox"/> Depression	
	<input type="checkbox"/> Anxiety	
	<input type="checkbox"/> Attention deficit hyper-activity disorder (ADHD)	
	<input type="checkbox"/> Learning disorder/ dyslexia	
	<input type="checkbox"/> Migraine	
	<input type="checkbox"/> Other _____	

**Additional Notes:**



## Symptom Evaluation

Please rate your symptoms below based on how you feel now with “1” representing a very mild symptom and “6” representing a severe symptom.

0 None	1 Mild	2	3 Moderate	4	5	6 Severe
-----------	-----------	---	---------------	---	---	-------------

Symptom	Date of Assessment				
	Pre-injury	Day injured (date)	Consult 1	Consult 2	Consult 3
	Rating	Rating	Rating	Rating	Rating
Headaches					
Pressure in head					
Neck pain					
Nausea or vomiting					
Dizziness					
Blurred vision					
Balance problems					
Sensitivity to light					
Sensitivity to noise					
Feeling slowed down					
Feeling like “in a fog”					
Difficulty concentrating					
Difficulty remembering					
Fatigue or low energy					
Confusion					
Drowsiness					
More emotional					
Irritability					
Sadness					
Nervous or anxious					
Sleep disturbance					
Abnormal heart rate					
Excessive sweating					
Other _____					



## Symptom Evaluation (Continued)

Symptom	Date of Assessment				
	Pre-injury	Day injured (date)	Consult 1	Consult 2	Consult 3
	Rating	Rating	Rating	Rating	Rating
Do symptoms worsen with physical activity?					
Do symptoms worsen with cognitive (thinking) activity?					
Symptom number					
Symptom severity score					
What percentage of normal do you feel?					

## Verbal Cognitive Tests

### Immediate Memory

All 3 trials must be administered irrespective of the number correct on Trial 1. Administer at the rate of one word per second in a monotone voice.

**Trial 1:** Say *"I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order."*

**Trials 2 and 3:** Say *"I am going to repeat the same list. Repeat back as many words as you can remember in any order, even if you said the word before in a previous trial."*

Word list used:    A     B     C

List A	Trial			Alternate Lists	
	Trial 1	Trial 2	Trial 3	List B	List C
Jacket	0 1	0 1	0 1	Finger	Baby
Arrow	0 1	0 1	0 1	Penny	Monkey
Pepper	0 1	0 1	0 1	Blanket	Perfume
Cotton	0 1	0 1	0 1	Lemon	Sunset
Movie	0 1	0 1	0 1	Insect	Iron
Dollar	0 1	0 1	0 1	Candle	Elbow
Honey	0 1	0 1	0 1	Paper	Apple
Mirror	0 1	0 1	0 1	Sugar	Carpet
Saddle	0 1	0 1	0 1	Sandwich	Saddle
Anchor	0 1	0 1	0 1	Wagon	Bubble
<b>Trial Total</b>					

Immediate Memory Total \_\_\_\_\_ of 30

Time last trial completed:





### Verbal Cognitive Tests: Alternate 15-word lists

Alternate 15-word lists may be accessed by scanning or clicking the QR code.

Record the total below.

Total \_\_\_\_\_ of 45



### Digits Backwards

Administer at the rate of one digit per second in a monotone voice reading DOWN the selected column. If a string is completed correctly, move on to the string with next higher number of digits; if the string is completed incorrectly, use the alternate string with the same number of digits; if this is failed again, end the test.

Say *“I’m going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7. So, if I said 9-6-8 you would say? 8-6-9”*

Digit list used: A  B  C

List A	List B	List C				
4-9-3	5-2-6	1-4-2	Y	N	0	1
6-2-9	4-1-5	6-5-8	Y	N		
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0	1
3-2-7-9	4-9-6-8	3-4-8-1	Y	N		
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0	1
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N		
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0	1
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N		
				Digits score		of 4

### Months in Reverse Order

Say *“Now tell me the months of the year in reverse order as QUICKLY and as accurately as possible. Start with the last month and go backward. So, you’ll say December, November... go ahead”*

Start stopwatch and CIRCLE each correct response:

December    November    October    September    August    July    June    May    April    March    February    January

Time Taken to Complete (secs):  (N <30 sec)      Number of Errors:



## Examination

### Orthostatic Vital Signs

The first blood pressure and heart rate measurements are taken after the patient lies supine on the examination table for at least 2 minutes. The patient is then asked to stand up without support and with both feet firmly on the ground and the second measurements are taken after standing for 1 minute. Ask the patient if they experience any dizziness or light-headedness upon standing (initial orthostatic intolerance) or by one minute (orthostatic intolerance).

Orthostatic Vital Signs	Supine	Standing (after 1 minute)
Blood Pressure (mmHg)		
Heart Rate (bpm)		
Symptoms <sup>1</sup> <ul style="list-style-type: none"> <li>• Dizziness or light-headedness</li> <li>• Fainting</li> <li>• Blurred or fading vision</li> <li>• Nausea</li> <li>• Fatigue</li> <li>• Lack of concentration</li> </ul>	No <input type="checkbox"/> Yes <input type="checkbox"/> If yes: Description	No <input type="checkbox"/> Yes <input type="checkbox"/> If yes: Description
Results	<input type="checkbox"/> Normal <input type="checkbox"/> Abnormal	

Test results are deemed clinically significant if they include at least one of the following AND symptoms:

(1) systolic BP drop of  $\geq 20$ mmHg or (2) diastolic BP drop of  $\geq 10$ mmHg (3) HR decreases (4) HR increases by  $> 30$ bpm

### Cervical Spine Assessment

Cervical Spine Palpation	Signs and Symptoms	
Muscle Spasm	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Midline Tenderness	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Paravertebral Tenderness	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal

Cervical Active Range of Motion	Result	
Flexion (50-70°)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Extension (60-85°)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Right Lateral Flexion (40-50°)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Left Lateral Flexion (40-50°)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Right Rotation (60-75°)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal
Left Rotation (60-75°)	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal



## Neurological Examination

### Cranial Nerves

Normal       Abnormal       Not tested

Notes:

### Other Neurological Findings

Limb Tone:	Normal	<input type="checkbox"/>	Abnormal	<input type="checkbox"/>	Not tested	<input type="checkbox"/>
Strength:	Normal	<input type="checkbox"/>	Abnormal	<input type="checkbox"/>	Not tested	<input type="checkbox"/>
Deep Tendon Reflexes:	Normal	<input type="checkbox"/>	Abnormal	<input type="checkbox"/>	Not tested	<input type="checkbox"/>
Sensation:	Normal	<input type="checkbox"/>	Abnormal	<input type="checkbox"/>	Not tested	<input type="checkbox"/>
Cerebellar Function:	Normal	<input type="checkbox"/>	Abnormal	<input type="checkbox"/>	Not tested	<input type="checkbox"/>

Comments:

## Balance

Barefoot on a firm surface with or without foam mat.

Foot Tested: Left     Right  (i.e. test the non-dominant foot)

### Modified BESS

Double Leg Stance:  of 10  
 Tandem Stance:  of 10  
 Single Leg Stance:  of 10  
 Total Errors:  of 30

### On Foam

Double Leg Stance:  of 10  
 Tandem Stance:  of 10  
 Single Leg Stance:  of 10  
 Total Errors:  of 30

## Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape.

Say *“Please walk heel-to-toe quickly to the end of the tape, turn around and come back as fast as you can without separating your feet or stepping off the line.”*

Time to Complete Tandem Gait Walking (seconds)				
Trial 1	Trial 2	Trial 3	Average 3 Trials	Fastest Trial
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Abnormal/failed to complete       Unstable/sway       Fall/over-step       Dizzy/nauseous



## Complex Tandem Gait

### Forward

Say *“Please walk heel-to-toe quickly five steps forward, then continue forward with eyes closed for five steps”* 1 point for each step off the line, 1 point for truncal sway or holding onto an object for support.

Forward Eyes Open Points:

Forward Eyes Closed Points:

Forward Total Points:

### Backward

Say *“Please walk heel-to-toe again, backwards five steps eyes open, then continue backwards five steps with eyes closed.”* 1 point for each step off the line, 1 point for truncal sway or holding onto an object for support.

Backward Eyes Open Points:

Backward Eyes Closed Points:

Backward Total Points:

Total Points (Forward + Backward):

## Dual Task Gait

Say *“Now, while you are walking heel-to-toe, I will ask you to recite the following words in reverse order / count backwards out loud by 7s (for instance starting at 100, then 93, 86 etc.) / recite the months of the year in reverse order”*

(select one cognitive task). Allow for a verbal practice attempt of the cognitive task selected.

Cognitive Tasks												
<b>Trial 1</b> (Words - spell backwards)	VISIT	ALERT	FENCE	BRAVE	MOUSE	DANCE	CRAWL	LEARN				
<b>OR Trial 2</b> (Subtract serial 7s)	95	88	81	74	67	60	53	46				
<b>OR Trial 3</b> (Months backwards)	December	November	October	September	August	July	June	May	April	March	February	January

Before attempting the dual task: *“Good. Now I will ask you to walk heel-to-toe calling the answers out loud at the same time. Are you ready?”*

Number of Trials Attempted:  Number of Correct Trials:  Average Time (s):

Cognitive Accuracy Score (Number Correct / Number Attempted):

Comments:

**Modified Vestibular/Ocular-Motor Screening (mVOMS) for Concussion**

For detailed instructions please see the Supplement.

mVOMS	Not Tested	Headache	Dizziness	Nausea	Fogginess	Comments
Baseline symptoms	N/A					
Smooth pursuits (2 horizontal and 2 vertical, 2 seconds to go full distance right-left and back; up-down and back)						
Saccades – Horizontal (10 times each direction)						
VOR – Horizontal (10 repetitions) (metronome set at 180 beats per minute – change direction at each beep, wait 10 secs to ask symptoms)						
VMS (x 5, 80° rotation side to side) (at 50 bpm, change direction each beep, wait 10 secs to ask symptoms)						

**Anxiety Screen**Not Done 

Assign scores of 0, 1, 2, and 3 to the response categories, respectively, of “not at all,” “several days,” “more than half the days,” and “nearly every day.”

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

Anxiety Screen Score: 0–4: minimal anxiety  
10–14: moderate anxiety5–9: mild anxiety  
15–21: severe anxiety**Depression Screen**Not Done The purpose is to screen for depression in a “first-step” approach. Patients who screen positive should be further evaluated with the [PHQ-9](#) to determine whether they meet criteria for a depressive disorder.

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed or hopeless	0	1	2	3

Depression Screen Score: 

(Ranges from 0-6, 3 being the cutpoint to screen for depression)





## Sleep Screen

Not Done 

1. During the past week how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)	
5 to 6 hours	4
6 to 7 hours	3
7 to 8 hours	2
8 to 9 hours	1
More than 9 hours	0

2. How satisfied/dissatisfied were you with the quality of your sleep?	
Very dissatisfied	4
Somewhat dissatisfied	3
Somewhat satisfied	2
Satisfied	1
Very satisfied	0

3. During the recent past, how long has it usually taken you to fall asleep each night?	
Longer than 60 minutes	3
31-60 minutes	2
16-30 minutes	1
15 minutes or less	0

4. How often do you have trouble staying asleep?	
Five to seven times a week	3
Three of four times a week	2
Once or twice a week	1
Never	0

5. During the recent past, how often have you taken medicine to help you sleep? (prescribed or over-the-counter)	
Five to seven times a week	3
Three of four times a week	2
Once or twice a week	1
Never	0

Sleep Screen Score: 

A higher sleep disorder score (SDS) indicates a greater likelihood of a clinical sleep disorder:

0-4 (Normal)

5-7 (Mild)

8-10 (Moderate)

11-17 (Severe)



### Delayed Word Recall

Minimum of 5 minutes after immediate recall

Say *“Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order.”*

Word list used: A  B  C

List A		Score	Alternate Lists	
			List B	List C
Jacket	0	1	Finger	Baby
Arrow	0	1	Penny	Monkey
Pepper	0	1	Blanket	Perfume
Cotton	0	1	Lemon	Sunset
Movie	0	1	Insect	Iron
Dollar	0	1	Candle	Elbow
Honey	0	1	Paper	Apple
Mirror	0	1	Sugar	Carpet
Saddle	0	1	Sandwich	Saddle
Anchor	0	1	Wagon	Bubble

Score:  of 10

Record Actual Time (mins) Since Completing Immediate Recall:

### Computerised Cognitive Test Results (if used)

Not Done

Test Battery Used:

Recent Baseline - if performed (Date):

Post-Injury Result (Rest):

Post-Injury Result (Post-Exercise Stress):

### Graded Aerobic Exercise Test

Not Done

Exclude contra-indications: cardiac condition, respiratory disease, significant vestibular symptoms, motor dysfunction, lower limb injuries, cervical spine injury.

Protocol Used:

### Overall Assessment

Summary:



## Management and Follow-up Plan

Cervical or brain imaging (X-rays/CT/MRI)

Imaging Requested:

Reason:

Findings:

Recommendations regarding return to:

Class:

Work:

Driving:

Sport:

(See revised graduated [return-to-learn](#) and [return-to-sport](#) guidelines)

### Referral

Further assessment, intervention or management

Assessment by:

Name:

- |                                                           |                      |
|-----------------------------------------------------------|----------------------|
| <input type="checkbox"/> Athletic Trainer/Therapist       | <input type="text"/> |
| <input type="checkbox"/> Exercise Physiologist            | <input type="text"/> |
| <input type="checkbox"/> Neurologist                      | <input type="text"/> |
| <input type="checkbox"/> Neuropsychologist                | <input type="text"/> |
| <input type="checkbox"/> Neurosurgeon                     | <input type="text"/> |
| <input type="checkbox"/> Ophthalmologist                  | <input type="text"/> |
| <input type="checkbox"/> Optometrist                      | <input type="text"/> |
| <input type="checkbox"/> Paediatrician                    | <input type="text"/> |
| <input type="checkbox"/> Physiatrist/Rehab Phys           | <input type="text"/> |
| <input type="checkbox"/> Physiotherapist                  | <input type="text"/> |
| <input type="checkbox"/> Psychologist                     | <input type="text"/> |
| <input type="checkbox"/> Psychiatrist                     | <input type="text"/> |
| <input type="checkbox"/> Sport and Exercise Medicine Phys | <input type="text"/> |
| <input type="checkbox"/> Other                            | <input type="text"/> |

Pharmacotherapy Prescribed:

Date of Review:

Date of Follow-up:





## Additional Clinical Notes

### Return-to-Learn (RTL) Strategy

Facilitating RTL is a vital part of the recovery process for student-athletes. HCPs should work with stakeholders on education and school policies to facilitate academic support, including accommodations/learning adjustments for students with SRC when needed. Academic support should address risk factors for greater RTL duration (e.g., social determinants of health, higher symptom burden) by adjusting environmental, physical, curricular, and testing factors as needed. **Not all athletes will need a RTL strategy or academic support.** If symptom exacerbation occurs during cognitive activity or screen time, or difficulties with reading, concentration, or memory or other aspects of learning are reported, clinicians should consider implementation of a RTL strategy at the time of diagnosis and during the recovery process. When the RTL strategy is implemented, it can begin following an initial period of relative rest (Step1: 24-48 hrs), with an incremental increase in cognitive load (Steps 2 to 4). Progression through the strategy is symptom limited (i.e., no more than a mild exacerbation of current symptoms related to the current concussion) and its course may vary across individuals based on tolerance and symptom resolution. Further, while the RTL and RTS strategies can occur in parallel, student-athletes should complete full RTL before unrestricted RTS.

Step	Mental Activity	Activity at Each Step	Goal
1	Daily activities that do not result in more than a mild exacerbation* of symptoms related to the current concussion.	Typical activities during the day (e.g., reading) while minimizing screen time. Start with 5–15 min at a time and increase gradually.	Gradual return to typical activities.
2	School activities.	Homework, reading, or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3	Return to school part time.	Gradual introduction of schoolwork. May need to start with a partial school day or with greater access to rest breaks during the day.	Increase academic activities.
4	Return to school full time.	Gradually progress school activities until a full day can be tolerated without more than mild* symptom exacerbation.	Return to full academic activities and catch up on missed work.

**NOTE:** Following an initial period of relative rest (24-48 hours following injury at Step 1), athletes can begin a gradual and incremental increase in their cognitive load. Progression through the strategy for students should be slowed when there is more than a mild and brief symptom exacerbation.

\*Mild and brief exacerbation of symptoms is defined as an increase of no more than 2 points on a 0-10 point scale (with 0 representing no symptoms and 10 the worst symptoms imaginable) for less than an hour when compared with the baseline value reported prior to cognitive activity.

For use by Health Care Professionals only



## Return-to-Sport (RTS) Strategy

Return to sport participation after an SRC follows a graduated stepwise strategy, an example of which is outlined in Table 2. RTS occurs in conjunction with return to learn (see RTL strategy) and under the supervision of a qualified HCP. Following an initial period of relative rest (Step 1: approximately 24-48 hours), clinicians can implement Step 2 [i.e., light (Step 2A) and then moderate (Step 2B) aerobic activity] of the RTS strategy as a treatment of acute concussion. The athlete may then advance to steps 3-6 on a time course dictated by symptoms, cognitive function, clinical findings, and clinical judgement. Differentiating early activity (step 1), aerobic exercise (Step 2), and individual sport-specific exercise (Step 3) as part of the treatment of SRC from the remainder of the RTS progression (Steps 4-6) can be useful for the athlete and their support network (e.g., parents, coaches, administrators, agents). Athletes may be moved into the later stages that involve risk of head impact (Steps 4-6 and Step 3 if there is any risk of head impact with sport-specific activity) of the RTS strategy following authorization by the HCP and after resolution of any new symptoms, abnormalities in cognitive function, and clinical findings related to the current concussion. Each step typically takes at least 24 hours. Clinicians and athletes can expect a minimum of 1 week to complete the full rehabilitation strategy, but typical unrestricted RTS can take up to one month post-SRC. The time frame for RTS may vary based on individual characteristics, necessitating an individualized approach to clinical management. Athletes having difficulty progressing through the RTS strategy or with symptoms and signs that are not progressively recovering beyond the first 2-4 weeks may benefit from rehabilitation and/or involvement of a multidisciplinary team of HCP experienced in managing SRC. Medical determination of readiness, including psychological readiness, to return to at-risk activities should occur prior to returning to any activities at risk of contact, collision or fall (e.g. multiplayer training drills), which may be required prior to any of steps 3-6, depending on the nature of the sport or activity that the athlete is returning to and in keeping with local laws/requirements.

Step	Exercise Strategy	Activity at Each Step	Goal
1	Symptom-limited activity.	Daily activities that do not exacerbate symptoms (e.g., walking).	Gradual reintroduction of work/school.
2	Aerobic exercise <b>2A – Light</b> (up to approx. 55% max HR) <b>then</b> <b>2B – Moderate</b> (up to approximately 70% max HR)	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate.
3	Individual sport-specific exercise <b>NOTE:</b> if sport-specific exercise involves any risk of head impact, medical determination of readiness should occur prior to step 3.	Sport-specific training away from the team environment (e.g., running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction.
Steps 4-6 should begin after resolution of any symptoms, abnormalities in cognitive function, and any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills.	Exercise to high intensity including more challenging training drills (e.g., passing drills, multiplayer training). Can integrate into team environment.	Resume usual intensity of exercise, coordination, and increased thinking.
5	Full contact practice.	Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6	Return to sport.	Normal game play.	

**maxHR = predicted maximal Heart Rate according to age (i.e., 220-age)**

Age Predicted Maximal HR= 220-age	Mild Aerobic Exercise	Moderate Aerobic Exercise
55%	220-age x 0.55 = training target HR	
70%		220-age x 0.70 = training target HR

**NOTE:** \*Mild and brief exacerbation of symptoms (i.e., an increase of no more than 2 points on a 0-10 point scale for less than an hour when compared with the baseline value reported prior to physical activity). Athletes may begin Step 1 (i.e., symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours. If more than mild exacerbation of symptoms (i.e., more than 2 points on a 0-10 scale) occurs during Steps 1 -3, the athlete should stop and attempt to exercise the next day. If an athlete experiences concussion-related symptoms during Steps 4-6, they should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities. Written determination of readiness to RTS should be provided by an HCP before unrestricted RTS as directed by local laws and/or sporting regulations.