

MEMBER OF



# Motorsport Australia Concussion Management Guidelines

Motorsport Australia takes the safety and wellbeing of our competitors, crew and officials seriously. These guidelines should be followed in any incident or when there is risk of concussion.

Australian based guidelines, education programs, research and referral tools are available at Concussion in Sport Australia  
<https://www.concussioninsport.gov.au/>

Motorsport Australia concussion guidelines follow the “11 R’s” of Sports Related Concussion management;

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## **SUMMARY**

### **RECOGNISE/DIAGNOSE**

Diagnosis of concussion may be by a medical doctor or another practitioner experienced in concussion including specialist concussion physiotherapist, occupational therapist, neurophysiologist, etc.

Concussion may be diagnosed using any specialist tool including, but not limited to, CRT-6, SCAT-6, IMPACT, SAC and MACE. This may occur trackside, in the medical centre, at a hospital or medical practitioner office.

### **Red Flag Symptoms**

- Neck pain
- Increasing confusion, agitation or irritability
- Repeated vomiting
- Seizure or convulsion
- Weakness or tingling/burning in the arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual behavioural change
- Loss of vision or double vision
- Visible deformity of the skull
- Loss of consciousness

### **RETURN-TO-SPORT AFTER CONCUSSION**

**Mandatory exclusion periods apply.**

**Any competitor suspected of concussion must be excluded from further participation until they have been reviewed by a doctor (medical practitioner) and cleared of concussion.**

**Any competitor diagnosed with concussion can only return to competition after the mandatory exclusion period, completing a Return-To-Sport process AND must have been cleared by a doctor medical practitioner.**



## **Exclusion Period**

### **Adults (18 years and over)**

**Minimum period of exclusion is 14 days from incident AND have been cleared by a Medical Practitioner (Medical Doctor)**

### **Less than 18 years**

**Minimum period of exclusion is 21 days from incident AND have been cleared by a Medical Practitioner (Medical Doctor)**

# GUIDELINE

## RECOGNISE

Sport-related concussion is a traumatic brain injury caused by a direct blow to, or sudden deceleration or rotation of, the head, neck or body resulting in an impulsive force being transmitted to the brain that occurs in sports and exercise-related activities.

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

**Initial assessment** of any person involved in an incident should first follow standard first-aid and trauma management procedures. Appropriate training may include First Aid, Basic Life Support, Advanced Trauma Life Support and/or Prehospital Trauma Life Support.

Emphasis is on assessing **Danger** at the scene, **Responsiveness** of the injured, assessment and management of **Airway**, **Breathing** and **Circulation**.

Unconscious/unresponsive persons should not be moved unless for airway or urgent medical management and/or reasons of safety.

Assessment for a spinal and/or spinal cord injury is a critical part of the initial evaluation. Only do so if you are trained.

Do not remove a helmet or any other equipment unless trained to do so safely or for reasons of immediate risk to the injured e.g. airway management or fire.

It is the responsibility of the competitor to inform Motorsport Australia of any concussion that occurs outside of a Motorsport Australia activity or event.

## REDUCE

Drivers and teams should be aware of current Motorsport Australia safety equipment regulations and homologation requirements. Appropriately homologated and well fitting safety apparel and equipment is important to reduce the risk of injury. Driver's should regularly assess their equipment for damage including seats, belts, helmets and Frontal Head Restraints (FHR).

Appropriately designed vehicles and seats may also reduce the risk of head-strike and/or concussion.

Consideration should be given to additional safety equipment (e.g. mouthguard) in unique events with jumps and/or significant vertical impact.

Optimal concussion management can reduce the risk of future concussion.

## REMOVE

Any person suspected of concussion should be removed from training or competition until they have been evaluated;

- Mechanism of injury – Any incident that results in a significant impact, including sudden stop, side or vertical impact or rotation of the vehicle.
- Reported or witnessed features of concussion, significant concern or associated Red Flags. See [Concussion Recognition Tool 6 \(CRT6\)](#).

**Mandatory removal** from competition/practice for further evaluation;

- loss of consciousness
- motionless for >5 sec post incident
- no protective action was taken by the competitor after the initial impact
- impact seizure or tonic posturing (abnormal outstretched limbs)
- confusion, disorientation
- memory impairment/amnesia
- balance disturbance or motor incoordination (e.g. ataxia - clumsy movement/walking/removing themselves from vehicle)
- athlete reports significant, new, or progressive concussion symptoms dazed, blank/vacant stare or not their normal selves
- behaviour change atypical of the athlete
- Significant Helmet, Frontal Head Restraint or Brace/Belt damage

## **ASSESSMENT**

Evaluation of possible signs or symptoms of concussion can be performed anyone.

### **First Aid, Officials, Teams and Crew**

Use [Concussion Recognition Tool 6](#) (CRT6)

### **Healthcare Providers**

If the person is 13yo or older - Use [Sports Concussion Assessment Tool 6 \(SCAT6\)](#)

If the person is less than 13yo - Use the [Child SCAT6](#)

**For CRT6/SCAT6** - Suggested modifications to the Maddocks/Awareness questions for the motorsport competitor/official.

**“Where are we at today?”**

**“What session/stage were you in”**

**“What was the corner/section that your incident occurred on?”**

**“What circuit/event were you last at prior to this one?”**

**“What was your result at the last event you attended?”**

Failure to answer any of these questions correctly may suggest a concussion.

### **Post Evaluation**

**All “Red Flag” symptoms and signs should have an ambulance called immediately.**

### **Unclear or suspected of concussion**

Refer for further evaluation **“If in doubt, sit them out”**

Licence is suspended pending further evaluation and/or clearance

Email details to [medical@motorsport.org.au](mailto:medical@motorsport.org.au)

### **NOT suspected of concussion**

Cleared to return to competition

## REFER

**“If in doubt, sit them out”**. If there is any doubt in the case of suspected concussion, then the person should be removed from competition/training until they are referred to a health care provider for further evaluation.

Referral of all cases of suspected concussion should be referred to a healthcare provider. Initially, if not seen by a healthcare provider at an event, this referral should be to an Emergency Department if there are any “Red Flags” or to an alternative health care provider if there are no “red flags” present.

Those with clear concussion symptoms should be referred to a healthcare provider experienced in the assessment and management of concussion.

Head injury/Concussion advice should be provided to the individual.

## RE-EVALUATE

SCAT6/Child SCAT6 are most useful for evaluation and re-evaluation in the **first 72 hours**. Although their utility still exists for up to 5-7 days.

Re-evaluation by a specialist or healthcare provider after the initial 72 hours and/or diagnosis of concussion may include the use of office-based assessment tools and/or other assessment tools including imaging and functional assessments.

More expansive office based assessment tools include;

**[Sports Concussion Office Assessment Tool 6 \(SCOAT6\)](#)**

**[Child Sports Concussion Office Assessment Tool 6 \(Child SCOAT6\)](#)**

## **REST**

Relative rest (continue your activities of daily living) and reduced screen time are encouraged for the first 48 hours. Strict rest, dark room and total screen restriction is no longer recommended.

Light physical activity is encouraged even if it mildly exacerbates symptoms. If moderate to severe symptoms occur then activity should be reduced.

Individuals should systematically increase the levels of physical activity and exertion based on their symptoms and exacerbation of those symptoms.

Discussion and clear planning with their healthcare provider is strongly recommended.

## **REHABILITATE**

Symptoms lasting more than 10 days should be referred to a specialist for a detailed evaluation and specific rehabilitation program.

Active symptoms persisting for greater than four weeks in children and adolescents should be referred for multi-specialist input.

Symptoms that recur as part of a Return-to-Sport or Return-to-Learn may also benefit from specific rehabilitation programs.

## **RECOVER**

Assessment of clinical recovery should incorporate three components;

- Resolution of symptoms

- Resolution of symptoms under dynamic load including maximal exercise and cognitive load

- Completion of a Return-To-Sport program



## **RETURN-TO-SPORT/RETURN TO LEARN**

### **Mandatory exclusion periods apply.**

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### **Exclusion Period**

#### **Adults (18 years and over)**

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Return-To-Learn (RTL) programs are not required for all individuals but may be of benefit in those who have difficulty with cognitive tasks post concussion and those that have exacerbation of symptoms during screen time and when performing cognitive tasks.

Detailed Return-To-Sport (RTS) programs should be followed in a stepwise fashion with increasing levels of exertion, cognitive load and RTS and RTL should occur in parallel.

The Return-to-Sport Protocol should be supervised by a medical practitioner. If this is their second concussion within 12 months or third concussion ever, then a specialist review by a neurologist or neurosurgeon familiar with concussion management is required.

Please see the appendices for RTS and RTL procedures.

## **RECONSIDER**

Effects of concussion and repeated concussion may have long term health implications. Specialist consultation is encouraged and is mandated in those with repeated concussions. An assessment of the balance of risks and rewards should be considered including possible long term effects and consideration of retirement.

Children and adolescent concussion should also take into account the possible impacts on learning and long term implications in development. Repeated concussions in children and adolescents require specialist input and regular clearance to compete in sport, not restricted to motor sport.

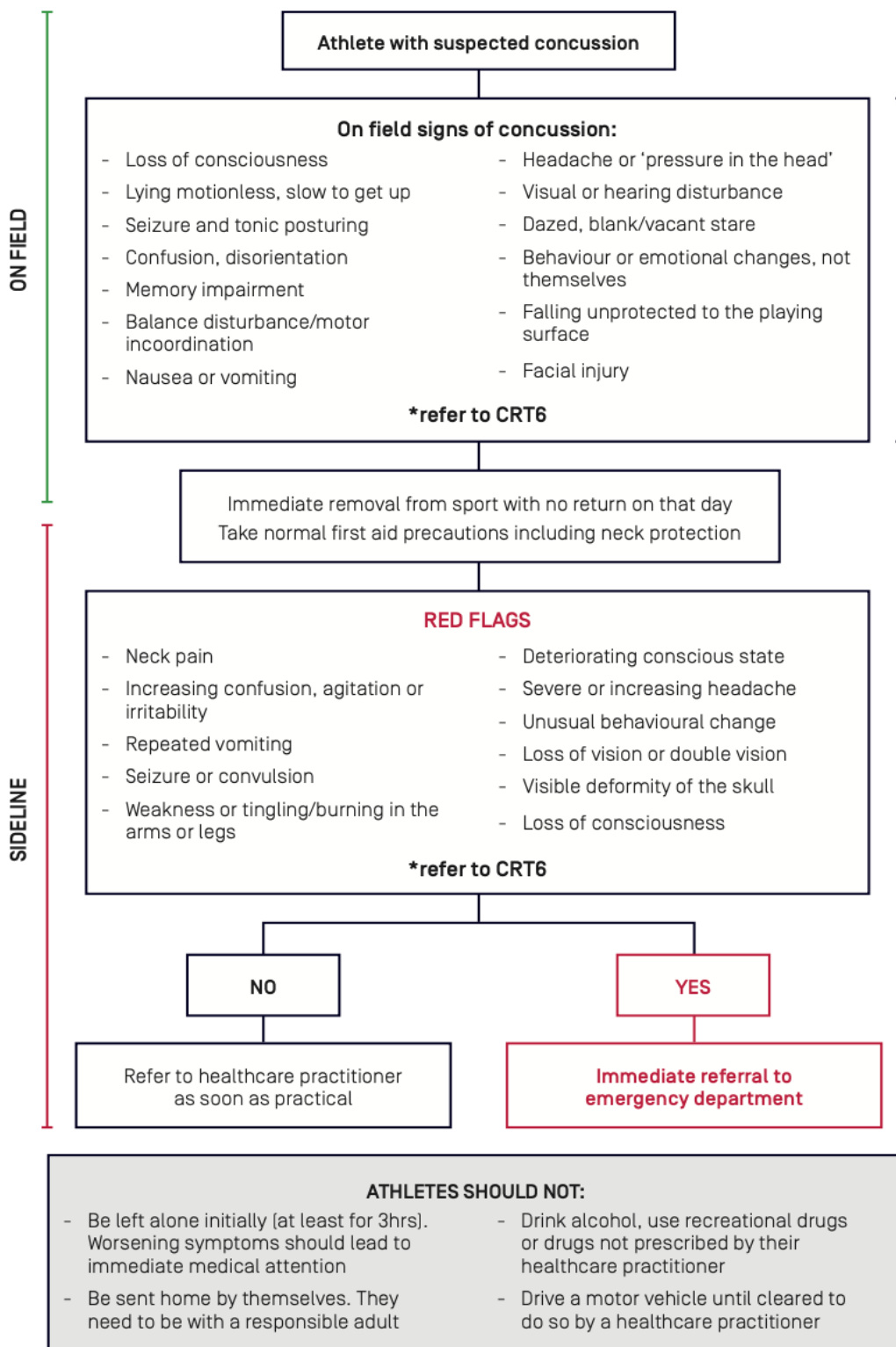
## **RESIDUAL EFFECTS**

Ongoing residual effects from concussion may occur. Those suffering from long term symptoms or sequelae should actively engage a specialist in concussion management.

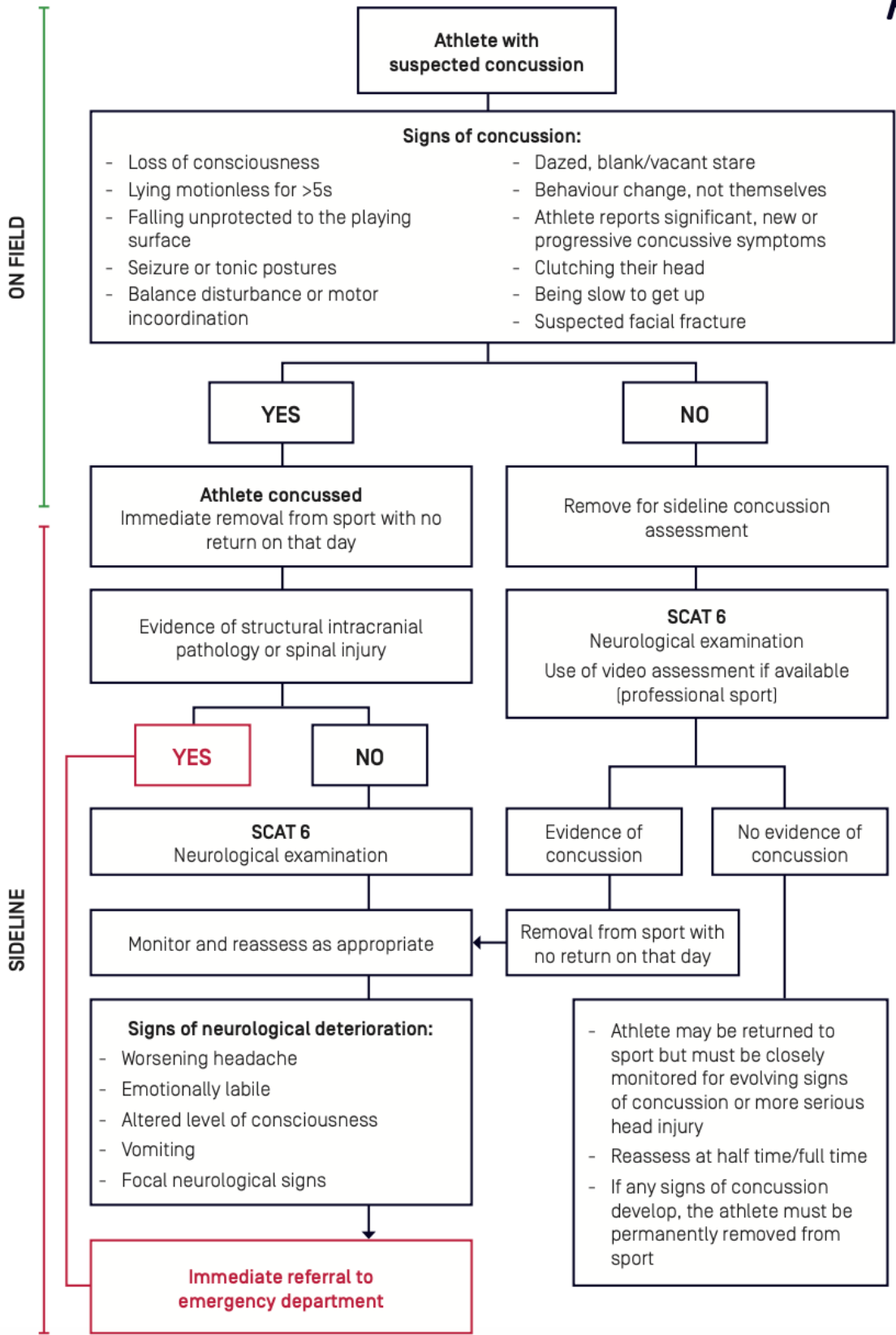
Engagement in long-term research projects may help inform future management of concussion and improved outcomes. For example, the Concussion and Brain Health (CBH) Project 2021-2024 by the AIS.

# Non-Medical Trackside Assessment - Use CRT6

## NON-HEALTHCARE PRACTITIONER *ON FIELD* CONCUSSION RECOGNITION DECISION TREE



# HEALTHCARE PRACTITIONER *ON FIELD* CONCUSSION MANAGEMENT DECISION TREE





## **Off Field Assessment (Days after Incident) Resources - Click on links**

[Non-Healthcare Practitioner](#)

[Healthcare Practitioner](#)

## **Other Concussion Resources**

[Competitors](#)

[Teams and Support Staff](#)

[Medical Practitioners](#)

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

## Return-To-Sport Pathway

## Return-To-Learn

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.

## Motorsport Specific Suggested Return-To-Sport

See above for more detailed approaches to each step

Step	Exercise Strategy	Activity at each step	Goal
1	Symptom limited activity	Daily activities that do not exacerbate symptoms (e.g. walking)	Gradual return to typical activities
2	Aerobic Exercise 2A - Light <55% Max HR then 2B - Moderate up to 70% Max HR *see above for calculations	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.	Increased heart rate
3	Individual Sport Specific Exercise	Sport-specific training away from the team environment (e.g., running, change of direction, cycling/running including around circuits or tracks, and/or individual training drills). Simulators. No activities at risk of head impact.	Add movement and change in directions

Step	Exercise Strategy	Activity at each step	Goal
4	Non-Contact Training Drills	Exercise to high intensity including more challenging training drills. Simulators after high aerobic exercise. Low speed motor sport training (e.g. individual karting, low - moderate speed laps)	Resume usual intensity of exercise, coordination, and increased thinking
5	Full Practice	Participate in normal training. High speed karting, private practice, event practice sessions (with clinical review post session).	Restore confidence and assess functional skills by coaching staff.
6	Return To Sport	Normal event inclusion. Practice, qualifying and racing.	



## References

### **Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport**

Patricios JS, Schneider KJ, Dvorak J, et al Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport–Amsterdam, October 2022 British Journal of Sports Medicine 2023;57:695-711.

### **Concussion in Sport Australia Website**

Retrieved November 1, 2024 from <https://www.concussioninsport.gov.au/>

### **Concussion Recognition Tool 6**

The Concussion Recognition Tool 6 (CRT6) British Journal of Sports Medicine 2023;57:692-694.

### **SCAT 6**

Sport Concussion Assessment Tool 6 (SCAT6) British Journal of Sports Medicine 2023;57:622-631

### **Child SCAT 6**

Child SCAT6 British Journal of Sports Medicine 2023;57:636-647.

### **Concussion and Brain Health (CBH) Project 2021-2024**

Retrieved July 1, 2023 from <https://www.concussioninsport.gov.au/>

### **Concussion and Brain Health Position Statement 2023 (CBHPS23)**

Retrieved July 1, 2023 from

[https://www.concussioninsport.gov.au/\\_data/assets/pdf\\_file/0006/1090680/concussion-and-brain-health-position-statement-2023.pdf](https://www.concussioninsport.gov.au/_data/assets/pdf_file/0006/1090680/concussion-and-brain-health-position-statement-2023.pdf)



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9/6/23	v1	BM
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