

# The Motorsport Australia Concussion Management Guidelines

## 1) Concussion assessment triggers

- Mechanism of injury – Any heavy impact that results in a sudden stop or violent rotation of the vehicle.
- Reported or witnessed features of concussion. Refer to the “Red flags” and “Observable signs” sections on page 2 and “Symptom evaluation” section on page 3 of the SCAT-5 tool, or the same sections on the one page CRT-5. (See below for links.)

## 2) Trauma assessment

- Assess for life or limb threat using ATLS, EMST, PHTLS or similar pathways.
- Assess for features that would require CT imaging of the person's head (e.g. the Canadian Head CT Rules, the New Orleans Head CT Rules)

If either of these two assessments raise concerns then transport to the nearest appropriate hospital for further management should be arranged urgently.

If the competitor clears both of these assessments then perform sideline testing for concussion.

## 3) Concussion assessment methods

*“If in doubt, sit them out”*

Doctors: Use the SCAT-5 assessment tool -

<http://bjsm.bmj.com/content/bjsports/early/2017/04/26/bjsports-2017-097506SCAT5.full.pdf>

Paramedics, physiotherapists, team managers: Use the CRT-5 assessment tool -

[https://sportconcussion.com.au/wp-content/uploads/2016/02/Concussion\\_Recognition\\_Tool5.pdf](https://sportconcussion.com.au/wp-content/uploads/2016/02/Concussion_Recognition_Tool5.pdf)

Suggested modifications to the Maddock's Questions for the motorsport competitor.

*“What circuit/event are we at today?”*

*“What lap are you on?” / “What special stage are you on?”*

*“What was the corner that you last came through?” /*

*“What was the last instruction/tulip number that you came through?”*

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

*“What position did you get at that last circuit/event?”*

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

For further details go to the Concussion In Sport website at <https://concussioninsport.gov.au/>

#### 4) Initial SCAT-5 or CRT-5 assessment is negative for concussion.

The onset of concussion may be delayed for several hours following the injury.

##### Adolescent or Child (18 years of age and under)

- Remove from competition for the remainder of the day.
- Reassess at the end of that day.
- Reassess the following day prior to any track activity.

##### Adult (over 18 years of age)

If the competitor is scheduled to take part in any more events that day:

- Reassess prior to taking part in any subsequent track activity on that day

If the competitor is *not* scheduled to take part in any more events that day:

- Reassess at the end of that day.
- Reassess the following day prior to any track activity.

If the competitor clears these steps, then they can be released without suspension of their competitor's licence. If the competitor cannot be confidently cleared, then proceed to Step 5.

#### 5) Initial SCAT-5 or CRT-5 assessment is suggestive of concussion.

Anyone considered to have suffered a concussion should not be allowed to compete for the next 48 hours. The individual's competition licence should be temporarily suspended and same-day notification should be sent to Motorsport Australia ([medical@motorsport.org.au](mailto:medical@motorsport.org.au)).

The individual should undertake the reintegration process (Point 6) and receive medical clearance BEFORE the competition licence is reinstated.

Medical assessment by a doctor is required – See **Section 6** below.

The concussed competitor should not be left alone during the first 24 hours after injury and any deterioration in their health status should prompt a medical review. A Head Injury advice card should be provided to the competitor and the person who's company they will be in for the next 24 hours.

NSW Institute of Trauma and Injury Management – Mild Head Injury Discharge Advice  
[https://www.aci.health.nsw.gov.au/get-involved/institute-of-trauma-and-injury-management/clinical/trauma-guidelines/Guidelines/head\\_injury\\_cpg/discharge\\_advice](https://www.aci.health.nsw.gov.au/get-involved/institute-of-trauma-and-injury-management/clinical/trauma-guidelines/Guidelines/head_injury_cpg/discharge_advice)

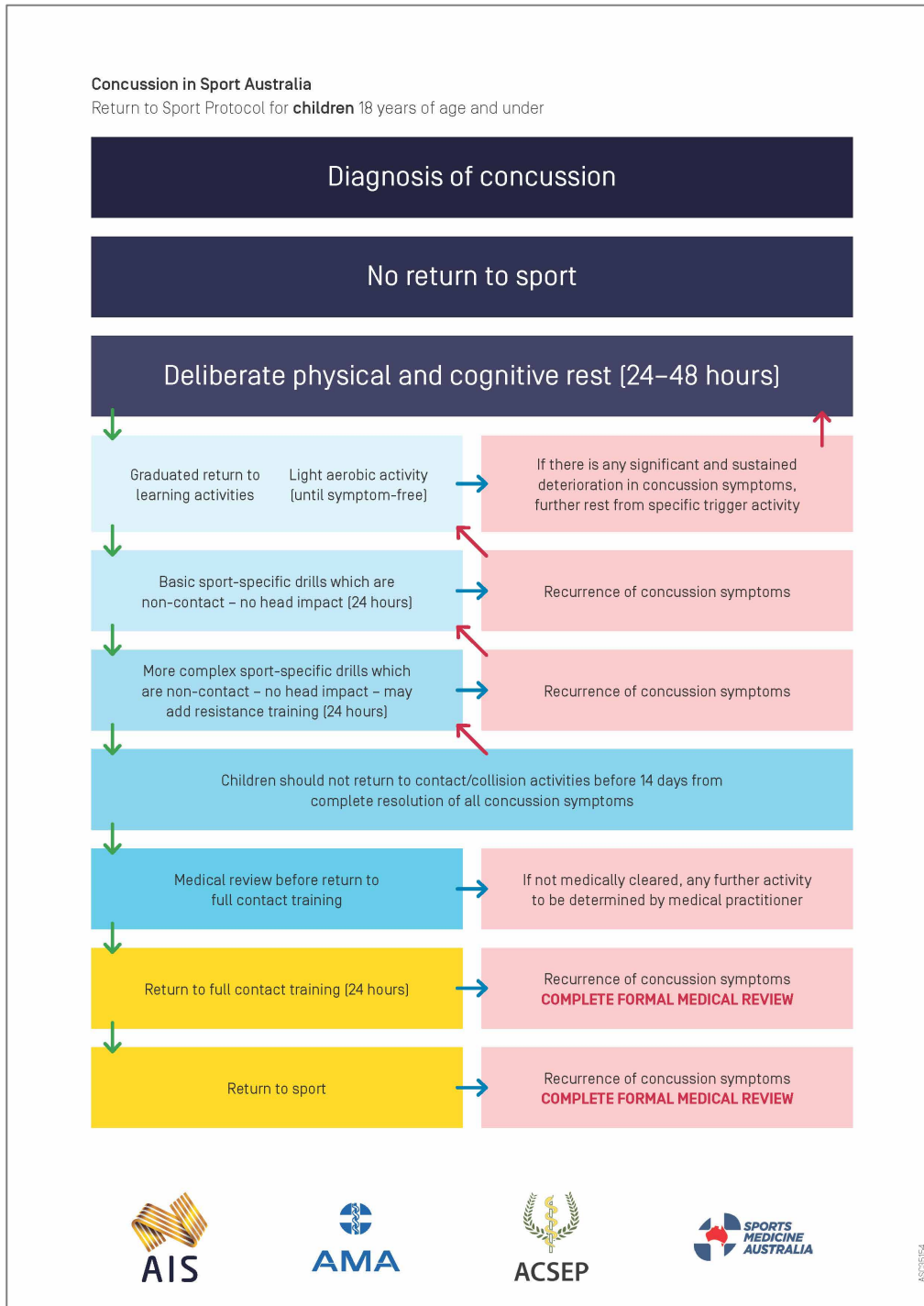
Additionally, a concussed competitor should not drive, operate machinery or engage in high risk activities until cleared by their doctor.

#### 6) Reintegration back into competitive motorsport after concussion.

The reintegration process follows a stepwise approach that is modelled on the Concussion In Sport Updated Return To Sport Protocol (<https://concussioninsport.gov.au/>) as recommended in the Joint AIS-AMA Position Statement (<https://concussioninsport.gov.au/position-statement>).

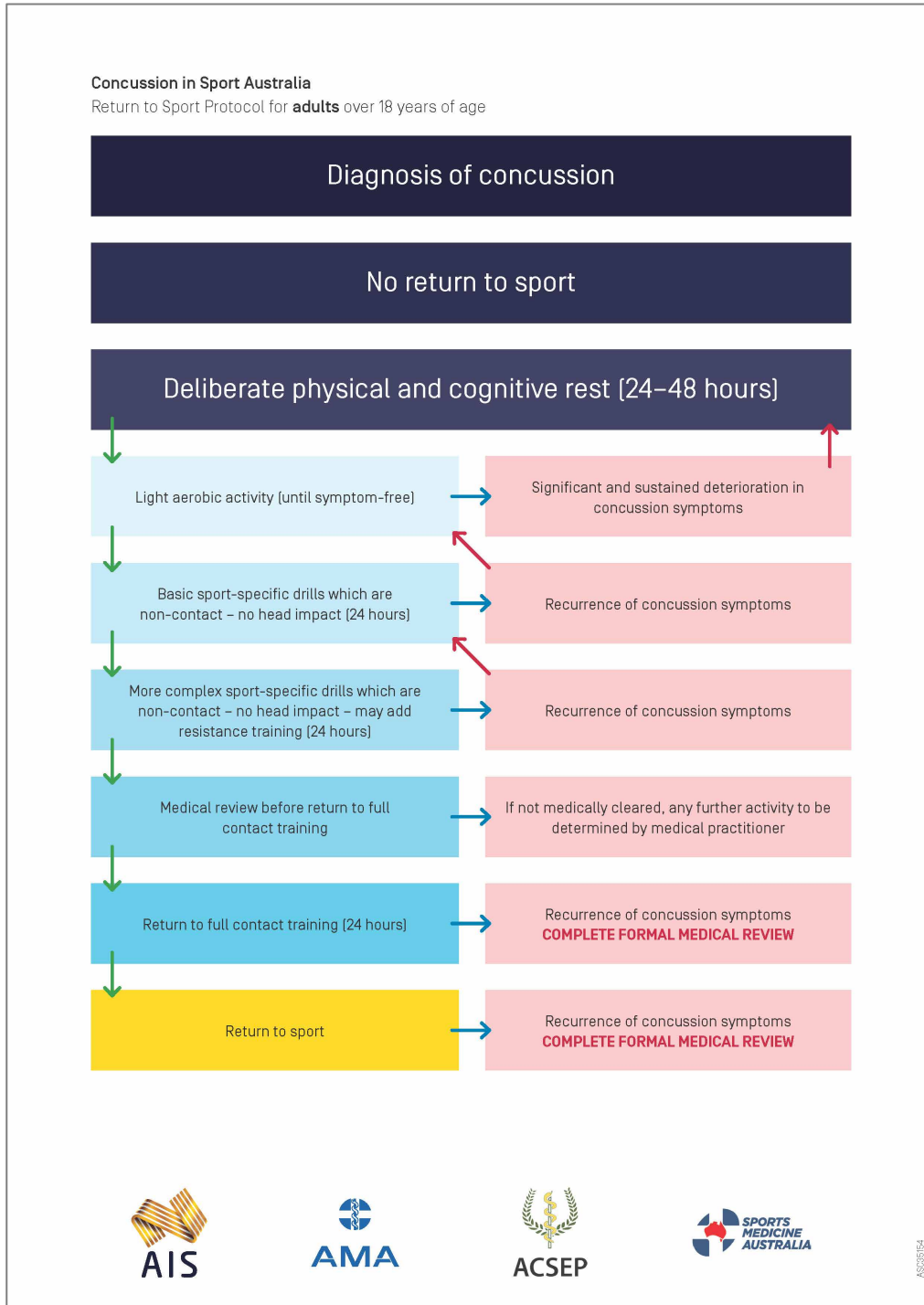
There is a Return To Sport Protocol for adolescents/children (<18yo) and adults (18yo+).

## Return to Sport Protocol for children 18 years of age and under



<https://concussioninsport.gov.au/position-statement>

## Return to Sport Protocol for adults over 18 years of age



<https://concussioninsport.gov.au/position-statement>

The Return to Sport Protocol can be supervised by the team doctor, series medical delegate or regular family doctor. If this is the second or more occurrence of concussion in the season then a specialist review by a neurologist or neurosurgeon familiar with concussion management is required.

The result of the final medical assessment is to be forwarded to Motorsport Australia ([medical@motorsport.org.au](mailto:medical@motorsport.org.au)) for assessment so that the suspended licence can be reinstated.

### **Suggested graded exercises to cater for the motorsport competitor.**

The following graded levels of exercise are suggestions and suitable alternatives may be substituted under the supervision of the competitor's physiotherapist or doctor.

#### Light aerobic exercise – Non-contact

- Walking
- Low intensity cycling on a stationary bicycle

#### Basic sport-specific drills – Non-contact

- Jogging
- Medium intensity cycling
- Balance exercises
- Basic hand-eye co-ordination drills
- Circuit briefing recall
- Static simulator testing (i.e. simulator not using hydraulic actuators or actuators deactivated)
- Observed non-timed or speed-limited laps

#### Complex sport-specific drills – Non-contact

- Running
- High intensity cycling
- Resistance training
- Complex hand-eye co-ordination drills
- Dynamic simulator testing (i.e. simulator using hydraulic actuators)
- Observed timed laps

Review by medical doctor prior to full contact training.

#### Return to full contact training

- Full exercise regime
- Non-competitive laps; e.g. private testing.

*Note: For rally and off-road co-drivers simulated and private testing laps calling pace-notes can be substituted.*

If recovery is prolonged beyond 14 days, or there are other concerns about the competitor's recovery, then a formal referral to a neurologist or sports physician with expertise in concussion management should be made.

## References and Resources

1. Consensus Statement on Concussion in Sport – McCrory et al. BJSM Vol 51 (11) - <http://bjsm.bmj.com/content/51/11/838>
2. The Concussion Recognition Tool version 5. BJSM, April 26, 2017. - [https://sportconcussion.com.au/wp-content/uploads/2016/02/Concussion\\_Recognition\\_Tool5.pdf](https://sportconcussion.com.au/wp-content/uploads/2016/02/Concussion_Recognition_Tool5.pdf)
3. SCAT-5 BJSM, April 26, 2017 - <http://bjsm.bmj.com/content/bjsports/early/2017/04/26/bjsports-2017-097506SCAT5.full.pdf>
4. Concussion in motor sport: A medical literature review and engineering perspective. Deakin et al. Journal of Concussion. Oct 6, 2017. - <http://journals.sagepub.com/doi/abs/10.1177/2059700217733916>
5. Podcast 21 - Concussion in Motor Sport - A literature review. Rollcage Medic. Nov 4, 2017 - <https://rollcagemedic.com/podcasts/podcast-21-concussion-in-motor-sport-a-literature-review>
6. Australian Institute of Sport and Australian Medical Association Concussion in Sport Position Statement. Dr Lisa Elkington, Dr Silvia Manzanero and Dr David Hughes. Australian Institute of Sport. Updated November 2017. - <https://concussioninsport.gov.au/position-statement>
7. An update to the AIS–AMA position statement on concussion in sport. Lisa J Elkington, Silvia Manzanero and David C Hughes. Med J Aust 2018; 208 (6): 246-248. - <https://www.mja.com.au/journal/2018/208/6/update-ais-ama-position-statement-concussion-sport>
8. AIS/AMA website on Concussion in Sport - <https://concussioninsport.gov.au/>
9. The Canadian Head CT Rules on MD Calc - <https://www.mdcalc.com/canadian-ct-head-injury-trauma-rule>
10. The Canadian CT Head Rule for patients with minor head injury. Ian G Stiell et al. The Lancet. Volume 357, No. 9266, p1391–1396, 5 May 2001 - <http://www.thelancet.com/pdfs/journals/lancet/PIIS014067360004561X.pdf>
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12. Indications for computed tomography in patients with minor head injury. Haydel MJ1, Preston CA, Mills TJ, Luber S, Blaudeau E, DeBlieux PM. N Engl J Med. 2000 Jul 13;343(2):100-5. - <https://www.ncbi.nlm.nih.gov/pubmed/10891517>
13. Comparison of the Canadian CT Head Rule and the New Orleans Criteria in Patients With Minor Head Injury. Ian G. Stiell et al. JAMA. 2005;294(12):1511-1518 - <https://jamanetwork.com/journals/jama/fullarticle/201596>