

# An update to the AIS–AMA position statement on concussion in sport

The best approach is to take concussion seriously, treat each case carefully and be conservative with return to sport processes

**T**he Australian Institute of Sport (AIS) and Australian Medical Association (AMA) position statement on concussion in sport and its dedicated online platform (<https://www.concussioninsport.gov.au>) were launched in May 2016.<sup>1</sup> The aims were to conduct a comprehensive assessment of the evidence and present it in a format that would be accessible to all stakeholders; and to develop a set of guidelines for concussion management that would suit Australians who sustained a concussion in any sport and any level of participation. However, concussion research and guideline development progresses at a very fast pace, and it has become clear that the project needs to be regularly revised and updated as knowledge of concussion in sport continues to evolve. The gold standard for concussion in sport guidelines is the proceedings of the consensus meeting of the Concussion in Sport Group (CISG), which meets every 4 years to compile and examine the most current evidence. The most recent meeting of the CISG took place in Berlin in October 2016 and the outcomes were released as a consensus statement in April 2017,<sup>2</sup> accompanied by a series of systematic reviews covering many aspects of concussion research and management.<sup>3–7</sup> It was therefore necessary to update the AIS–AMA position statement to incorporate several aspects of concussion detection tools and management guidelines arising from the Berlin consensus. We also incorporated our own analysis of the evidence<sup>8</sup> and discussed the position statement with representatives from several contact and collision sports. The main changes are summarised in Box 1. The updated version of the AIS–AMA position statement in concussion in sport was launched in November 2017 as one of the most current and informed tools currently available in Australia.

The work leading to the Berlin consensus statement resulted in the refinement of the internationally recognised tools made available by the CISG for the recognition or diagnosis of concussion. These tests are endorsed in the AIS–AMA position statement, which recommends that all parties involved in concussion management use the new, updated tools according to their purpose. These are the Concussion Recognition Tool 5th Edition (CRT5),<sup>9,10</sup> the Sports Concussion Assessment Tool 5th Edition (SCAT5)<sup>11</sup> and the Child SCAT5 for children aged 5–12 years.<sup>12,13</sup> The CRT5 replaces the old Pocket Concussion Recognition Tool and is intended for use by any member of the community to recognise the possible signs and symptoms of concussion when encountering a head injury. It is easy to follow and includes red flags, or signs that a head injury may be serious and warrants urgent medical referral. It is worth noting that, in the absence of specific research, the CRT5 update is based on expert panel assessment. The SCAT5

## 1 AIS–AMA position statement on concussion in sport: summary of key changes

| Change  | Reason  |
|---|---|
| Updated recognition tool for non-medically trained individuals: CRT5                                | Expert panel assessment of previous tool versions — no systematic research; alignment with SCAT5 <sup>9,10</sup>                                      |
| Updated diagnostic tools: SCAT5; Child SCAT5*   | Clearer instructions; attempt to minimise ceiling effects; new recommendations <sup>11–13</sup>   |
| New recommendation: 24–48 hour initial period of physical and cognitive rest                        | Evidence does not support that rest beyond this period improves recovery; in children, prolonged rest may prolong symptoms <sup>3,14,15</sup>         |
| New recommendation: light intensity activity beyond initial period until the resolution of symptoms | Consensus statement supports early introduction of symptom-limited physical activity if appropriate, although the evidence is not strong <sup>3</sup> |

CRT5 = Concussion Recognition Tool 5;<sup>9,10</sup> SCAT5 = Sports Concussion Assessment Tool 5.<sup>11</sup> \* For children aged 5–12 years.<sup>12,13</sup> ♦

and Child SCAT5 are intended for use by medical professionals for the diagnosis of concussion and for tracking recovery from symptoms. A systematic review of studies assessing the SCAT3 revealed a ceiling effect in a cognitive test (immediate recall).<sup>7</sup> In an attempt to eliminate this effect, this component was modified in the SCAT5 by increasing the difficulty of the test.<sup>7</sup> It has also been shown that these tools appear to lose utility when used for initial assessment more than 3–5 days after the injury.<sup>2</sup> Some computerised neurocognitive tests are validated for use in concussion although they seem to offer no advantage over the abbreviated cognitive component of the SCAT5.<sup>6</sup> Nevertheless, none of these tools should be used in isolation. They are useful adjuncts to the clinical history and examination.

Despite the amount of research being dedicated worldwide to concussion, no objective tests have yet been deemed suitable for clinical application. There are some promising results with imaging modalities that show the presence of physiological alterations. However, these are currently limited to characterising the pathophysiology of concussion and should not be used as tools for clinical detection or assessment of concussion. Because there is no specific diagnostic test that confirms the presence of concussion, the diagnosis of concussion continues to rely on clinical assessment of symptoms and signs such as those outlined in the SCAT5 tool.

The new CISG consensus statement highlighted the significant advances in concussion evidence achieved in

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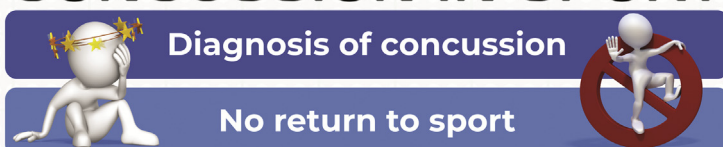
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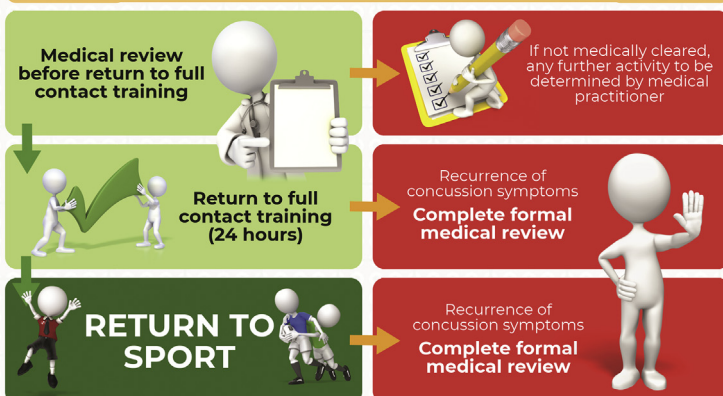
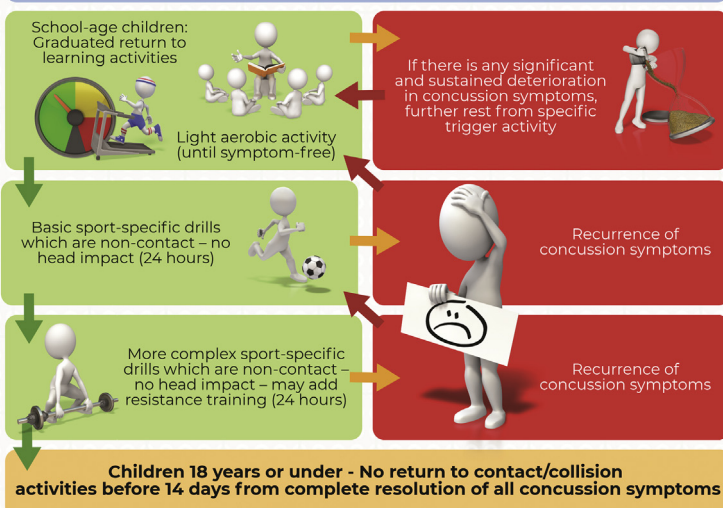
## 2 Updated return to sport protocol

Australian Institute of Sport and Australian Medical Association Position Statement

# CONCUSSION IN SPORT



### Deliberate physical and cognitive rest (24–48 hours)



[www.concussioninsport.gov.au](http://www.concussioninsport.gov.au)

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intensity as a level which does not exacerbate symptoms and recommends that this activity be monitored to ensure that it does not surpass the symptom threshold. The AIS–AMA recommendations have adapted to align with this change. In addition, they describe rest in the acute 24–48-hour period as “deliberate”. This choice of word aims to provide a treatment option that is more realistic and achievable than the previous recommendation of complete rest. These changes overrule the previous imperative against physical activity with symptoms, provided the activity is non-contact and sub-threshold, and is monitored to ensure that it remains so. The updated return to sport protocol has been summarised in an infographic for public dissemination (Box 2).

Another fundamental change in the CISG consensus statement is the estimated average symptomatic period. With changes in management and more detailed studies, the usual symptomatic period in adults has increased from 7–10 days to 10–14 days.<sup>2</sup> The CISG has now also determined that the symptomatic period in children and adolescents aged 18 years and under will not be considered to be “prolonged” unless symptoms persist beyond 4 weeks in this population. This suggests an important change in approach for guideline development — if children and adolescents take longer to recover, then management guidelines should allow longer recovery times. This proposition has not required significant changes to the AIS–AMA position statement because, from its inception, it has recommended longer recovery periods for children and adolescents aged 18 years of age and under (minimum 14 days from the resolution of symptoms) than for adults.

the past 4 years.<sup>2</sup> Previously, consensus opinion recommended complete rest until the resolution of symptoms as the cornerstone of concussion management. However, recent research has been unable to provide evidence to support the use of complete rest in the management of concussion beyond the acute phase following injury.<sup>3,14,15</sup> Three systematic reviews concluded that physical and cognitive rest may only be of use in the acute phase after concussion; however, they all found the evidence to be low level and inconclusive.<sup>3,14,15</sup> One review, focused on children, found that rest beyond the acute period may prolong symptoms.<sup>14</sup> Accordingly, the new consensus supports light intensity physical and cognitive activity beyond the initial 24–48-hour rest period. The CISG defines light

There continues to be concern across the sport sector regarding possible links between sport-related concussion and subsequent development of chronic traumatic encephalopathy. To date, studies investigating such links have had some methodological flaws, including biased recruitment processes.<sup>16,17</sup> Properly designed, prospective, longitudinal studies are required to further explore the proposed causative links. Until more rigorous evidence is available, all individuals involved in the management of concussion need to ensure that athlete safety and welfare remain at the forefront of all concussion management protocols. The best way to

safeguard the immediate and long term health of athletes is to remove any athlete suspected of having concussion, treat each case carefully and be conservative with return to sport processes.

The AIS–AMA position statement on concussion in sport will be regularly updated to reflect contemporary changes in evidence regarding recognition and management of concussion. The accompanying website will provide immediate access for all Australians to information that is evidence-based, current, easy to understand and practically applicable to real-world situations. Accordingly, the website and content are undergoing changes in order to improve the service they provide. The platform is in the process of becoming more dynamic,

accessible and usable, and the content is being updated to ensure that it meets the needs of its users. The AIS and AMA will continue to educate stakeholders, remain current in the developing landscape of concussion research, mitigate the controversy and fear around the potential long term consequences of concussion, and facilitate diagnosis and management in accordance with the most current evidence and expert opinion available.

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