



Inquiry into concussions and repeated head trauma in contact sports

Australian Sports Commission Additional Submission

March 2023

Modifying factors affecting brain health

The Australian Sports Commission (ASC) is very concerned about the role that repeated head trauma may play in affecting the long-term brain health of retired athletes. The ASC is also aware however that only a very small proportion of those who suffer concussion in sport go on to develop long-term issues with brain health. This raises the issue of the other potential modifying factors involved, which have been shown over many years to have detrimental effects on brain health. ASC believes that there is likely a complex interaction between repeated head trauma and these modifying factors, in making certain individuals susceptible to long-term issues with their brain health. The ASC would urge the Senators to consider the role of the following modifying factors in affecting the brain health of retired athletes.

The ASC would also urge that any consideration of the long-term brain health of retired athletes needs to include all potential factors which may impact brain health, not just the role of repeated head trauma in isolation. Likewise, any recommendations or interventions should be holistic in nature. That is, all of the factors that can impact brain health should be addressed, not only an exposure to head trauma. The ASC wishes to make clear it strongly supports measures which reduce exposure to head trauma in sport.

A list of modifying factors affecting brain health, with references, is provided below:

- Alcohol misuse
 - [https://www.thelancet.com/article/S0140-6736\(20\)30367-6/fulltext](https://www.thelancet.com/article/S0140-6736(20)30367-6/fulltext)
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9573267/#:~:text=Executive%20dysfunction%20is%20also%20linked,EF%2C%20are%20related%20to%20AUD.>
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9546078/>
- Recreational drug use
 - <https://www.dementia.org.au/sites/default/files/NATIONAL/documents/harmful-substance-use-and-the-brain-info.pdf>
- Education exposure
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3970779/>
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6628596/>
- Genetic factors / family history
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9268772/>
 - <https://qbi.uq.edu.au/brain/dementia/genetic-risk-factors-dementia>
- Past history of mental illness
 - <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2789298>



Additional information on topics raised during the ASC's appearance before the Senate Inquiry

1. The perceived relation between the ASC Concussion and Brain Health Position Statement (CBHPS23) and the Consensus statement on concussion in sport from the 5th international conference on concussion in sport held in Berlin, October 2016 (Berlin consensus statement):

The ASC CBHPS23 is significantly different from the Berlin consensus statement. When comparing against the Berlin consensus statement, the ASC CBHPS23:

- Has significantly different return to play timelines for adults, adolescents and children
 - Has very distinct and separate return to play processes in adults, compared to adolescents/children
 - Has a significantly different process to support a return to sport following concussion
 - Provides a single, collated source for the Australian sporting organisations' concussion guidelines and other supporting resources
 - Includes a section on concussion research priorities
 - Is housed on the www.concussioninsport.gov.au website, where additional dedicated resources are also available to athletes, parents and teachers, coaches and support staff and medical practitioners
 - Recommends that sports operate on a principle of an 'abundance of caution', and 'If in doubt, sit them out'. Where there is any suspicion of concussion, an athlete should be removed from the field of play and should not be allowed to return, until cleared by a medical practitioner
 - Acknowledges the link between Chronic Traumatic Encephalopathy (CTE) and repeated head trauma
 - Contains dedicated sections on concussion epidemiology in high performance sports, para sports, recreational sport and youth sport, sex difference in concussion, economic impact of concussion, the role of the physiotherapy in concussion management, interdisciplinary care for athletes with concussion, vestibular oculomotor system rehabilitation, vestibular and oculomotor impairments, emerging tools for concussion diagnosis, concussion and long-term brain health
 - Includes a dedicated section of questions to be answered to provide greater understanding of concussion and long-term brain health.
2. The \$340,000 funding provided by the Department of Health and Aged Care to the ASC for the Concussion and Brain Health project (2021-2024):
 - This project comprises an update to the 2019 *Concussion in Sport Australia Position Statement* with the latest scientific evidence to reflect current national and international best practice, and to contribute to the *Former Elite Level Athlete Brain Health Research Program* by undertaking the recruitment of a comparison group of former Australian able-bodied Olympians from non-contact, collision, or combat sports.
 - Only a portion of this funding was allocated to update the position statement. The ASC used its own resources to develop the position statement and most of the money allocated for the position statement is being spent on developing online audio-visual resources to improve the user interface and support implementation of these evidence-based guidelines.
 - Most of the funding is allocated for the addition of a control arm to the *Former Elite Level Athlete Brain Health Research Program*. This research program is a prospective, longitudinal clinicopathological study, established in 2012, studying the brain health of retired contact sport athletes in Australia. It will be greatly strengthened by having a control group that has not been exposed to repeated head trauma and the funding will be used for the addition of this control group. The control group is being drawn mainly from the sports of rowing, swimming and athletics. The control group will undergo psychological testing, cognitive testing, somatosensory assessments and multimodal experimental brain imaging.
 3. The prevalence of dementia in ex-footballers within aged care facilities:
 - According to the Australian Institute of Health and Welfare, in 2019–20 over half of both women (54% or nearly 85,700) and men (54% or over 46,200) living in permanent residential aged care had dementia. Few of the females in this age group would have played contact or collision sport, and many of the men would have played contact or collision sport. These dementia rates do not support the notion that dementia seen in nursing homes can be attributed to participation in contact or collision sports.



Responses to statements regarding the ASC from Submissions to the Inquiry

Concussion Australia (CA) submission

CA statement (1): “This is made more difficult because the Concussion in Sport Australia Position Statement has medically incorrect material in it while simultaneously being positioned as the pinnacle guideline to follow.”

ASC response: The Concussion in Sport Australia Position Statement was published in 2019, and developed in collaboration with Sports Medicine Australia (SMA), Australian Medical Association (AMA) and the Australasian College of Sport and Exercise Positions (ACSEP), and was supported by over 50 sporting organisations. The ASC rejects the assertion that the position statement included incorrect material. Research into concussions in sport is continually developing, and the updated 2023 position statement reflects the current information and medical advice available.

CA statement (2): “The Concussion in Sport Australia Position Statement notes something similar, concluding on the first page of content (p.5) that “it [concussion] causes short lived neurological impairment”. It is well known that concussion does not always cause “short lived” impairment.”

ASC response: The ASC agrees that concussion does not always cause short lived impairment, and the ASC position statement did not imply otherwise. In the vast majority of cases, concussion causes short lived neurological impairment which resolves spontaneously, with or without medical intervention. Recovery usually occurs over 10 – 14 days in adults and over 4 weeks in adolescents and children. In the minority of cases where longer impairment occurs, more detailed investigations and assessments are required.

CA statement (3): “Recommendation: Concussion Australia recommends a uniform set of guidelines be developed by independent medical practitioners at a concussion in sport conference for use in all Australian sports, funded by the Australian Government.”

ASC response: The ASC is the Australian Government agency responsible for supporting and investing in sport at all levels, and plays a key role in the provision of information, advice and support for Australian sport related matters, including sport-related concussion. The ASC Concussion and Brain Health Position statement is available on the ASC’s website to provide information and guidance for all sports, based on the latest medical advice. The ASC provides advice, but does not instruct sport with regard to their policies. The ASC position statement has made significant progress in supporting sports to have a consistent approach to the diagnosis and management of concussion.

Dr Rowena Mobbs submission

Dr Mobbs statement (1): “Given that the results of large-scale retrospective studies and guidelines on CTE monitoring and management will likely take 5-10 years, and longer for prospective studies, I recommend that the interim position of the sports be more conservative and that they immediately enter a phase of harm minimisation on CTE.”

ASC response: The ASC advises an approach of harm minimisation. Where there is any doubt about the possibility of a concussion, the athlete should be removed and not be allowed to return until cleared to do so by a medical practitioner. Each case of concussion should be managed as if there is a risk of long-term consequences, regardless of the size of that risk.

Dr Mobbs statement (2): “Recommendation: Implement a public register of suspected and confirmed player concussions.”

ASC response: The Australian Institute of Health and Welfare (AIHW) is currently working with the ASC in developing a national injury reporting database. The Australian Government has allocated \$2.8 million over 4 years (2022-2026) to this project as part of the 2022-23 Federal Budget. Whilst this project does not solely focus on concussion reporting, it is included within the project purview.

