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WHY THE AUSTRALIAN COMMONWEALTH GOVERNMENT HAS A CENTRAL ROLE IN ADDRESSING CONCUSSION CONCERNS IN AUSTRALIAN SPORT

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The neurological sequelae of repetitive head impacts (RHIs) in Australian sport has come under intense public scrutiny. Class action litigation against the Australian Football League (AFL) is shaping up to be a 'battle of the experts' and could examine long term neurodegenerative disease. The Australian Parliamentary Inquiry into Concussions and Repeated Head Trauma in Contact Sports has conducted public hearings, due to report its recommendations in August 2023. As a high-profile public health concern, we strongly support a central role for the Australian Commonwealth Government to engage its agencies representing public health, sport and education towards a national approach.

1 INTRODUCTION

The sequelae of repeated mild traumatic brain injuries (mTBI) due to repetitive head impacts (RHIs) in professional and amateur Australian sport are firmly in the public spotlight (Fitzgerald & Cowen, 2020; Buckland *et al.*, 2019; Pearce *et al.*, 2020). With a growing list of retired football players and their families publicly sharing their lived experience with cognitive decline and neurological disease, the issue justifiably deserves priority as a high-profile public health concern in Australia. Legal action filed against the Australian Football League (AFL) is shaping up to be a 'battle of the experts', with class action launched, and will likely draw into sharp contrast the state of scientific understanding at relevant times if matters proceed to trial.

While some within the Australian research community debate the methodological variations of existing research in establishing the degree of association between exposure to concussive injuries and RHIs and longer-term neurological disease, the United States National Institutes of Health (NIH) have recently declared a causal relationship (NIH Chronic Traumatic Encephalopathy Diagnosis Conference, 2015).

In Australia, we consider that time is of the essence, with several decades of missed opportunities already unaccounted to develop a centralised and consistent

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Australian approach. Indeed, we propose that the Australian Commonwealth Government (ACG) be the driving force in developing a whole sport strategy by adopting a player-centred precautionary-based response to addressing this Australian public health concern.

2 THE EARLY ROLE OF THE NHMRC AND PRECAUTIONARY-BASED CONCERNS

Concerns about the harm associated with concussion in sport are not new in Australia. In 1994, the government-funded public health and research agency, the National Health and Medical Research Council (NHMRC), Football Head and Neck Injury Committee Report (NHMRC Football Report, 1994), contained 22 recommendations, which subsequently informed the development of the Football Head and Neck Guidelines for prevention and management in 1995 (NHMRC Football Guidelines, 1995). The NHMRC rescinded both publications in May 2004. However, we consider that the NHMRC 1994 Football Report remains a reliable record of the state of scientific understanding at the time and evidence of precautionary-based recommendations to address concussion concerns.

The NHMRC 1994 Football Report reflected a cautionary undertone for mTBI policy, recommending that 'since concussion is so important, it is recommended that this be targeted for prospective research using uniform data coding' (xiii; Recommendation 2(c)). The NHMRC 1994 Football Report recommended that Australian football, rugby league, rugby union and association football (soccer) administrators address management and administrative arrangements, centralised data collection, equipment and research and education. Significantly, the Report recommended that:

'Illegal play, especially above the line of the shoulder, is a major contributor to head and neck injury and should be severely punished'. (xiii; Recommendation 1 (d))

'Common guidelines for concussion should be adopted by all codes' (xiii; Recommendation 1 (i))

'...reporting or notification of injury should be the responsibility of each individual code of football.' (xiii; Recommendation 2 (b))

'...the administrators of each code should be encouraged to direct additional funds towards safety measures and the care of injured players' (viii; Recommendation 4 (f))'

The NHMRC 1994 Football Report recommendations were low cost, reasonable and proportionate, especially when considering the NHMRC Committee concern that 'the management and recognition of concussion are very important' (NHMRC Football Report, 1994, p. 3). The recommendations were uncontroversial and precautionary based reflecting the need for the football codes to engage in active social foresight despite the scientific uncertainty that

existed at the time. Further, the recommendations identified an opportunity for collaborative governance, reflecting the role of both state and non-state actors in tackling this emerging public health problem.

3 A MISSED OPPORTUNITY

Based on publicly available material, the 1994 NHMRC Football Report recommendations appear not to have been adopted by the sports organisations. Across the next several decades significant gaps appear in the timeline, and it is difficult to find evidence explaining whether football administrators implemented NHMRC recommendations correctly.

The autonomy and self-regulation of the football codes meant that the codes unilaterally and variably determined the priority or otherwise of the neurological injury risk within their sports. Significantly, this created a fragmented, inconsistent, and ad hoc approach with variable levels of investment in independent scientific research on which to build their protocols.

Despite the early indications that the NHMRC would play a central and important role in this area, the NHMRC has not convened any follow up Football Head and Neck Injury Committees (NHMRC 154th Session, 2004). On reflection, the NHMRC decision to step away from this issue in 2004 combined with the football administrators' self-regulatory and autonomous approach to regulating concussion, may have contributed to gaps in the timeline in developing a nationally consistent approach to addressing concussion and exposure to RHIs in Australian sport.

4 THE IMPORTANCE OF FRAMING AS A PUBLIC HEALTH CONCERN

In several jurisdictions where governments have actively addressed the harm associated with concussion and exposure to repeated head trauma, the problem has been framed as a public health concern and not solely a sporting concern. To illustrate this, the leading agency for the United States Department of Health and Human Services, the National Institutes of Health (NIH), is actively engaged in investment in TBI research, has developed a Sports & Health Research program, and set future research agendas identifying gaps in knowledge and targeted areas (Mott & Koroshetz, 2016). Further, the NIH has taken a lead role in recognising the causal nature of sustained mTBI in association with a neurodegenerative disease confirmed at autopsy called chronic traumatic encephalopathy (CTE) (NIH Chronic Traumatic Encephalopathy Diagnosis Conference, 2015).

Based on the NIH research, the risk of harm from mTBI extends across an acute, subacute and chronic traumatic brain injury spectrum, with single concussion (Fitzgerald & Cowen, 2020; Daneshvar et al., 2011; Breck et al., 2019), postconcussive disorders (Schwedt, 2020; Long, 2018; Bey & Ostick,

2009; Broshek, De Marco & Freeman, 2015; Carroll et al., 2020) and CTE (Buckland et al., 2019; Pearce et al., 2020; Suter et al., 2022) respectively. According to research from the United States, traumatic encephalopathy syndrome (TES) refers to the in-life clinical correlate to CTE, and research criteria classify patients into suspected, possible, probable CTE with confirmed reserved for neuropathological confirmation (Katz et al., 2021).

CTE is a slowly progressive, occult tauopathy first identified in boxers in 1928 by Dr Harrison Martland (Changa, et al., 2018). In the United States, the literature was restricted to case reports or small case series until a retired US National Football League player in 2005 (Omalu *et al.*, 2005). CTE came to prominence following the 2014 NFL class-action settlement of US 765 million on behalf of more than 4,500 former players (Legg, 2015). Comparisons to tobacco and asbestos risk for their harmful, cumulative and delayed nature have been repeatedly made in the public arena, including a US Congressional Hearing 2009/10, (House of Representatives, 2009/10) with one public health campaign termed Tackle Can Wait presenting imagery of children smoking during the half-time break of a game in a bid to advocate for a 'no tackle' policy in American football before age 14 (Concussion Legacy Foundation, 2022).

5 THE ROLE OF SPORT

For decades, governments have observed from the sidelines as the sport's governing bodies have unilaterally determined protocols for managing and addressing concussion injuries, entrusting the sport's employees, contractors and agents to tackle the problem. For generations, the ability of a 'heroic' player to push through concussion was thought a common, if not appealing, spectacle of contact and collision sports. This may have been amplified in top-level professional sports, where the viewing audience could see the most forceful impacts.

We acknowledge the legitimacy and authority of sport's governing bodies as guardians of their sport with the expectation of scientific rigour when private actors self-regulate public health concerns. Recently, the academic integrity of the AFL's former lead researcher on concussion, Professor Paul McCrory, has been called into question with allegations of plagiarism and journal retractions (Dresner, et al., 2022). Professor McCrory's research significantly contributed to developing sports policies that addressed injury management, prevention, education, and return-to-play protocols. Helgesson and Eriksson (2015) conceptualise the impact of plagiarism claims as distorting the acquisition of scientific credit and undermining research integrity. Academic integrity is the cornerstone of trust in academic scholarship and scientific endeavours, and especially so when operating within voluntary and autonomous self-regulated systems.

6 THE 2023 PARLIAMENTARY INQUIRY

The Australian Parliamentary Inquiry into Concussions and Repeated Head Trauma in Contact Sports has conducted public hearings, due to report its recommendations in August 2023. The NHMRC Submission to the Parliamentary Inquiry includes some historical background on the role of the NHMRC but does not shed light on what happened across the 10 years from 1994 until May 2004 when the Football Guidelines were rescinded (NHMRC, 2023a). The NHMRC Submission notes NHMRC investment in significant research funding for sport-related concussion from 2004.

The next significant event in the timeline is 2016 when the Australian Institute of Sport (AIS) in conjunction with the Australian Medical Association (AMA) issued the joint Concussion in Sport Position Statement (Elkington and Hughes, 2017). An updated version with other stakeholders was published in 2019 (Elkington et al., 2018). In 2023, the AIS published the latest version, now known as the 2023 Concussion and Brain Health Position Statement (Australian Institute of Sport 'Concussion and Brain Health Position Statement, 2023)

7 CRITICALLY IMPORTANT NEXT STEPS

Public health and regulatory scholarship support the view that non-state actors are ill-equipped to regulate high-priority public health concerns under a self-regulated system (Black, 2001; Gostin, 2008). The gaps in the Australian timeline support this proposition. In our view, there is no time to waste in developing a collaborative governance approach, with the ACG playing a lead and central role with sport administrators in setting the future concussion and RHI agenda.

With the Australian Parliamentary Inquiry on Concussion in Sport, an opportunity exists for the government to play a key and leading role in directing the future direction of sport brain health policies for the benefit of all Australians. We strongly support robust recommendations regarding the perceptions, actions and monitoring of concussive-related disorders, particularly mitigating CTE risk in sports. The Australian Parliamentary committee's recommendations should represent the wide range of stakeholders directly and indirectly impacted by the serious and long-lasting harm of mismanaging exposure to RHIs.

The significance of the long-term harm to brain health in sport presents a serious and urgent risk of harm that deserves a more proactive and targeted government response. The Australian Parliamentary Inquiry is an ideal modifier for tighter regulation and improved athlete safety, entering a new era of shared governance to reduce and manage concussion in Australian sport.

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