



Editorial



CTE the New News Story

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Over recent years there has been an increasing fear linked to our traditionally favourite sports. Concussion has long been recognised as a risk of contact sport but for many of us it was identified as something that occurred only in elite sport and was recovered from quickly. A stumble, a few stars, a second or two of disorientation, a quick shake of the head and rub of the eyes and (unless unconscious) players simply played on. Head knocks, collisions and concussion were once considered part of Australian sports such as AFL in particular. However in recent years there has been a complete turnaround in our approach and treatment of concussion (Malcolm, 2019). Now through research and recognition, we are fully aware of concussion and best practice in managing head trauma in sport across all codes and age groups. In recent years there has been a significant amount of interest in the long-term health effects of concussion (Carson, 2017), namely chronic traumatic encephalopathy (CTE). There has been no quiet circulation of information related to CTE within scientific circles. Rather, the media has taken hold of what has become a hot topic of debate and is heading the charge to spread the word about CTE; but is it all that it seems?

CTE is a devastating form of dementia associated with individuals who have experienced

multiple concussions within the context of participating in contact sport. When an individual experiences a concussion, neurons can be stretched and damaged and the chemistry of the brain is altered. Physics dictates that when forces are applied to the head the brain will move within the rigid limits of the skull, resulting in temporary or permanent damage. CTE can take decades to appear after a last concussion and presents with a dementia like illness. However, when compared with other dementia like illnesses, CTE is associated with an increased prevalence of mental illness including depression and impulsivity with some impacted athletes reported as taking their own lives. Like other neurodegenerative diseases there is no cure for CTE and it can only be diagnosed post mortem, with both macroscopic and microscopic changes noted in the brain tissues. Tau proteins are noted and described as similar to Alzheimer's disease presentations. Tau proteins are believed to be dislodged from brain fibres at the time of a brain injury and accumulate together in the brain interrupting critical information flow.

One sentence stands out in Vicki's guest editorial 'how many knocks can one afford?' It is the million-dollar question and despite a growing recognition of the potential long-lasting effects of concussion, there are perhaps still more questions than answers. One of the major challenges with researching and treating concussion is that the symptoms can be varied and often do not correlate with the perceived severity of the injury. What we do know is that the days, weeks and potentially months following a concussion are a fragile time where the brain is susceptible to

further damage if a secondary injury occurs, resulting in second impact syndrome. It is a history of these repeated injuries that have been more strongly linked to CTE. There is no denial that there is a link between repeated head trauma and the potential to later develop CTE, but there is so much that we don't understand and too many variables to make direct, causal links.

It is important that sporting organizations continue to recognise the risks of concussion and that they have policies and protocols in place to protect athletes of all ages and across all levels of sport. Of these perhaps the most vital is the removal of an athlete from play at any suspicion of concussion and limiting their return until they can demonstrate recovery. Most contact sporting codes now have clauses that relate to the management of concussion, including restrictions to the return to play (Malcolm, 2021). As well as this duty of care to players, education is equally as important and athletes, coaches and parents alike need to know the signs and symptoms of concussion. Until we fully understand the potential risks of CTE we need to take all reasonable precautions to protect athletes. Unfortunately, this is where some sporting codes have let their players down, with a lack of transparency about the evidence informing their concussion policies as well as unenforced recovery periods following a concussion, and a lack of risk disclosure.

Concussion is not the singular cause of CTE, but a cumulative exposure to traumatic brain injury has been identified as a potential predictor of CTE. What is important to recognise is that concussions do not have to be symptomatic or severe to cause brain damage and damage can occur from even mild concus-

sions. The biggest challenge is that we don't have solid and sound longitudinal studies. It can take decades for individuals to display symptoms of CTE and by this stage their episodes of concussion are lost to history. The current battle we face is differing agendas and friction within the scientific community. This is compounded by the media sensationalising CTE, and some have said blowing it out of proportion. In contrast many sporting codes have downplayed the risk of CTE and denied the links between concussion and CTE. The media have taken on the small studies and individual case studies and with headings such as '... over 90% of former players showed signs of CTE' it is no wonder that the public are misled and think that nine out of ten players will get CTE. The truth is far different, with 90% of examined brains from a select group of symptomatic individuals showing evidence of CTE.

There is no denying that CTE is real and needs to be taken seriously in both professional and amateur sports. However, it needs to be recognised that of all the people that play contact sport, just a small proportion of people will develop CTE. This fact presents the question of what other factors influence the development of CTE. Discussion needs to take place, and this starts with addressing the issue of concussion. Ongoing and open discussion is essential to achieving change. As nurses we need to read and study beyond the one-sided, biased and sensationalised media reports. Each and every published work needs to be critically assessed for its validity, cherry-picked results and potential self-selected cohorts. It's not to say that a causal link between concussion and CTE won't ever be established; we just need more long-term data.

What is important is that CTE is real and there is some association with contact sport and concussion, but we still need more studies to understand who is at risk and why they are at risk. We need further studies to inform practices and interventions related to concussion and with the knowledge we have, we need to treat all concussions as serious events and reduce the risk of repeat concussion and second impact syndrome.

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