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Concussion Legacy Foundation

Committee Secretary  
Concussions and Repeated Head Trauma in Contact Sports  
Senate Standing Committees on Community Affairs  
PO Box 6100  
Parliament House  
Canberra ACT 2600

Dear Members of the Committee,

Thank you for the invitation to respond to the Senate Inquiry on Concussions and Repeated Head Trauma in Contact Sports. My name is Dr. Chris Nowinski, and I am the co-founder and CEO of the Concussion Legacy Foundation (CLF), a charity founded in 2007 in the United States. We work alongside our global partners the Concussion Legacy Foundation Australia, Concussion Legacy Foundation United Kingdom, and Concussion Legacy Foundation Canada. I am also a co-founder of the UNITE Brain Bank at the Boston University CTE Center, and the Concussion Legacy Foundation helped found the Australia Sports Brain Bank in 2018. My Ph.D. is in behavioral neuroscience from Boston University School of Medicine.

This issue is very personal to me. I am a former American football player at Harvard University and WWE professional wrestler whose career was ended 20 years ago by unreported and mismanaged concussions that resulted in 15 years of headaches and other symptoms that appear permanent. In 2022, I lost my friend Chris Eitzmann, the captain of our 1999 Harvard team and a former roommate, to the worst case of alcoholism I have ever seen. Boston University CTE Center scientists diagnosed him with stage 2 CTE, and I suspect the progression of his brain disease and alcoholism are linked. Consider he and I played the same number of years of contact sports, I suspect I may also have CTE, although I retain hope for many more decades of healthy living. I am eager to share the following comments below.

#### Terms of Reference

- a. the guidelines and practices contact sports associations and clubs follow in cases of player concussions and repeated head trauma, including practices undermining recovery periods and potential risk disclosure;***



Sports organizations, as well as the government, should disclose the risks of repeated head trauma. I worked with thirteen co-authors, including four Australian scientists, to review the evidence that repeated head impacts cause the neurodegenerative disease Chronic Traumatic Encephalopathy (CTE) in [Applying the Bradford Hill Criteria to Repetitive Head Impacts and Chronic Traumatic Encephalopathy](#), published in 2022 in *Frontiers in Neurology*. After reviewing the evidence through this widely utilized framework created by one of the scientists who first identified a causal link between smoking and lung cancer, we wrote:

*“We have the highest confidence in the conclusion that RHI causes CTE. We encourage the medical, scientific and public health communities to now act under the premise of a causal relationship and take immediate action to prevent CTE, minimize risk, and develop therapeutics to slow or stop disease progression.”*

We then sent the review, along with a [letter cosigned by 40 of the world’s experts](#), to the U.S. National Institutes of Health, requesting that they recognize the causal link in their public statements. They have since [updated their public statement on CTE](#) to, “CTE is a delayed neurodegenerative disorder that was initially identified in postmortem brains and, research-to-date suggests, is caused in part by repeated traumatic brain injuries.” The [U.S. CDC](#) uses similar language.

All athletes in contact sports, as well as the parents of children in contact sports, should have this potential risk disclosed to them before participation. It should also be disclosed each year of participation after the initial year, as an athlete’s understanding of CTE and long-term risks will increase with education and neurological development.

***b. the long-term impacts of concussions and repeated head trauma, including but not limited to mental, physical, social and professional impacts;***

Besides CTE, long-term participation in contact sports are associated with an increased risk of [dementia](#), [motor neuron disease](#), and [Lewy-body disease](#).

***c. the liability of contact sports associations and clubs for long-term impacts of player concussions and repeated head trauma;***

I support making sports organizations liable for the long-term neurological care of former athletes if they are withholding information or misleading athletes on the long-term risks of repeated head impacts or concussions. The evidence suggests CTE is environmentally caused, meaning no athletes will get CTE if they are not exposed to repetitive head impacts. Sports organizations benefit and profit from the risks taken by athletes, but the costs are borne solely by the athletes, the insurance industry, or government. Under this model, we should not be surprised that they are slow to change to minimize the risks of concussions and CTE.



***d. the role of sports associations and clubs in the debate around concussion and repeated head trauma, including in financing research;***

As outlined in this [2022 New York Times article](#), with a handful of notable exceptions, the global sports community has played a Big Tobacco-like role in downplaying the risks of repeated head impacts and the link between their sports and CTE. That includes funding the dwindling number of doctors still willing to that cause and effect between head impacts and CTE has not been “established”. As this [2023 New Yorker](#) article shows, the link between head impacts and dementia was not questioned in modern medicine until it began to be seen in professional athletes.

***e. alternative approaches to concussions and repeated head trauma in contact sport, and awareness raising about its risks;***

Most concussions in sports are never reported to a medical professional. Researchers often cite a lack of education on the risks of concussions, and the benefits of early reporting, as a driver of this behaviour. We all encourage concussion education for athletes.

Educating athletes on the risks of concussion and trying to convince them to report when a concussion has occurred, is a laudable goal. However, while concussion education programs have been shown to increase knowledge of signs and symptoms of concussion, there are currently no concussion education programs that has been shown to [reliably change reporting behaviour in any age group](#). It is unclear if any concussion education programs solely focused on increasing self-reporting will ever succeed, considering:

1. The youngest children lack the cognitive development to self-diagnose a brain injury, especially when their brain is injured.
2. Middle and high school students are subject to enormous peer pressure to continue to play. Their stage of brain development makes them less adept at embracing the delayed gratification of missing a game to ensure later life brain health.
3. College and professional athletes are the most aware that self-reporting a concussion can cause them their position or salary. By this time, their sport may be their primary identity or career, further increasing the costs of reporting.

Recognizing the limits of self-reporting, the Concussion Legacy Foundation developed [Team Up Against Concussions](#), a program that asks coaches and captains to give a speech to the team before each season about looking out for teammates with a concussion. The speech leverages the bystander intervention model to deliver a simple message to the team: a teammate with a concussion needs your help and should receive immediate medical attention. We encourage dissemination of this message in any concussion education program.

***f. international experiences in modifying sports for children;***

In September, the Concussion Legacy Foundation launched [Stop Hitting Kids in the Head](#),



which aims to eliminate repetitive head impacts in sports prior to age 14. We successfully lobbied U.S. Soccer to create an [age minimum for heading](#) in 2015, which was placed at age 11. The [Football Association](#) in England will ban heading prior to 12. In response to concussion risks, [USA](#) Hockey raised the age of checking from 11 to 13. Age minimums for activities that increase the risk of concussions and CTE, including tackling in rugby, are the most effective tool in our arsenal to minimize the neurological risks to athletes.

Please contact me at the email below if you would you like to discuss this matter further.

Sincerely,

Chris Nowinski, Ph.D.  
Co-founder & CEO, Concussion Legacy Foundation