



REPERCUSSION GROUP

Endorsing members

Presented in alphabetical order: by Stephen T. Casper,* Paul Chazot,* Amanda Ellison,* Judith Gates,* Irene R. Gottlieb,* Conor Gormally,* Malayka Gormally,* Karen Hind,* Patria Hume,* Elizabeth Sandel,* Alice Theadom,* Sally Tucker*

*Indicates authors. All authors contributed equally.

Consensus on Concussion in Sport 2022

Members of the [Repercussion Group](#) have submitted this White Paper to the 6th International Consensus Conference on Concussion in Sport.

For several years the **Repercussion Group** has brought together researchers, clinicians, caregivers, and advocates from across the world in dialogue to discuss the immediate and long-term effects of repeated head impacts in sport at all levels. Among us are individuals caring for someone with impact-related neurodegenerative disease. Others have unresolved post-concussion symptoms years after a concussion or concussions. Many of us know individuals who are suffering from dementia after playing contact and collision sports, including some affected before age 50. Several of our members live with the repercussions of these injuries as we await the consensus authors to catch up after over two decades with the lived consequences of repetitive head impacts.

The **Repercussion Group** expresses concern that patient, caregiver, researcher, and provider knowledge like ours remains excluded from a consensus process that has yielded five previous consensus positions on the definition, diagnosis, management, and treatment of concussive injuries. We submit that the consensus process since its inception in 2001 has historically downplayed the detrimental effects of repetitive head impacts in sports. Further, although the

consensus panel authors previously acknowledge that there are individual differences in recoveries, the focus has been on return-to-sport and return-to-school – without due consideration of retirement from sport. There has been essentially no substantive discussion of the management of multiple concussions, persistent postconcussive symptoms, and exposure to overall head impact, including criteria to aid clinicians and patients regarding decisions about retirement from sport. The increased neuropathological load of multiple concussions and repetitive subconcussive impacts that can lead to both chronic symptoms in the short-term and neurodegenerative diseases in the longer term have not received adequate attention during the consensus process.

As a document that shapes how healthcare providers across the globe act, the consensus document has unfortunately promoted a ‘wait and see’ approach to the risks of long-term symptoms and neurodegenerative diseases, even as authorities describe mounting evidence that the relationship is causal under the Bradford Hill Criteria.⁽¹⁾ Consensus makers have an ethical duty of care to mitigate further preventable harm to others and to provide the most up-to-date guidelines based on available evidence.

“Our understanding of the prevention, detection, management and potential longer-term effects of concussions in sport have evolved rapidly over the last 20 years.”

~Schneider KJ, Patricios J, Echemendia RJ, *et al* Concussion in sport: the consensus process continues *British Journal of Sports Medicine* Published Online First: 06 May 2022.

This, in short, is why we are called the **Repercussion Group**. We are interested in the repercussion of years of failures to warn, to act, to be forthright, to accept that sometimes scientists and clinicians must make decisions and provide advice with imperfect evidence that points towards inconvenient truths. It is our duty to ensure that decision-making around acceptable risks to athletes rises to meet the ethical standards expected of the medical profession. These decisions, including those made in the consensus process, must be informed by an understanding of their gravity with regard to the health of millions of individuals who play sport at all levels; to remember the overarching principle: above all, do no harm.

We recognize that this is not merely a clinical issue for clinicians to debate; science, social science, and medical humanities (with respect to experiential factors) all have a place. We recognize that only through a holistic understanding of the repercussions and the steps that can be taken to ameliorate them (both at the source of injury and ensuing treatment) will we effect meaningful change. We recognize that conflicts of interest can be a significant ethical concern.

Recommendations

Attendees, delegates, and authors at the 2022 Concussion in Sport Conference should:

- Provide guidelines that are patient-first not sport-first and translate the statement into multiple languages so the international community has access to the guidelines.
- Provide rigorous trans-disciplinary evaluation of all the evidence with open debate on the contentious issues and clear documentation of the consensus development process.
- Include patients and caregivers in the consensus development process.
- Declare all conflicts of interest from the outset and explain how they will be managed.
- Clearly articulate the management of multiple concussions and persistent postconcussive symptoms with respect to developing criteria to aid clinicians and athletes regarding decisions about retirement from sport.
- Clearly articulate to all stakeholders available evidence for any relationship for a causal link between repetitive head impacts and remote neurodegenerative disease which is thus a repercussion.
- Clearly warn that failure to mitigate repetitive head impact exposures could have repercussions.
- Clearly articulate guidance to sports organizations about safeguards for mitigating repetitive head impact exposure in practice and games.
- Identify and respond constructively to the suggestions offered in: Casper ST, Bachynski KE, Buckland ME, Comrie D, Gandy S, Gates J, Goldberg DS, Henne K, Hind K, Morrison D, Ortega F, Pearce AJ, Philpott-Jones S, Sandel E, Tatos T, Tucker S, Finkel AM. "Toward Complete, Candid, and Unbiased International Consensus Statements on Concussion." in *Sport. J Law Med Ethics*. 2021;49 (3):372-377.
- Identify and respond constructively to the analysis of the evidence by Nowinski, Christopher J., Samantha C. Bureau, Michael E. Buckland, Maurice Curtis, Dan Daneshvar, Richard LM Faull, Lea T. Grinberg et al. "Applying the Bradford Hill Criteria for Causation to Repetitive Head Impacts and Chronic Traumatic Encephalopathy." *Frontiers in Neurology*: (2022), 1489.

(1) Nowinski, Christopher J., Samantha C. Bureau, Michael E. Buckland, Maurice Curtis, Dan Daneshvar, Richard LM Faull, Lea T. Grinberg et al. "Applying the Bradford Hill Criteria for Causation to Repetitive Head Impacts and Chronic Traumatic Encephalopathy." *Frontiers in Neurology*: 1489.