

Researchers find shoulder pad foam layer plays role in fewer concussions

April 3 2017



SFU researcher Steve Robinovitch is studying shoulder to head contact in hockey. Credit: SFU

Simon Fraser University researchers have found that a simple modification to hockey players' shoulder pads could have an impact on

shoulder-to-head contact, the most common cause of concussions in ice hockey.

While shoulder pads are designed to protect players, most are designed with rigid plastic caps that may cause players to deliver checks that are more likely to cause concussions. Researchers, led by SFU professor Steve Robinovitch, tested the addition of an outer layer of soft foam over the shoulder cap to see if it would reduce the severity of shoulder-to-head impacts.

Researchers tested their hypothesis by having collegiate-level hockey players deliver "comfortably hard" checks to the head of an instrumented body-checking dummy, while wearing baseline and modified shoulder pads.

They found that a 2 cm-thick layer of foam over the shoulder cap resulted in a 25 per cent reduction in the peak linear acceleration of the head, and a 12 per cent reduction in peak rotational velocity.

Their findings, recently published in the journal *Medicine and Science in Sport and Exercise*, lend support for modifications to shoulder pads to protect the brain health of hockey players.

Why it matters

- Shoulder-to-head contact, the most common cause of ice hockey concussions in ice hockey, accounts for 42 per cent of cases in the National Hockey League.
- In the SFU study, the integration of foam padding on top of the plastic caps of [shoulder](#) pads reduced impact severity to the head and warrants further examination as a method for contributing to the prevention of brain injuries in ice [hockey](#).

More information: SHANE VIRANI et al. The Effect of Shoulder Pad Design on Head Impact Severity during Checking, *Medicine & Science in Sports & Exercise* (2017). [DOI: 10.1249/MSS.0000000000001136](https://doi.org/10.1249/MSS.0000000000001136)

Provided by Simon Fraser University

Citation: Researchers find shoulder pad foam layer plays role in fewer concussions (2017, April 3) retrieved 26 April 2024 from <https://medicalxpress.com/news/2017-04-shoulder-pad-foam-layer-role.html>

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