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Poster #: 8

Abstract Title: The role of perceptual-cognitive skills in the prevention of repeated head impacts in hockey: a pilot study

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ABSTRACT:

Abstract Theme: Mild TBI / Concussion

Topic(s) of Interest: Applied Research,

Purpose of Project: With the purpose of exploring and establishing feasibility and pertinence of a wider scale project, this pilot study will explore the link between perceptual-cognitive skills of athletes and risk of repeated head impacts. Using innovative technologies, it will contribute to the small pool of existing literature on the topic and expand knowledge pertaining to prevention of repeated head impacts.

Methods, Procedure, Results/Outcome, Conclusion: Methods: University level varsity male ice hockey players, from the UQTR Patriotes, were recruited for this study (n=18). Baseline perceptual-cognitive skills were measured during the pre-season period (August 2023). Perceptual-cognitive skills were assessed through three-dimensional multiple-object-tracking, using a commercialised tool called NeuroTracker.

Procedure: Throughout all regular season games (2023-24), the participants' helmets will be fitted with CUE sport sensors to log the quantity and quality of head impacts that the participants are subjected to in game context. The number of head impacts (i.e., quantity), as well as their intensity metrics (i.e., quality) will be recorded.

Outcome: Preliminary results will be presented. The statistical analysis will study the association between perceptual-cognitive skill (i.e., pre-season Neurotracker score) and the total cumulative number of impacts to the head, as well as the association between perceptual-cognitive skill and different intensity metrics (i.e., cumulative g-forces, hicscore, etc.). The expected outcome is that perceptual-cognitive skill will be negatively correlated to both the cumulative number of head impacts and intensity metrics.

Conclusion: If feasibility and pertinence is established, there will be a great potential for research as it will provide future scientific avenues. It will also support the scientific pertinence and value of conducting this study at a greater scale, on a larger population. This pilot study could also illustrate a potential for clinical applications in the prevention and rehabilitation of head impacts and concussions in various sports through the improvement of perceptual-cognitive skills.