Determining the best practices in concussion management for paralympic athletes with vision impairment: A Delphi Study

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Introduction

There is a lack of clinical practice guidelines specific to concussion management for para athletes and clinicians must adapt existing able-bodied concussion management guidelines for use in para athletes [1]. Widely recognized assessment tools (i.e., SCAT5, Child SCAT5, CRT5) have limitations with respect to their use in the para athlete population (e.g., athletes with absent vision are unable to report double vision) [1]. In addition, para athletes may have symptoms intrinsic to their impairment that are also commonly seen in athletes suffering from a concussion such as dizziness, headaches, poor balance and blurred vision; making concussions in this population more difficult to diagnose and more difficult to track recovery [1].

Aim: Examine how concussion is currently managed in para athletes with vision impairment (VI) to inform the development of evidence-based best practice guidelines and improve concussion management in para sport.

Research Questions:

- ❑ How is concussion managed currently in para athletes with VI?
- ❑ What research is critical for improving concussion management in para athletes with VI?

Methods

This study was conducted in collaboration with members of the International Paralympic Committee (IPC) Medical Committee, the International Blind Sports Federation (IBSA) Medical Committee, the Canadian Blind Sports Association (CBSA), and the Concussion in Para Sport (CIPS) group.

Participants

- ❑ International health care professionals who possess expertise in managing sport-related concussions in paralympic athletes with a vision impairment
  - ❑ Participants must have sufficient English language proficiency to complete online questionnaires
  - ❑ Participants must be able to commit to complete up to three online questionnaires over the course of a 7-9-month period

Study Design

- ❑ **Delphi study method** → a survey technique to achieve consensus from a panel of experts using a series of iterative surveys [2]
  - ❑ The results of Round 1 of this on-going Delphi study are presented here
- ❑ Round 1 questionnaire included 25 open-ended questions and was delivered as a web-based survey using REDCap electronic data capture tool, hosted at the University of Waterloo [3]
  - ❑ 5 core themes:
    - ❑ 1) Concussion recognition; 2) Concussion assessment; 3) Concussion management; 4) Return-to-sport; 5) Education
- ❑ Round 2 web-based survey using structured Likert-scale rating questions is currently on-going
  - ❑ Designed based on results of the Round 1 survey
  - ❑ Percentage agreement of 70% or more required for consensus

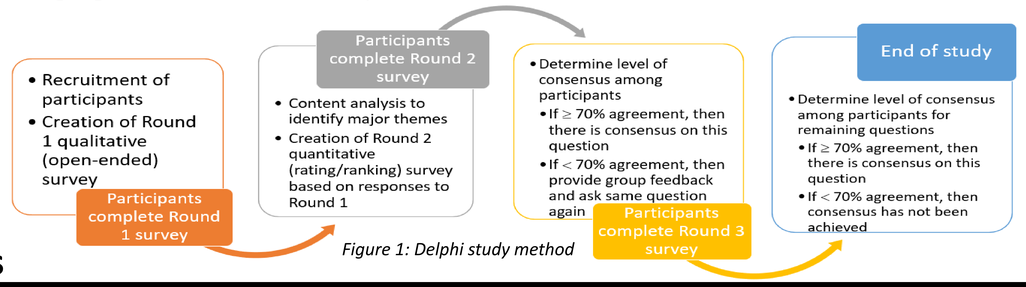

Figure 1: Delphi study method

Results

Population Demographics

- ❑ 8 participants completed the Round 1 questionnaire
  - ❑ Role in VI sport: 5 Sports Medicine Physicians, 2 Physiotherapists, 1 Scientific/Medical Director
  - ❑ Sex: 3 Female, 5 Male
  - ❑ Continent: 4 Europe, 4 North America
  - ❑ VI sport (more than one sport possible): 3 Football 5-a-side, 3 Para alpine, 1 Goalball, 1 Judo

Round 1 Questionnaire: Results

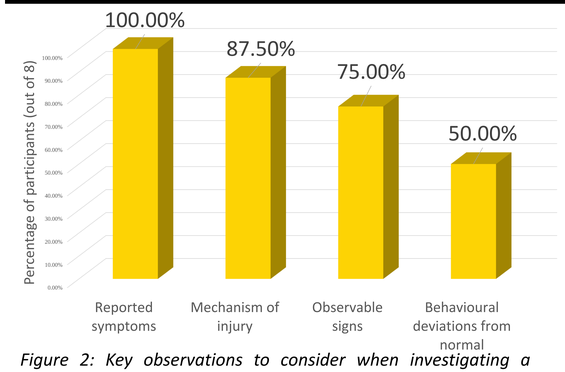

Figure 2: Key observations to consider when investigating a suspected concussion (Question 3)

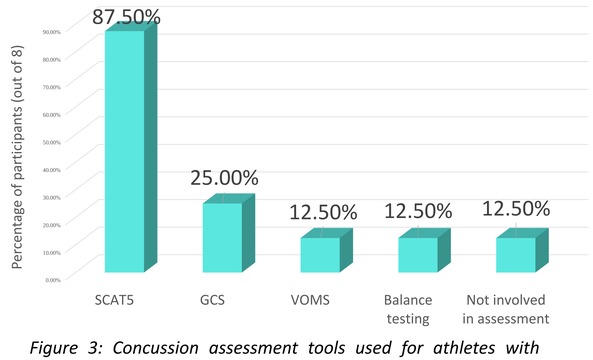

Figure 3: Concussion assessment tools used for athletes with vision impairment (Question 7)

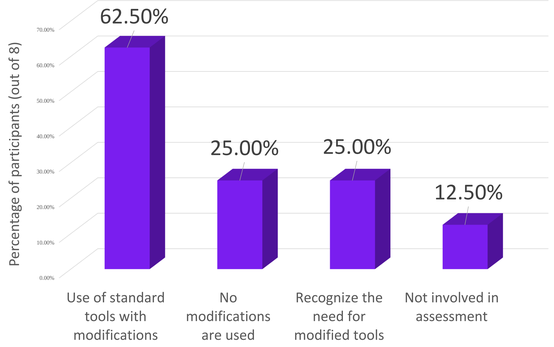

Figure 4: Are concussion assessment tools modified for athletes with vision impairment? (Question 8)

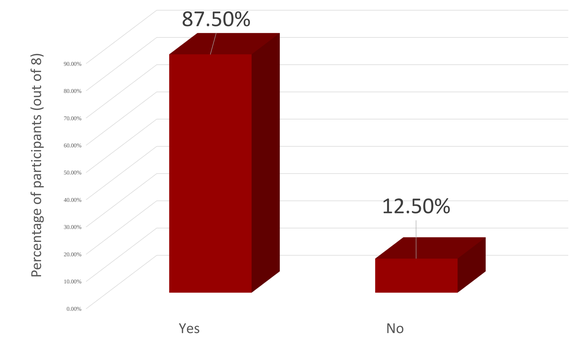

Figure 5: Do your athletes participate in baseline testing? (Question 9)

Conclusions

- ❑ Most experts (≥ 75.00%) agreed that reported symptoms, mechanism of injury and observable signs are all key observations to consider when investigating a suspected concussion in VI athletes.
- ❑ Most experts (87.50%) use the SCAT5 to assess concussion in athletes with VI; 62.50% of experts use able-bodied assessment tools with modifications for VI athletes; and 25% of experts recognized a need for modified tools.
- ❑ Although pre-participation examinations (baseline testing) are not broadly mandated in Paralympic sport, 7 out of 8 experts (87.50%) said that their athletes participate in baseline testing at the beginning of every training season.
- ❑ The Round 2 questionnaire is currently on-going; if needed a Round 3 questionnaire will be administered. Preliminary analysis suggests that the development of VI-specific concussion assessment tools will be an important research priority moving forward.

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Disclosures

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