

Article Title

Incidence of sports-related concussion in elite para athletes- a 52-week prospective study

Article Citation

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Adaptive Sport/Recreation Categories

- Paralympic athletes
- Concussion

Study Type: Prospective longitudinal cohort study

Summary

In order to assess the 52-week incidence proportion and incidence rate of sports-related concussion (SRC) among elite Para athletes, 107 Swedish elite Para athletes with vision, physical, and intellectual impairment completed weekly surveys to self-report sports-related injuries including concussion. An eHealth application, specifically developed for Para athletes, was used for the data collection with questions regarding their previous training week. When an athlete reported being back in normal training/sports participation, a closure form was also sent with open-ended questions regarding type of injury, contact with medical personnel, time loss from sport, and if the impairment was involved in the injury mechanism/preventive possibilities. A total of 13 SRC were reported from 10 athletes; three athletes each sustained two SRC over this time period. The incidence proportion was 9.3% and the incidence rate was 0.5 SRC/1000 hours of sports exposure, which was comparable to the rates reported for able-bodied athletes. Para athletes with vision impairments and female Para athletes reported a significantly higher incidence of SRC, and collisions (with objects or a person) were the most reported injury mechanism. Other injuries were related to surface/weather or not following the rules. More than one third of the SRC lead to a time loss from participation in normal training/sport for more than 21 days, while the rest SRC resulted in less time loss from participating in training/sport.

Article Strengths

- Prospective design that evaluated SRC incidence in both training and competition settings.
- Although the SRC were self-reported on surveys, all SRC had been confirmed by medical personnel.
- The studied population encompassed a heterogeneous group of elite Para athletes including those with physical, vision, and intellectual impairments.

Article Weaknesses

- Relatively small sample size (107 elite Para athletes).

- Collection of data on SRC was limited to self-reports; data from other standard objective assessments – e.g. the Sport Concussion Assessment Tool (SCAT 5) were not included.
- Few athletes from the high-risk winter sports and none from football-5-side were included, which may have resulted in the incidence of SRC being underreported.
- The included Para athletes only represented one country (Sweden).

Take Home Messages

- The incidence of SRC among elite Para athletes is comparable to that of able-bodied athletes.
- The majority of SRC in this study occurred during training, as opposed to during competition.
- Elite Para athletes with vision impairments reported a significantly higher incidence rate of SRC compared to elite Para athletes with other types of disabilities (physical or intellectual). Collisions were the most common injury mechanism.
- Female elite Para athletes also demonstrated a higher incidence of SRC compared to their male counterparts. Possible factors such as differences in neck strength, different playing styles, and willingness to report injuries may have contributed to the higher incidence rate reported.
- Although only 10 of the 107 Para Athletes sustained a SRC over the course of 52-weeks, 3 of these 10 athletes sustained multiple SRC. A prior SRC is a major risk factor for subsequent SRC, and multiple SRC may increase the risk of second impact syndrome or chronic traumatic encephalopathy.

Impacts on Clinical Practice

- Understanding the incidence of SRC in Para athletes, and particularly identifying at-risk subpopulations (e.g. Para athletes with vision impairments, female Para athletes and athletes with previous SRC) will allow clinicians to better inform Para athletes and coaches about their risk of SRC.
 - This information can be used to potentially address risk factors for SRC – e.g. including efforts to improve neck strength or discuss strategies to minimize risks of collisions in training or competition.
- It is important to educate Para athletes about SRC and common symptoms following these injuries so that they are appropriately recognized and managed.