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ACPDM Adapted Sports/Rec Committee
Journal Article Digest Sub Committee

Article

Moran, R., Broglio, S., Francioni, K., et al. (2020). Exploring baseline concussion-assessment performance in adapted wheelchair sport athletes. *J Athl Train*, 55(8):556-562.
https://doi.org/10.4085/1062-6050-294-19

Adaptive Sport/Recreation Categories:

- Concussion
- Preparticipation Exam

Study Type: Cross-sectional study

Summary: As adapted sports and recreational activities draw more participants worldwide, there is concern about increased injury rates and risk, especially that of sports-related concussion. Although concussion protocols have been implemented in adapted athlete populations, there is still a need for more specific and applicable research into assessment and adaptation for athletes with disabilities. Therefore, the authors investigated the following within a population of adapted athletes: baseline symptoms reporting, computerized neurocognitive testing (Immediate Post-Concussion Assessment and Cognitive Testing- ImPACT), and a modified balance scoring system (Wheelchair Error Scoring System – WESS). Findings indicated most adapted athletes reported greater symptoms and their performance on neurocognitive testing was at or below average when evaluated with nondisabled athletes in the CARE Consortium (large prospective concussion study with robust neurocognitive outcomes using ImPACT).

Article Strengths

- Multifaceted approach for adapted baseline concussion assessment– both a symptom report and neurocognitive testing, such as is done in nondisabled athletes.
- Novel test of balance for wheelchair users: WESS, which has undergone preliminary validation and reliability testing.

Article Weaknesses

- Single recruitment center with small sample size (21 participants).
- Did not differentiate between etiology of disability (ie spina bifida, cerebral palsy) so this can limit generalizability within individual disability classifications.
- Did not account for any prior traumatic brain injury, attention disorder, medication use or comorbidities like depression that may influence baseline symptoms especially in the sleep-arousal or affective categories.
- Error scoring differences occur between the Balance Error Scoring System (BESS) and WESS.

Take Home Message

- There is a need for initial concussion assessment unique to athletes with disabilities and this was the first study to investigate baseline scores with a multifaceted approach.
- Adapted athletes reported higher symptoms at baseline and performed worse on ImPACT testing compared to normative reference values for non-adapted athletes.
- The authors present a novel balance assessment in wheelchair users: WESS.

Impact on Clinical Practice:

- A thorough understanding of baseline functioning (reported baseline symptoms, neurocognitive testing) of each athlete is vital to the providers and athletic staff involved in concussion care of athletes with disabilities. At this time, there remains a lack of normative data, assessment tools and protocols for sport-related concussion in adapted sport and recreation.
- The WESS is a promising tool for balance assessment in wheelchair users but direct correlation to the BESS has not been established.