

CONCUSSION CHRONICLES

What Factors Must Be Considered in Return To School Following Concussion and What Strategies Or Accommodations Should Be Followed? A Systematic Review

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INTRODUCTION

The most recent international consensus statement on concussion in sport has incorporated a graduated 4-step return-to-school (RTS) strategy, outlining activity progression at each stage. Importantly, it was recognized that "children and adolescents should not return to sport until they have successfully returned to school".⁽¹⁾ The majority of children will require minimal support when returning to school following a sport-related concussion. However, a return-to-school plan may be impacted by a child's persistent concussion symptoms. As the reviewed article describes, the resources used in the development of RTS recommendations are based on limited empirical research.

Therefore, the reviewed article looked to address two questions:

1. What factors must be considered in RTS following concussion?
2. What strategies or accommodations should be recommended in RTS following concussion?

METHODS

This systematic review represents a more detailed analysis of RTS in children and adolescents following a concussion, which was part of a larger review presented at the Fifth International Conference on Concussion in Sport.

Ovid Medline, Ovid Embase and Ovid PsycInfo electronic databases were searched utilizing both questions.

Article inclusion criteria:

- Original research on RTS following a concussion
- Children aged 5 years to less than 18 years
- Published in English
- Between 1985 and June 2017

Article Exclusion criteria

- Studies of moderate/severe traumatic brain injury
- Patients with no clear history of head trauma or concussion
- Patients who sustained non-accidental injury
- Preschool aged children

All articles were reviewed independently by two of the authors and the full texts of all potential articles were reviewed. The final selection of articles was determined by consensus among authors.

Two authors independently assessed the quality of each study using Downs and Black checklist. Discrepancies were resolved by consensus.

KEY FINDINGS

- 17 studies were included in qualitative synthesis.
- Overall evidence was low with only two randomized controlled trials.

Factors to be considered on RTS following concussion

1. **Symptom load/severity:** Higher symptom loads and more severe symptoms were associated with a greater likelihood of missing more days of school and having difficulties on RTS, in addition to longer recovery.
2. **Types of symptoms:** Symptoms such as headache, visual disturbances, memory deficits, difficulty concentrating, executive dysfunction and vestibular abnormalities may adversely affect a student's ability to attend school after a concussion.
3. **Duration of symptoms:** Patients with longer duration of symptoms had more difficulty with RTS. High cognitive loads after injury were associated with persistent symptoms.
4. **Age/grade or school level:** Adolescents/high school students tended to have more post-concussion symptoms, greater severity of symptoms, and took longer to recover, to RTS and to return to play (RTP) than younger children. In addition, adolescents were more concerned about negative academic effects of concussion than younger children.
5. **Course load:** Certain subjects such as math pose greater problems for students on RTS after a concussion, followed by reading/language, arts, science and social studies.
6. **Rest following injury:** Patients who did not initially rest following injury took longer to RTS than those who rested immediately following injury; high cognitive loads/ increased school attendance exacerbated symptoms
7. **Socioeconomic status** may affect concussion recovery.

Recommendations

- A. Schools should have a concussion policy, which includes concussion education for teachers, staff, students and parents; define individuals within the school to direct the provision of individualized student supports; and includes a mechanism to implement and monitor appropriate academic accommodations to students recovering from SRC.
- B. On diagnosis of concussion, students should be provided with a medical letter to facilitate the provision/receipt of necessary academic accommodations.
- C. Students should have early, ongoing medical follow-up following an SRC to identify symptom targets, monitor recovery and aid with RTS, with regular communication between the medical provider, family and school.
- D. Students may require temporary absence from school after concussion. Factors such as age/grade, types and severity of symptoms should be considered in determining the length of school absence. An individualized gradual RTS plan should be considered based on recovery trajectory.
- E. Clinicians should screen for specific deficits, such as visual and vestibulo-ocular disturbances, that may affect RTS and require symptom-specific academic accommodations, as well as assess risk factors/modifiers that may prolong concussion recovery, requiring more intensive academic accommodations. In particular, adolescents may require more academic support.

DISCUSSION & BIASES

We already know that sport-related concussion in children and recovery are different from adults, and adolescents may take longer to recover compared to adults and younger children. What this article builds upon is our understanding of how symptoms, age, school level, and course load can impact recovery.

Regular follow-up visits along with a return to school letter with specific academic support/accommodations can help facilitate recovery and a successful return to the classroom.

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REFERENCES

⁽¹⁾ McCrory ,P., Meeuwisse, W.H., Dvořák, J., Aubry, M., Cantu, B., et al. (2017). Consensus statement on concussion in sport: the 5th International Conference on Concussion in Sport held in Berlin, October 2016. *British Journal of Sports Medicine*, 51(11):838-847