



## *Updates in Concussion Consensus Statement* OFFER SYMPTOM-LIMITED PHYSICAL ACTIVITY

By Rich Bomgardner

In 2017, the Concussion in Sport Group (CISG) developed a new consensus statement from the Fifth International Conference on Concussion in Sport held in Berlin, Germany. The CISG, which defined sport-related concussions as “a traumatic brain injury induced by biomechanical forces,” (McCroly et al., 2017, p. 2) reviewed several components of concussion management (e.g., recognition, removal, evaluation, rest, recovery, etc.) as well as issues relating to return to play (RTP) and return to school (RTS). While this new consensus statement continues to strengthen existing protocols for concussions, one of the most interesting recommendations from the CISG pertains to symptom-limited physical activity.

Physical activity has long been considered a restriction for concussion recovery, as exercise could ignite symptoms. However, the CISC has noted that returning a student to physical activity or physical education class with controlled submaximal exercise can be safe and may benefit the recovery process (McCrorry et al., 2017). The emphasis on controlled submaximal exercise is to promote the return to physical exertion while staying below the symptom threshold. Concussion symptoms of headache, dizziness, balance, vision and sensitivity to light/noise could more than likely be produced during physical activity (Centers for Disease Control and Prevention, 2015). Performing physical activity below the symptom threshold enables a student to resume exercise at a tolerable level while managing concussion symptoms. However, the coach and physical education teacher must have a clear understanding that controlled submaximal exercise does not mean that an athlete can return to play.

Table 1 outlines the graduated RTS strategy the CISC designed, which focuses on a gradual and progressive integration of the student back to school. A symptom-limited physical activity plan should be implemented within the school's RTS plan; however, it should not be utilized as the formal RTP plan. It should be specified in the school's RTS plan, as the CISC remains very firm that students should not return to sport until they have been successfully returned to school, which includes physical education. Therefore, a closely monitored physical activity program can aid in the recovery process and lead to the initiation of the RTP plan. Physical education teachers should be able to incorporate a gradual and progressive physical activity program that supports advancements in symptom-limiting activities.

Another recommendation by the CISC that could affect a student performing symptom-limited physical activity relates to concussion education. Schools should have within their RTS

plan education that includes concussion prevention and management for teachers, staff, students and parents. In addition, appropriate academic accommodations and support for students recovering from a concussion should be part of the education and RTS plan. Research has demonstrated that students have experienced classroom readjustment issues and decreases in school performance when returning to school after a concussion (Arbogast et al., 2013; Baker et al., 2015; Ransom et al., 2015). Common academic activities producing symptoms are reading, technology usage in class (e.g., computers), and prolonged concentration (Nationwide Children's Hospital, 2012). Ransom et al. (2015) also reported that students experienced deficiencies in academic skills (e.g., note taking, studying and completing homework) after a concussion. School administration needs to consider the new CISC recommendation for concussion education for teachers, staff, students and parents as imperative when academic challenges do happen.

Teacher limitations in concussion education could affect symptom-limiting physical activity because teachers can have a low awareness of appropriate classroom procedures or classroom management strategies that help regulate symptoms. Teachers not familiar with appropriate accommodations could be producing symptoms in the classroom that can delay or prevent participation in physical activity. Computer time, reading, prolonged concentration and other school work that fosters symptoms without breaks or accommodations hinder the recovery process. Bomgardner and Vermillion (2017) found in a pilot study that teachers have a low awareness of concussion policies; in fact, only 25% of teachers studied were aware of any school district or school policy on concussions. In addition, only 33.8% of teachers and coaches reported having concussion training and only 13% stated their school offered training on academic accommodations. Dreer, Crowley, Cash, O'Neill and Cox (2017) also found that 82% of teachers

**Table 1. Graduated Return-to-School Strategy**

Stage	Aim	Activity	Goal of Each Step
1	Daily activities at home that do not give the child symptoms	Allow the child to perform typical activities during the day as long as they do not increase symptoms (e.g., reading, texting, screen time). Start with 5 to 15 minutes at a time and gradually build up.	Gradual return to typical activities
2	School activities	Homework, reading or other cognitive activities outside the classroom	Increase tolerance to cognitive work
3	Return to school part-time	Gradual introduction of schoolwork. May need to start with a partial school day or with increased breaks during the day.	Increase academic activities
4	Return to school full-time	Gradually increase school activities until a full day can be tolerated.	Return to full academic activities and catch up on missed work

Note. McCrorry et al. (2017).

wanted more information about concussions and classroom management. Although the teachers know the more common concussion symptoms, only 50% indicated postconcussion awareness of students having difficulty returning to school. These points of research support the need for more teacher education on concussions and would provide a better appreciation of classroom management strategies. Furthermore, lines of communication are necessary between teachers to ensure that students returning to the classroom are following a gradual and progressive RTS plan. Physical education should be viewed as part of the RTS plan, and having the student perform symptom-limiting physical activity can be an important step in the recovery process.

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