

Evidence in Action

What should I do after my child has had a concussion?

By James C. Boysen, DC, MS

CLINICAL SCENARIO: One of your patients says, “My child has been diagnosed with a concussion. When can I let him/her return to play?”

Your patient informs you her child had a sports injury and was diagnosed with a concussion by a health care professional. She asks for your advice on the best way to recover from a concussion and if she should be concerned about any long-term complications. You tell her you will look up information on the subject. A PubMed search using key-words “concussion,” “multiple,” “youth,” “adolescent” and “sport” results in five articles you can access and read. Your search delineates several aspects of concussion that provide answers to your patient’s inquiry. One paper catches your eye: McCrory P, Meeuwisse WH, Aubry M, Cantu RC, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport, Zurich, Nov. 2012. *J Athl Train* 2013 Jul-Aug;48(4):554-751.

McCrory et al. define concussion as a complex pathophysiologic process affecting the brain, induced by biomechanical forces.¹ It may occur by a blow directly to the head or transmitted to the head through the body.¹ Concussions typically result in a short-lived, rapid onset of symptoms. No structural injury to the brain is found on imaging. Signs and symptoms range from any one or more of the following categories: physical, cognitive, emotional and sleep disturbances.² Occurrence of concussion is in about 5 to 9 percent of all sports-related injuries, but probably under-recognized due to failure to report. The most common symptom is headache, followed by dizziness.¹ Loss of consciousness occurs in about 10 percent of those injured. Risk factors include previous concussion, female gender, youth athletic participation and position and style of play during a

sport, as well as mood disorders and the presence of learning disabilities, such as ADD/ADHD and a history of migraines.²

TAKEAWAY 1: It is important to remember that a person does not need to be knocked unconscious for a diagnosis of concussion. Most of the time, concussion is transient, and the biggest risk factor for concussion is a previous one.

CONCUSSION PREVENTION: Preventive equipment, such as helmets and mouth guards, does not seem to reduce concussion incidence. The type of sport, position within the sport and how a position is played are relevant considerations. Pre-concussion baseline values may be useful, but they may be clouded by the child’s rapidly developing physical and mental status.³

CONCUSSION MANAGEMENT: Children take longer than adults to recover from concussions.³ Current recommendations for concussions start with removing the child from play since playing with a concussion may lead to a rare but deadly condition called “second-impact syndrome,” a fatal cerebral edema.² Physical and cognitive rest is advised until the child is no longer symptomatic. Cognitive rest may include academic accommodations and a decrease in video gaming, television watching and reading. Pharmacology that masks symptoms should be carefully considered or avoided because it may cloud the follow-up evaluation. If symptoms are still present after 7 to 10 days of rest, neurophysiological testing is suggested.³

After the child is asymptomatic, initiating a graduated return-to-play (RTP) is recommended.³ RTP activities include light aerobic activity, sport-specific training and activities, non-contact training drills and eventually, full-contact practice training.³ Each step should take at least 24 hours, with the entire process taking at least one week.³ If symptoms reoccur during the RTP, downgrading the exertion to the previous symptom-free level is recommended after 24 hours of rest.¹ RTP should be monitored by a health care professional who has had training in concussion management. Assessment tools including combinations of physical and cognitive testing, such as the Sport Concussion Assessment Tool (SCAT3 and Child-SCAT3*), may be useful as a multimodal instrument for baseline evaluation and to track symptoms at follow-up evaluations.¹

James Boysen, DC, MS, is a research clinician at the Palmer Center for Chiropractic Research.

With multiple concussions, there are different concerns. Increased caution in management strategies is advised for those with prolonged recovery, shorter intervals between concussive events, currently symptomatic from a previous concussion and where less force was required to cause concussion symptoms.³ One study suggests multiple concussions in adolescents may initiate the process related to post-concussion syndrome.⁴

TAKEAWAY 2: If a child has a concussion, removal from play with physical rest and cognitive rest are the first steps for recovery. Graduated RTP in the absence of symptoms is advised. Careful consideration about returning to the sport should be given to those who have more than one concussion.

CONSIDERATIONS: Since a concussion can occur without loss of consciousness, it is helpful to ask the parents and/or child if they ever had their “bell rung” at any time in their lives. This may provide a more accurate history in looking for multiple concussions.

Parents should evaluate the coach for conducting sports technique and training safely. In addition to getting opinions from other parents about the coach’s teaching style (i.e., such as consistent education and modeling of fair play), the parents may ask if the coach has received any safety training from organizations, such as the National Athletic Trainers’ Association, the National Youth Sports Coaches Association, the American Sports Education Program, the National Center for Sports Safety, the American Red Cross or the National Federation of State High School Associations. These organizations offer programs ranging from proper biomechanics of sporting skills to prevention and management of injuries.

Another consideration for the parents is whether the child’s coach has ever had education or training on concussion. The Centers for Disease Control and Prevention (CDC) has made available the “Heads Up: Concussion in Youth Sports” initiative for youth sports coaches. It contains materials on preventing, recognizing and responding to concussions. A survey of 340 youth sports coaches who completed the program found that nearly 75 percent did not have access to concussion materials prior to this program. More than 60 percent viewed concussions as a more serious injury post program, and more than 70 percent educated others about concussion.⁵

Asking teachers about changes in a child’s performance in the classroom may also provide clues to emotional, behavioral and intellectual functioning during the recovery period. Don’t assume every health care professional has up-to-date knowledge on concussion management. And while this article assumes that the parent is concerned about the effects of a concussion on a child, practitioners will need to be aware of possible consequences when parents want their child back in the game as soon as possible. Education for this type of parent may need to focus on the safety of the child and the child’s future outside of sports.

Concussion management is becoming more evidence-based. Chiropractic physicians can take the lead in using current concussion guidelines, management tools and distribution of educational materials. ■

References

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*SCAT 3:
<http://bjsm.bmj.com/content/47/5/259.full.pdf>
Child SCAT 3:
<http://bjsm.bmj.com/content/47/5/263.full.pdf>

