

## Concussions

*Concussions are mild traumatic brain injuries that must be taken seriously to avoid long-term damage.*

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It is a Wednesday afternoon and Kennedy High School is bustling with students who stay after school for activities and athletic practices. On the soccer field, Jenny heads the ball, stumbles, and falls. Although Jenny seems a bit dazed, she is conscious and talking to teammates. The coach immediately sends her back on the playing field and tells her to run it off.

A concussion is a mild traumatic brain injury (TBI) caused by a bump, blow, or jolt to the head or body. Although the risk of receiving a concussion when playing professional sports has recently received a great deal of media attention, only about 20% of concussions occur during sports or athletic activities. The majority of concussions are caused by falls or other accidents.

Many people who sustain concussions appear to recover fully in one or two weeks, but adolescents' brains can take several weeks longer than adults' brains to heal following a concussion. If not treated appropriately, a concussion can lead to cognitive, academic, behavioral, and emotional problems, particularly if a second concussion is sustained before the first has healed. Although most people recover fully from a single concussion, "second impact syndrome" can lead to life-long disability or death (Collins et al., 2002; Guskiewicz et al., 2003). Therefore, it is essential that principals ensure that all school staff members recognize the signs of concussion and implement appropriate policies for their schools' response to a suspected or known concussion.

### Recognizing the Signs

Unlike a cut or broken bone, concussions are not always easily detected; 90% of concussions do not result in full loss of consciousness (Collins et al., 2003; McGrath, 2010). Immediately after sustaining a concussion, a student might appear dazed, stunned,

or confused; be uncoordinated; and have difficulty recalling events that occurred before or after the injury. Although some symptoms may be immediately evident, others may not manifest for days or weeks. For example, a student may sustain a hit or fall in PE class but not show signs until it is time to concentrate or engage in a learning activity an hour later. Because symptoms can take time to appear, teachers may be the first people in the school to notice them.

The Centers for Disease Control and Prevention (CDC) describes four categories of concussion symptoms:

- Thinking and remembering: difficulty in thinking, remembering, or concentrating
- Physical: headaches, blurred vision, nausea or vomiting (early on), dizziness, sensitivity to noise or light, balance problems, or fatigue
- Emotion and mood: Irritability, sadness, heightened emotion, or nervousness or anxiety
- Sleep: sleeping more than usual, sleeping less than usual, or having trouble falling asleep (U.S. Department of Health and Human Services, 2010).

A student might exhibit specific problems at school, including having difficulty learning new information, needing more time to complete tasks or assignments, having difficulty organizing work, demonstrating inappropriate or impulsive behavior and greater irritability, and having dimin-

*Created in collaboration with the National Association of School Psychologists (NASP) to facilitate partnerships between principals and school psychologists and to remove barriers to learning. Additional resources are available at [www.nasponline.org/resources/principals](http://www.nasponline.org/resources/principals).*

ished ability to cope with stress. The student may also repeat questions; answer questions slowly; or have trouble doing more than one thing at a time, such as listening to the teacher and taking notes. A student with a concussion might be bothered by bright lights and noise; the school cafeteria and hallways might be particularly challenging locations for the him or her. Exercise and activities that require a lot of concentration—such as studying, working on the computer, or playing video games—might cause symptoms to reappear or intensify. The number and severity of the symptoms, the speed of the student’s recovery, and the effect of the symptoms on academic and social functioning will vary from student to student.

### **Concussion Assessment in the School**

**Symptom checklist.** In addition to ensuring that staff members recognize the signs and symptoms of concussions, principals should adopt a protocol for when a concussion is suspected. If a teacher or another school employee suspects that a student may have sustained a concussion, the student should be sent to the school nurse, the school psychologist, or another professional designated to address health issues. Schools can obtain free checklists of symptoms from the CDC that can be completed at school and sent with students when they go to the doctor ([www.cdc.gov/concussion/HeadsUp/schools.html](http://www.cdc.gov/concussion/HeadsUp/schools.html)).

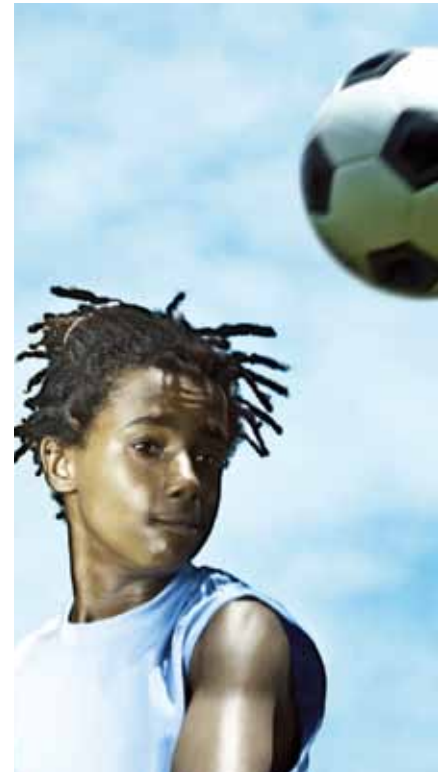
**Preseason evaluation for student athletes.** Because knowledge of students’ pre-injury functioning can be important when assessing their school performance postconcussion, your school might want to implement a program in which preseason baseline

neurocognitive testing is conducted to assess brain function; the tests can be used again if the athlete sustains a concussion to help identify the effects of the injury. A software program called ImPACT is one sports concussion management tool that measures reaction time in milliseconds and can be easily administered in high school computer labs. Although such tools can be useful, they are not substitutes for medical evaluation or treatment.

### **Changing Perceptions**

Administrators should work to decrease the perception that concussions are not a big deal. To “get dinged” seems cool to some students, and others may feel that shedding encumbering protective devices makes them more “free.” Administrators should ensure that school personnel are working to change those ideas, encouraging students to wear protective equipment, and checking to ensure that such equipment fits properly. Coaches should teach their athletes that playing injured does not prove that they are tough; playing through an injury can increase risk of repeat concussion and long-term problems, including permanent brain damage. When collecting information for students’ baselines, administrators can emphasize the importance of reporting even mild blows to the head from years ago.

Posters can be hung around the school to encourage young athletes to report suspected concussions and take the time necessary to recover. Administrators can help distribute and discuss this information, keeping in mind the importance of broadening the message beyond school sports. All students have a chance of sustaining a concussion.



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## Online Resources

### [www.cdc.gov/TraumaticBrainInjury](http://www.cdc.gov/TraumaticBrainInjury)

The Centers for Disease Control and Prevention's Web site has numerous resources available to increase awareness and appropriate services for individuals who have sustained concussions.

### [www.nfhslearn.com](http://www.nfhslearn.com)

Concussion in Sports—What You Need to Know is a new online course that is available from the National Federation of State High School Associations. This 20-minute, free course provides a guide to understanding, recognizing, and managing high school sports-related concussions. Participants gain access to printable resources, fact sheets, and materials that schools can use to implement a concussion treatment protocol.

### [www.cbirt.org/tbi-education/concussion](http://www.cbirt.org/tbi-education/concussion)

The TBI Educator, provided in part through a grant from the Oregon Department of Education and The Teaching Research Institute (a division of Western Oregon University), has synthesized evidence-based information and resources, including forms for concussion management, formalized support, assessment and eligibility, and school re-entry.

### [www.impacttest.com/](http://www.impacttest.com/)

ImPACT is a computerized assessment tool that can be used by high school coaches and athletic trainers to assist in determining an athlete's readiness to return to play.

## Return to Play

Expert consensus is that an athlete who has sustained a concussion should not return to play the same day of injury (McCrory et al., 2009). Likewise, a student with a concussion should not return to school the same day the injury occurred. He or she should be cleared by a health care professional before participating in such events as physical education class, sports practices or games, or physical activity at recess. Although there is no cure for a concussion, the school can help the injured student feel better by providing cognitive rest and gradual re-entry to school as tolerated.

To ensure that an injured student receives the support he or she needs, a team approach is essential. Team members ideally include parents, teachers, administrators, the school psychologist, the school nurse, and school counselors—and coaches and athletic directors if the student is involved in school sports.

The principal should identify one person in the school, such as the school psychologist or the school nurse, to take the lead in communicating with the rest of the team. This person can arrange meetings to discuss the student's medical and educational status, clarify how postconcussion symptoms might affect learning and behavior; coordinate school-based intervention efforts; and if parents agree, talk to the student's classmates

about his or her injury so that they understand what to expect when the student returns to school.

Within the past year, many states have introduced legislation that sets guidelines for treating concussions or requires schools to make explicit plans for concussion management. Every

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school district should have a policy statement that includes guidelines for when athletes can safely return to play. Those statements should state that athletes who are suspected of sustaining a concussion must immediately leave the field and be kept out of play until a health care professional determines that the athlete

is symptom-free and may safely return to play. Parents, athletes, and coaches should sign the policy at the beginning of each season.

This policy can protect coaches, students, and administrators from backlash for decisions regarding removing students from play. Health care professionals who can respond to injuries during practice or competitions can also support such decisions. In addition, the CDC offers cards and stickers that coaches can keep at hand with information about signs, symptoms, and emergency contacts.

## Accommodations

After returning to school, the student may need one or more of the following accommodations:

- Rest breaks throughout the day

## Concussions and 504 Plans

### How long can you implement a 504 for a concussion?

It would be appropriate to implement a 504 plan as long as a student exhibited or reported symptoms that might limit his or her ability to learn.

### Can I legally offer accommodations for a concussion without formally developing a 504 plan?

Yes, but the 504 plan protects the student's rights by providing a formal document to ensure that all teachers, parents, coaches, and school staff members are on the same page regarding the student's needs.

### Would I need a physician's note to document the 504?

#### What is needed to properly document a concussion?

Recent medical documentation is required for a 504 plan. A concussed student should be receiving ongoing attention by a health care professional until he or she is asymptomatic.

### What if the student already has a 504 or an IEP for an existing disability?

The existing plan (504 or IEP) would be modified to reflect the student's current needs.

### What if the student sustains a concussion the day before the state test?

If a student who just sustained a concussion attempted to take a test that required sustained attention, he or she might become nauseous, dizzy, or show other postconcussion symptoms. Certainly the student should not be expected to perform at his or her best. Concussed students should be excused from such examinations or wait until they are asymptomatic.

### What if a parent disagrees and asks that the student continue participating in sports and academic activities?

The school policy can address the first part of this issue by requiring that a student be cleared by a medical professional before returning to play. If a parent insists that his or her child continue participating in academic activities, it may be because they fear their child will fall behind or fail classes. The school can educate parents regarding potential detrimental consequences of pushing oneself too hard postconcussion and provide reassurance that the student will receive specific accommodations, such as reduced assignment load, without penalty.

- A shortened school day
- More time to complete tests and assignments
- Reduced assignments or permission to complete assignments in smaller chunks
- A quiet place to take tests and complete assignments
- General help with schoolwork and organization
- Permission to have lunch in a quiet, uncrowded space with a couple of friends
- Permission to wear sunglasses or a hat with a visor
- Permission to transition between classes a few minutes

before or after the rest of the school to decrease the chance of being jostled in the crowded hallways and stairwells

- Limited activities that require a lot of thinking or concentration
- Limited social activities.

A section 504 plan may be appropriate if symptoms persist. If a student who has sustained a concussion cannot immediately return to school or recreation, he or she might be frustrated, angry, or anxious about getting behind on schoolwork. Too slow of a return to school can prolong a student's recovery by causing undue

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stress secondary to feelings of falling behind, being away from friends, and disrupting normal family routine (Kirkwood et al., 2008).

Within the school, teachers and staff members can monitor the student for worsening symptoms, which typically indicates that the student has been overexerting and requires a break. Return to play and activities should always be considered a medical decision, but the school can play an important part by helping monitor progress. Repeated evaluation of symptoms should be completed by a physician with experience in treating concussions.

### What's Next?

- Ensure that your staff members and students are educated on the topic of concussions, which may include changing their perceptions and debunking myths surrounding the idea that concussions are not a big deal.
- Ensure that your school has an efficient plan or policy in place that uses your school personnel to prevent, recognize, and respond appropriately to concussions.
- Ensure that your coaches and athletic directors are educated and aware of the signs and symptoms of concussions and that they are enforcing a strict no-play policy upon those athletes who sustain a concussion.
- Educate your staff members about accommodations that students suffering from a concussion or other brain injury may need, and ensure that they are willing to employ those accommodations. **PL**

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## Principal's Perspective—Education About Concussions Is Key

**P**roperly addressing student concussions has become a key issue for principals and school leaders across the country. Although research and media attention have often focused on concussions and their effect on professional athletes and Division 1 collegiate athletics, educators must now shift that focus to the high school level and below.

Across the country there are significantly more students participating in high school sports than there are professional athletes. In Maryland alone, we have more than 110,000 student-athletes participating in 24 sports throughout the school year. And unlike professional athletes, student athletes often do not have access to high-tech protective equipment and on-site medical personnel and trainers.

Our first priority at Walter Johnson, a large suburban high school in Bethesda, MD, is student health and safety, and we are aware of the possible negative effects of concussions on academic performance if students return to the classroom too quickly.

As the assistant principal and a former football coach, communication and education are to me the most important factors. For us to truly influence the way student concussions are handled and to prevent lasting injuries, school leaders must work closely with coaches, parents, and students. Those three groups must be able to communicate and work together throughout the often-lengthy process of diagnosis and recovery. Poor communication, the lack of an agreed-upon plan, and misinformation that is due to a lack of training will derail a schoolwide or systemwide plan.

Coaches must learn to recognize the signs and symptoms of concussion, even if they don't involve loss of consciousness. Students must understand the seriousness of such injuries and be encouraged to report symptoms, whether their own or a teammate's. And parents must have the latest information on when and how to seek treatment if their child suffers a head injury.

Giving those groups the knowledge and tools they need to work together is where our school is focusing its energy.

Earlier this year, our PTSA organized an evening meeting with a guest speaker from the Children's National Medical Center to talk about the latest research and findings about student concussions, including how to treat such incidents and their lasting effects.

We're also implementing preventative measures. This year, our football team established baseline neurocognitive assessments through a software program called ImPACT. This baseline testing, done in our computer lab here at school, can be useful in determining how a student is healing and functioning after a concussion. Next year we will offer ImPACT testing to all of our student athletes.

We continue to work with our athletic department to ensure that they implement school district procedures when a student receives a head injury and is showing signs of a concussion. Once a coach reports that an athlete has concussion symptoms, the parent is notified and the athlete may not return to the athletic field unless they are cleared for play by their medical provider.

At Walter Johnson, we are continuing to pay close attention to the latest information on concussions and head injuries, and our approach to dealing with these injuries will continue to evolve. Our efforts in the athletic program will also help our understanding of how to support all students who are suffering from a concussion even if they aren't athletes. The ongoing education of coaches, students, and parents and the communication among those three groups is paramount in keeping the effects concussions to a minimum and dealing with them in way that will ensure student well-being.

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