



Concussion Care for Kids: Minds Matter

Facts About Concussions

What is a concussion?

A concussion is a mild traumatic brain injury (mTBI) caused by a blow or jolt to the head or body that causes the brain to shake. The shaking can cause the brain to not work normally and can result in serious side effects. Each year, thousands of children and youth are diagnosed with concussion — only half are sports related.

Concussions can occur even when a child does not lose consciousness. In fact, only 10 percent of children with concussions report being “knocked out.” Some of the symptoms of a concussion can appear immediately after the injury, while others may not show up for several days. Symptoms may last days, weeks or months. Sometimes symptoms may be subtle and not obvious.

How is a concussion diagnosed?

Your child’s doctor will ask a lot of questions to understand how the injury happened and what symptoms your child is experiencing. The doctor will do a physical exam to test your child’s head-and-neck range of motion, balance, eye movement and neurocognitive ability. For instance, your child may be asked to play a memory game that challenges his “delayed recall” ability. Your child may also be asked to take a computerized test to better understand how his brain is functioning; however, there is not a single test that can diagnose a concussion.

You cannot see a concussion on brain imaging, like a CT scan or an MRI, because brain imaging looks at the structure of the brain, and a concussion affects the function of the brain — not its structure. Doctors will use all of the information they have gathered to diagnose and manage your child’s concussion.

During follow-up visits, your child’s doctor may redo some of the exams to see if concussion symptoms are getting better.

What are the symptoms of a concussion?

The symptoms of a concussion are related to how well the brain cells are functioning and working together. The most common symptoms are:

Physical	Sleep	Thinking/ Remembering	Mood Disruption
<ul style="list-style-type: none"> • Headache • Nausea and vomiting • Balance problems • Slowed reaction time • Dizziness 	<ul style="list-style-type: none"> • Sleeping more or less than usual • Trouble falling asleep • Feeling fatigued or drowsy 	<ul style="list-style-type: none"> • Difficulty concentrating • Difficulty remembering • Confusion • Feeling “mentally foggy” 	<ul style="list-style-type: none"> • More emotional • Irritable • Sad • Nervous • Depressed

- Sensitivity to light
- Sensitivity to sound
- Fuzzy or blurry vision
- Feeling slowed down

Often, symptoms will worsen over a matter of days, and it is common for new symptoms to appear in the days following the injury. Symptoms may also worsen when the brain is stressed, for example, when a child is doing schoolwork or participating in a physical activity.

Call 911 if your child has any of the following symptoms:

- Seizures (twitching or jerking movement of parts of the body; may look stiff)
- Weakness or tingling in the arms or legs
- Cannot recognize people or places
- Confused, restless or agitated
- Impaired consciousness
- Difficult to arouse or unable to awaken
- Repeated vomiting
- Slurred speech
- Bloody or clear fluid from the nose or ears

Pre-existing conditions and concussion symptoms

For children with pre-existing conditions, such as migraine headaches, learning disabilities, attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), visual disorders, and emotional and mental health conditions, concussion symptoms may be more severe or prolonged. It is important to know that a concussion may also worsen these underlying conditions and make them more difficult to control.

If you suspect a concussion

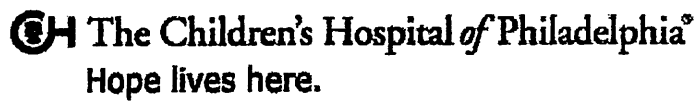
Contact your child's primary care doctor for evaluation.

[Find a CHOP Primary Care physician near you »](#)

If symptoms persist, you can schedule an appointment with a concussion specialist:

Sports Medicine and Performance Center
215-590-1527

Pediatric Trauma Center
215-590-5932



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Managing Concussion at School

Our concussion experts recommend that school staff partner with the student and the student's family in a team approach to create a smooth and successful transition back to school. Often a meeting with the student's teachers and the guidance counselor is needed to discuss the student's symptoms and to arrange academic accommodations.

In this section, you will learn about:

- [General symptoms of concussion](#)
- [Concussion symptoms at school](#)
- [How school staff can help students with concussion](#)

General symptoms of concussion

Concussion symptoms can occur immediately, within a few hours, or may not be noticed for a day or two after the injury, especially if the signs are subtle. Sometimes symptoms may not be obvious until cognitive or physical exertion occurs. Some symptoms might resolve fairly quickly, but others may persist for much longer. The number and severity of symptoms, the speed of the recovery, and the impact of symptoms on academic functioning will be different for each student. To help you recognize the signs of a potential concussion, [see this list of concussion symptoms](#).

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Concussion symptoms at school

After a student suffers a concussion, she may have many different concussion symptoms that affect her ability to perform well in the classroom. For example, the student might:

- Get tired easily in class and over the course of the day
- Be bothered by bright fluorescent light in the classroom or loud noise in the cafeteria
- Be easily distracted
- Have trouble doing more than one thing at a time, such as listening to the teacher while also taking notes
- Take longer and need more repetition to learn new material
- Remember something one moment but have difficulty remembering it later
- Not be able to recall new information learned since the concussion occurred
- Be easily overloaded, especially with a full course load
- Read more slowly due to difficulty with concentration and comprehension
- Have a headache that develops or worsens with concentration

- Feel dizzy after sudden movement or lose her balance more easily
- Have trouble organizing and remembering homework
- Lose track of time
- Get lost or have trouble finding her way around
- Get frustrated more easily, especially if very symptomatic

In general, concussion can affect a student's cognitive stamina, limiting the amount of time she will be able to spend on school work. This is because the injured brain is already working to repair itself and additional tasks overload the system. As a result, the student gets tired more easily and symptoms may temporarily worsen.

The student's vestibular function may also be affected. This is the brain's ability to visually track and focus — skills needed throughout a student's day. As a result, reading, note taking, test taking and walking through a busy school hallway can become a real challenge.

In addition, students with a previous history of learning disorders (ADD, ADHD or dyslexia), mood disorders (anxiety or depression), vision disorders or migraine headaches, can often have more prolonged symptoms after a concussion. Their underlying conditions may also be magnified after concussion. These effects can last for months after a concussion has occurred. It is important to watch out for these symptoms after a concussion and ensure students with concussion have the support they need to continue to be successful in school.

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How school staff can help students with concussion

Academic difficulties may continue for quite a while after concussion, and can contribute to poor school performance and psychosocial problems for the student. As a result, teachers, school nurses and other school staff play an important role in the student's recovery from concussion.

Changes in thinking, learning and behavior after concussion can be subtle, present differently for each student, and may be hard to detect initially. Teachers' sensitivity and understanding toward the student is critical. Teachers may want to think of ways to monitor progress and focus on improvements. Visit our ["Adapting the Classroom for Concussion"](#) section to learn about academic accommodations and for tips to address special needs and deficits caused by concussion.

While a student is still recovering from a concussion, another jolt to the head can cause another concussion and prolong and even worsen the symptoms. Therefore, it is especially important to ensure the student does not participate in any activity that would unnecessarily increase the risk for another concussion. This would include contact and collision sports, but also gym class and sometimes recess. As symptoms improve, students should be encouraged to return to non-contact physical activity first. [Read more about Return to Play for students with concussion.](#)

If after informal academic accommodations are in place, the student is still struggling with his school performance, we recommend that a more formal academic plan, such as a 504 Service Plan Agreement, be put in place. The family may want to involve the state's school re-entry program for brain injured children, such as [BrainSTEPS in Pennsylvania](#).

What can the school nurse do to help?

The school nurse plays an important role by helping to monitor the student's symptoms and recovery from concussion.

Although generally rare in the first few weeks following a concussion, there may be medications prescribed to treat post-concussion symptoms and the nurse may help to manage these medications in the school setting. When the student needs cognitive rest or when symptoms occur during the school day, resting in a quiet room, like the nurse's office, often helps symptoms improve.

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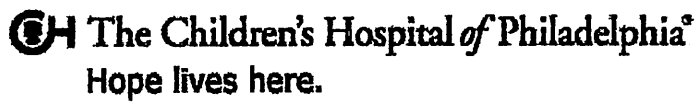
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34th Street and Civic Center Boulevard
Philadelphia, Pa. 19104
- **Main Number:** 215-590-1000
- **Physician Referral Service:** 1-800-879-2467
- **Coordinates:** 39.9486937, -75.1929596
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Return to Learn After a Concussion When can my child return to school?

It will depend on your child. Every child's injury and recovery is unique and requires careful observation from parents and doctors. You can promote recovery and prevent ongoing symptoms by following a "return to learn" plan like the one below. Your doctor will customize this plan based on your child's recovery, and your child will move through the plan at her own pace.

Return to learn plan

Step 1

Immediately after a concussion, complete cognitive (thinking, processing) rest is beneficial to help reduce your child's symptoms.

- This may mean no school, no homework, no computer, no texting and no video games, and it may mean no TV if it makes symptoms worse. In general, it is beneficial to minimize screen time. As symptoms improve, slowly reintroduce light cognitive activity.
- Initial activities may include watching TV, listening to audio books, drawing and cooking, as long as they do not increase symptoms.

Step 2

Light cognitive activity can be resumed once your child has had significant improvement in symptoms at rest.

- Your child may do activities that do not cause symptoms to get worse.
- Initially, your child may only tolerate five to 15 minutes of work at a time. Stop the activity when moderate symptoms develop.
- Your child may increase the length of cognitive activity as long as symptoms do not worsen significantly or as long as symptoms improve with less than a 30-minute break.

Step 3

School-specific activity should be increased gradually:

- When feeling better, your child should try to do some schoolwork at home and increase the duration as tolerated.
- Your child should continue to participate in this activity in short bursts of time (up to 30 minutes) as tolerated and then work up to longer time periods.

Step 4

Follow these guidelines to determine when your child is ready to return to school:

- When your child is able to do one to two hours of homework at home for one to two days, she may try to return for a half day of school. Alternately, if your child is able to do three to four hours of homework at home for one to two days, she may try to return to school for a full day.
- If symptoms develop while your child is at school, she should take a break in a quiet, supervised area until symptoms resolve. When symptoms resolve, she may return to class.
- If symptoms do not resolve, your child should go home.
- Your child may increase her time in school as tolerated.

Call 911 if your child has any of the following symptoms:

- Seizures (twitching or jerking movement of parts of the body; may look stiff)
- Weakness or tingling in the arms or legs
- Cannot recognize people or places
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