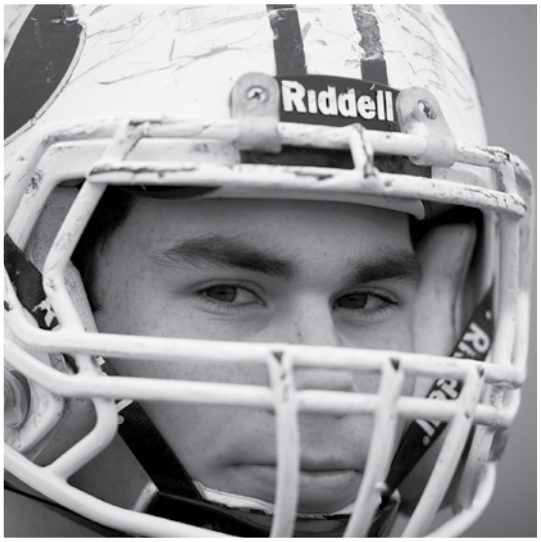
Sports Medicine



An Educator's Guide to Concussions in the Classroom

2nd Edition

NATIONWIDE CHILDREN'S

When your child needs a hospital, everything matters.℠

A national leader in the care of concussions answers your questions.

Nationwide Children's Hospital Sports Medicine wants you to be aware of concussions and how they affect students in the classroom. Our multi-disciplinary team of pediatric specialists offer something adult care providers can't – a complete understanding of children and adolescents. Our experts want your help to ensure that no child suffers permanent damage to his or her academic record because of a concussion.

I am an educator. Why should concussions matter to me?

If you received a note from a physician stating a student in your class had a concussion and needed academic accommodations, would you know how to change the student's coursework not only to help him continue participating in class, but also to help him recover? Would you be able to explain to a parent what changes you have made and why?

Concussions are serious brain injuries that have a significant influence on the brain's ability to function at its normal capacity. The key to recovery from a concussion is both physical and mental rest, followed by a gradual progression back to activity, both in athletics and in the classroom.[1] Most concussions resolve within a few days or weeks, so the management of a concussed student may be no different than that of one who missed a few days due to minor illness. However, some concussion symptoms linger and have the potential to cause long-term academic and social difficulties for the student. If unmanaged, these problems have the potential to significantly impact the student's academic career as a whole. **Proper management of a concussed student in the classroom by his or her educators can allow the student to continue making academic progress through accommodations designed to help prevent permanent damage to the student's academic record.** An educator's involvement is vital.

What is a concussion?

A concussion may be caused by a blow, bump or jolt to the head, or by any fall or hit that jars the brain.[2] This invisible injury disrupts the way the brain normally works by affecting mental stamina, as the brain must work longer and harder even to complete simple tasks.[3] Concussions also affect reaction time, short-term memory, working memory and cognitive processing speed.

According to a study by the Center for Injury Research and Policy (CIRP) at The Research Institute at Nationwide Children's Hospital, concussions represent nearly 10 percent of all high school athletic injuries.[10] Concussions may involve loss of consciousness, but the majority do not. Ultimately, ALL concussions are serious because they are brain injuries.[4,5]

How does a concussion affect a student?

Though an invisible injury, a concussion can affect a student in many different ways: physically, cognitively, emotionally and by disturbing sleep. Below is a table of common symptoms in each category.

Common Concussion Symptoms

PHYSICAL	COGNITIVE	EMOTIONAL	SLEEP
Headache	Feeling mentally foggy	Irritability	Trouble falling asleep
Dizziness	Feeling slowed down	Sadness	Sleeping more than usual
Balance problems	Difficulty concentrating	Nervousness	Sleeping less than usual
Nausea/vomiting	Difficulty remembering	More emotional than usual	
Fatigue	Difficulty focusing		
Sensitivity to light			
Sensitivity to noise			

These symptoms can have a significant impact on classroom learning and schoolwork. Physical symptoms may interfere with the student's ability to focus and concentrate, while cognitive symptoms may impact the ability of the student to learn, memorize and process information, as well as keep track of assignments and tests. Struggles with school work may worsen the frustration, nervousness and/or irritability that were originally caused by changes in brain chemistry. Lastly, disturbances in sleep patterns often result in fatigue and drowsiness during the day, factors which may compound all the other problems the student may experience.[3,6]

How are concussions managed by health professionals?

No two concussions are exactly the same, so individualized treatment is necessary. Developing brains are highly variable, so one student's symptoms may be completely different from another's.[5] Even if the students become concussed in the same way, each student will have unique symptoms and recovery time. Some students will take longer to recover from a concussion for various reasons. Therefore, how a health care professional manages a concussion depends on a great number of variables.

Will a physician treating a student with a concussion send a note to school with specific academic accommodations?

The contents of a note you receive from a physician may differ amongst providers. Some physicians will give detailed descriptions of academic accommodations suited to a particular student and his or her concussion, which can be easily followed by educators. Others may provide little or no details about the concussion. In the latter instance, educators should still help to determine if the student needs academic assistance, and if so, in what form.

What courses of action might a physician recommend?

Above all else, the concussed brain requires mental and physical rest to recover from the injury. The physician treating the student may send the student with the following recommendations:[6,7]

- The physician may recommend **absence from school or half-day attendance.**
  - **Why?** Academic work demands focus, memory and concentration – all brain processes that are affected by a concussion. Decreasing the amount of activity in the brain through absence from school and schoolwork (and therefore achieving mental rest) will help decrease symptoms and begin the healing process.
- The student should **avoid extensive computer use, texting, video games, television, loud music and music through headphones.**
  - **Why?** All of these activities make the brain work harder to process information and can exacerbate symptoms and slow the recovery process.
- The student may **not participate in any physical activity until cleared by a physician, including gym class, weightlifting and sports activities.**
  - **Why?** Physical activity after a concussion often magnifies existing symptoms. There is also the risk of Second Impact Syndrome, a potentially life-threatening event that may result from a second, *often minor*, blow to the head suffered before recovery from the initial injury has occurred.[8]

Ultimately, the key to a speedy recovery is both physical and mental rest.

How can I help a student return to school and academic work after a concussion?

Every concussion is different, and therefore, some students may need to miss school to help heal for varying amounts of time, while others will be able to continue their work with some accommodations.

In general, a full "return to school" may be completed in five phases. Because symptom severity and length of recovery vary from student to student, some students may not need every phase. The purpose of each phase is to identify what the student can do without increasing symptoms (as increasing symptoms may delay recovery) and avoiding the "triggers" that do worsen symptoms. Examples of common school-related symptom triggers are reading, computer use for classwork, and prolonged concentration, although triggers are variable and will differ from student to student.

Return-to-School Framework:

Phase 1: No school

- **Symptom Severity**: In this phase, the student may have a high level of symptoms that prevent him or her from being able to benefit from being in school. Physical symptoms tend to be the most prominent and interfere with even basic tasks.
- **Treatment**: The student should rest the brain and body as much as possible.
- **Interventions**:
  - No school
  - No activities that exacerbate symptoms, such as television, video games, computer use, texting or loud music
  - Other "triggers" that worsen symptoms – noted and avoided to help promote healing
  - No physical activity, which includes anything that increases the heart rate, such as (but not limited to) weightlifting, sport practices and games, gym class, running, stationary biking, push-ups, sit-ups, etc.

Phase 2: Half-day attendance with accommodations

- **Symptom Severity**: In this phase, the student's symptoms have decreased to manageable levels. Symptoms may be exacerbated by certain mental activities that are complex, difficult and/or have a long duration.
- **Treatment**: Balance rest with gradual re-introduction to school. Avoid tasks that produce, worsen or increase symptoms. Avoid symptom triggers.
- **Interventions**:
  - Part-day school attendance, with focus on the core subjects; prioritize what classes should be attended and how often
  - Symptoms reported by student addressed with specific accommodations
  - Eliminate busy work or items not essential to learning priority material
  - Emphasis in this phase on in-school learning; rest is necessary once out of school; homework reduced or eliminated
  - No physical activity

Phase 3: Full-day attendance with accommodations

- **Symptom Severity**: In this phase, the student's symptoms have decreased in both number and severity. Symptoms may still be exacerbated by certain activities, but short time spans with known symptom triggers do not have drastic effects on symptom levels.
- **Treatment**: As the student improves, gradually increase demands on the brain by increasing the amount of work, length of time spent on the work, and the type or difficulty of work. Gradually re-introduce known symptom triggers for short time periods.
- **Interventions**:
  - Continue to prioritize assignments, tests and projects; limit student to one test per day
  - Continue to prioritize in-class learning material; minimize workload and promote best effort on important tasks
  - Gradually increase amount of homework
  - Reported symptoms addressed by specific accommodations; accommodations reduced or eliminated as symptoms wane and resolve
  - No physical activity

Phase 4: Full-day attendance without accommodations

- **Symptom Severity**: In this phase, the student may not have any symptoms or may have mild symptoms that are often intermittent.
- **Treatment**: Accommodations are removed when student can function fully without them.
- **Interventions**:
  - Construct a plan to finish completing missed academic work and keep stress levels low.
  - No physical activity until released by a healthcare professional (such as physician or athletic trainer).

Phase 5: Full school and extracurricular involvement

- **Symptom Severity**: No symptoms are present.
- **Treatment**: No accommodations are needed.
- **Interventions**: Before returning to gym class, weightlifting and/or sports, the student should complete the gradual return-to-play progression as indicated by the healthcare professional.

How do I figure out how much is too much for the student?

The emphasis on the return-to-school framework is allowing the student to participate and learn **without worsening symptoms** (which may delay healing). Finding out "how much is too much" may be a trial and error process to start. *See diagram on page 14 for a visual representation of this concept.*

1. As the student improves, gradually increase demands on the brain by increasing either:

   a. the amount of work

   b. the length of time spent on the work

   c. the type or difficulty of work

   ****** IMPORTANT NOTE: Change only ONE of these things at a time.***

2. If symptoms do not worsen, demands may continue to be gradually increased.

3. If symptoms do worsen, the activity should be discontinued for at least 20 minutes and the student allowed to rest.

   a. If the symptoms are relieved with rest, the student may re-attempt the activity at or below the level that produced symptoms.

   b. If the symptoms are not relieved with rest, the student should discontinue for the day and re-attempt when symptoms have lessened (such as the next day).

How do I determine which symptoms will affect the student in the classroom?

There is no way to predict which symptoms will be the most significant for a student, because symptoms will vary from day to day and even within a single class period. Therefore, at the initial contact with the student after injury, an in-depth conversation should occur that will help the educator target major barriers to learning and achievement.[5] **Refer to the Classroom Concussion Assessment Form on Page 13 of this booklet to help you assess a concussed student's needs**.

To identify where the student may struggle, the educator should ask **specific, open-ended questions** that focus on concussion symptoms that have the most impact on school.[5] Examples of such questions are:

- How is your _____ today? (Insert a symptom, such as headache, dizziness, nausea, tiredness, etc.)
- Are you having trouble focusing or concentrating?
- Are lights and/or noise worsening your symptoms?
- Have you had trouble remembering things? What things do you seem to forget?
- What are you having the most trouble with in class?

Questions should be made course specific. For example, a math teacher could ask if remembering formulas has been difficult. An English teacher could ask if reading has any effect on headache or other physical symptoms. A music teacher could ask if the noise in the room has an effect on headache or other physical symptoms.

Once the initial and most significant problems are identified, modifications and accommodations can be made that address each issue so that the student may continue coursework, but not overload the healing brain. The student should be encouraged to report any changes in symptoms or issues so further alterations may be made. Continuous communication with the student is important.

Also consider restrictions or limitations from the following activities, if symptoms are worse with such activities:

- Band/choir
- Movies in school (especially 3D movies)
- Computer use in classes like keyboarding, drafting, animation and film
- Driving
- Dances, pep rallies and assemblies
- Classes with excessive noise, such as woodworking, metallurgy, auto mechanics, etc.

How do I manage a concussed student in the classroom?

Remember: every concussion is different and each student may have different complaints. Therefore, the accommodations a student needs post-concussion will vary. Educators should be prepared to offer sympathy and understanding with symptom specific accommodations and prioritization.

Why is it so important for me to be sympathetic and understanding with a concussed student?

Educators are used to hearing excuses for why classwork or homework is not finished, and therefore, may be skeptical by nature. Because a concussion is an invisible injury, it may be difficult to understand why a particular student is still complaining of symptoms and taking so long to heal.

A concussed student needs to hear from educators that they understand what a concussion is and what the student may be experiencing. The student needs reassurance that he or she will not fail classes because of missed school days and homework. The student should hear a consistent message from everyone involved in his or her care, from parents or guardians to health care providers to teachers. This sympathy, understanding and consistency from all parties involved will help to decrease stress, and in turn, help with recovery.

Why is it important to prioritize work?

It is very easy for a student who is behind in academic work to become stressed, frustrated and emotional. In combination with the chemical changes taking place in the brain, making up schoolwork may seem downright impossible and lead to undue emotional distress that can worsen overall symptoms. Educators therefore must decide what is essential and what is not. Prioritization should occur, for example, in selecting which classes a student on a half-day schedule will attend. It may make more sense for him or her to attend core classes than electives. Because a student may take so many different classes, it can be extremely difficult for him or her to make up every piece of missed work. Take time to decide what is necessary for true learning and then consider waiving unessential work to help lighten the load of make-up work.[3]

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What are the symptom-specific accommodations I can make?

The concussed brain must work harder and longer to process information. In general, allowing students to postpone assignments, projects and/or tests until they feel better will help keep the injury from adversely affecting achievement.[6] When the student does feel well enough to resume coursework and/or attend school, certain accommodations can be made based on areas where he or she is having issues. These accommodations are outlined below.

What accommodations do most concussed students need?

- For those who feel well enough to take a test, extend test time to give the brain longer to process information.[8]

What if the student seems to be easily distracted?

- Break down assignments into small, manageable chunks that can be completed in a half hour or less. Then provide a break before moving onto the next task.[3]
- Issue short and concise written instructions or have the student write instructions down in a step-by-step sequence.[6]
- Allow the student to take tests in a separate, quiet room.[6]
- Move the student's seat to the front of the room so that he or she may be better observed and less easily distracted.[1]
- Use color coding and/or highlighting to emphasize important information.[3]

What if the student has problems with sensitivity to light and/or noise?

- Move the student away from windows or dim the lights in the room.[8]
- Allow the student to wear sunglasses and/or a hat.[3,8]
- Allow the student to avoid assemblies and to eat lunch in a location other than a loud cafeteria environment.[3]
- Encourage the student to avoid pep rallies, athletic events, school dances and other events where there may be loud noises and/or bright lights.

What if the student complains of memory problems?

- Provide class notes to the student or allow the use of a tape recorder for lectures.[3]
- Allow the use of fact sheets on tests to reduce the demand on memory.[3]
- Use multiple-choice and open-book tests (rather than short answer or essay) to minimize demand on memory.[3]
- Help the student devise ways to memorize information (mnemonic devices, association, rehearsal, repetition, etc.)[3]

What if the student has difficulty with organizational skills and/or trouble being on time?

- Encourage and assist with the use of a planner to keep track of assignments, tests and due dates.[3]
- Use diagrams, time lines and charts to organize information and projects.[3]
- Use "to-do" lists and checklists.
- Check the student's comprehension of directions or instructions and allow the student to restate the information in his or her own words.[3]

How do I know when a student's symptoms are worsening?

Some students may continue to have difficulties even when these management techniques are used. Observe the student for the following signs that classwork is becoming increasingly difficult:

- Greater irritability
- Increased problems paying attention or concentrating
- More emotional than normal/emotional reactions that are disproportionate to situation
- Less ability to cope with emotions than normal
- Increased difficulty learning or remembering new information
- Difficulty organizing tasks
- Increased forgetfulness
- Inappropriate or impulsive behaviors during class
- Repeating themselves

In severe cases, the student may struggle with behavior, emotional and/or social problems. These should be addressed with the same importance as other symptoms, using the following techniques:

- Allow the student a break from the environment, if frustrated or emotional.
- Encourage the student to communicate the difficulties to parents, the guidance counselor and yourself. Encourage and assist the student in seeking help.[3]
- Monitor the student's peer relations.[3]
- Don't put the student on the spot in front of the class.[3]

What if the student is still struggling even with these management techniques?

Students with ongoing problems may need special assistance to continue their schoolwork. A supervising person, such as a guidance counselor or school psychologist, can be used to track the student's progress and initiate the following accommodations, if necessary:[9]

- One-on-one tutoring sessions
- Oral examinations
- Use of a note-taker or scribe for lectures and/or tests
- Use of a reader to read aloud assignments or examinations
- An individualized education plan (IEP) or 504 plan – necessary for those with severe or prolonged symptoms

Who else can help me manage a student with a concussion?

Academic concussion management should be a collaborative approach. A management team, including the student's physician, athletic trainer, guidance counselor, teachers, school psychologist, school nurse and parents should be able to send the student a consistent message of treatment and support. Varying or mixed messages may cause the student unnecessary distress, so communication within the team is vital.[1,9] If you are unsure how information is communicated about concussed students in your school, speak with your administrators.

Refer to our web site at NationwideChildrens.org/Concussions for more resources on academic concussion management.

How can I share this resource with others?

Nationwide Children's Hospital Sports Medicine provides an in-service on this topic free of charge. The length of the presentation and content can be tailored to fit the specific needs of the group. Please call (614) 355-6000 for more information.

A PDF version of this document is also available on our website at **www.NationwideChildrens.org/Concussions**

What if I want to learn more?

We provide further educational resources, presentations, and print materials on concussion management and other sports-related injuries and fitness well-being. Visit **NationwideChildrens.org/Sports-Medicine** or call (614) 355-6000.

The **Concussion Clinic** at Nationwide Children's Hospital utilizes the expertise of Pediatric Sports Medicine specialists and Physical Medicine and Rehabilitation specialists, along with neurologists, neurosurgeons, radiologists, neuropsychologists and athletic trainers to best manage pediatric concussions.

Nationwide Children's Hospital Sports Medicine also offers baseline neurocognitive (concussion) testing to evaluate a healthy athlete's decision making ability, reaction time, attention and memory.

Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention provides informational materials about concussions for athletes, parents, coaches, and teachers, including a free Heads Up! tool kit. Visit **www.cdc.gov/concussion**.

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Class/Period: _____

Instructor: _____

Classroom Concussion Assessment Form

Name: _____ Date: _____ Time: _____

Instructions to the Student:
Read the symptoms in the left-hand column. For each symptom, circle one answer in the center column. Be honest and do not skip any questions. Then, answer the question at the bottom of this page. Give the sheet to your educator once complete.

Instructions to the Educator:
Use the student's responses to the following questions to devise in-class, symptom-based accommodations. Refer back to Concussions in the Classroom for more specific explanations of the accommodations.

Symptoms	Circle ONE in each row				Accommodations
Headache	none	mild	moderate	severe	- Mild/moderate: Allow classroom participation - Avoid symptom triggers - If severe, refer to nurse/parent
Dizziness/balance problems	none	mild	moderate	severe	
Feeling sick to stomach (nausea)	none	mild	moderate	severe	
Tiredness/drowsiness	none	mild	moderate	severe	

Symptoms	Circle ONE		Accommodations
Sensitivity to light	no	yes	- Move away from windows - Dim lights/draw shades - Allow sunglasses/hat in class
Sensitivity to noise	no	yes	- Remove from loud environments - Reduce classroom noise - Avoid headphones and loud music
Feeling mentally foggy	no	yes	- Give breaks between tasks - Simplify tasks
Difficulty concentrating on schoolwork	no	yes	- Shorten task duration - Give breaks between tasks
Difficulty paying attention to teacher	no	yes	- Front room seating - Work/test in quiet room
Difficulty remembering	no	yes	- Provide class notes - Provide memory aids - Use alternative testing methods
Difficulty staying organized	no	yes	- Use agenda/planner for schedule and due dates - Check comprehension of instructions - Use "to-do" lists and checklists

What tasks in school are most difficult for you? Please write specific examples.

_____

_____

The emphasis in managing a concussed student in the classroom is to allow the student to participate and learn **without worsening symptoms** (which may delay healing).

As the student improves, gradually increase demands on the brain by increasing either:

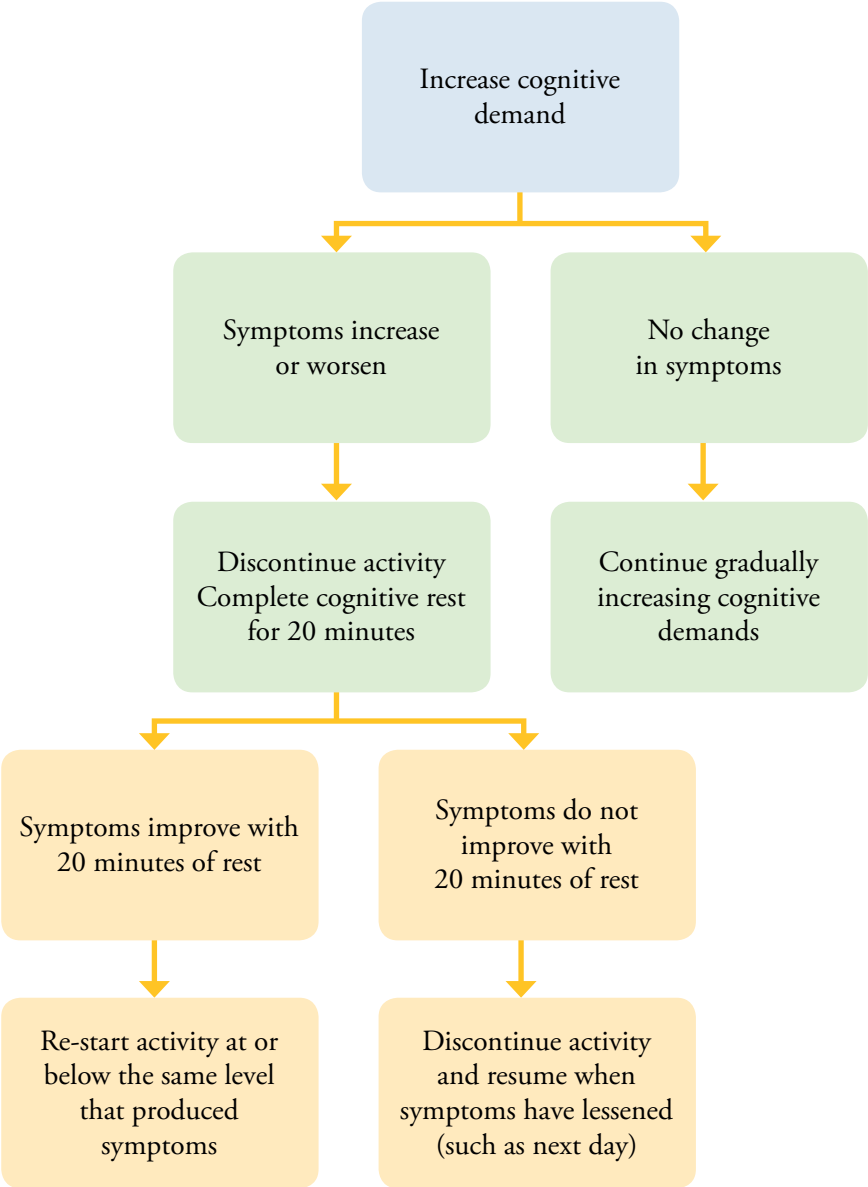
A. the amount of work

B. the length of time spent on the work

C. the type or difficulty of work

**** IMPORTANT NOTE: Change only ONE of these things at a time.*

Below is a decision-making flow chart of what to do if increasing cognitive demand worsens symptoms.



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To schedule an appointment with our Sports Medicine team, call (614) 722-6200 or fill out an appointment request form online at **NationwideChildrens.org**.

Nationwide Children's Hospital Sports Medicine provides care at five locations throughout Columbus. For maps, directions and office hours of our locations, visit **NationwideChildrens.org/Sports-Medicine-Locations**.

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