



Topics:

- What is a Concussion?
- What are the Signs and Symptoms of Concussion?
- Treatment recommendations
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- Frequently Asked Questions (FAQ)

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What is a concussion?

“Any alteration of mental function following a blow to the head that may or may not involve a loss of consciousness”

American Academy of Neurology, 1997

A concussion is a disturbance in the function of the brain caused by a direct or indirect force to the head. It results in a variety of symptoms (like those listed below) and may, or may not, involve memory problems or loss of consciousness.

1. Concussion may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an 'impulsive' force transmitted to the head.
2. Concussion typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously.
3. Concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.
4. Concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course.
5. Concussion is typically associated with normal neuroimaging studies such as MRI or CT Scans.

It should be recognized that the reporting of symptoms may not be entirely reliable. This may be due to the effects of a concussion or because the athlete's passionate desire to return to competition outweighs their natural inclination to give an honest response.

Remember, concussion should be suspected in the presence of ANY ONE or more of the following:

- Symptoms (such as headache, dizziness, drowsiness), or
- Signs (such as seizures, loss of consciousness), or
- Memory problems (inability to remember events immediately before or after the injury)

Any athlete with a suspected concussion should be monitored for deterioration (i.e., should not be left alone) and should not drive a motor vehicle.

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Concussion Signs and symptoms

The signs and symptoms of a concussion can be subtle and may not appear immediately. Symptoms typically last for days, however in some cases, may last weeks or longer.

Your behavior, mental ability and physical skills all are linked to specific areas of your brain. Each concussion is unique to the person who receives it. Given the number of potential combinations of injuries that can occur to the head, and the various parts of the brain that can be affected, each individual may demonstrate different combinations of signs and symptoms. The severity and side effects of a head injury depend on which area of your brain was most affected.

The following lists general signs and symptoms that are commonly associated with a concussion.

Immediate signs and symptoms of a concussion may include:

- Confusion
- Amnesia
- Headache
- Loss of consciousness
- Ringing in the ears (tinnitus)
- Drowsiness
- Nausea
- Vomiting
- Unequal pupil size
- Convulsions
- Unusual eye movements
- Slurred speech

Delayed signs and symptoms may include:

- Irritability
- Headaches
- Depression
- Sleep disturbances, including insomnia or difficulty waking
- Fatigue
- Poor concentration
- Trouble with memory
- Getting lost or becoming easily confused
- Increased sensitivity to sounds, lights and distractions
- Loss of sense of taste or smell
- Difficulty with gait or in coordinating use of limbs

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Treatment Recommendations

Allowing enough healing and recovery time following a concussion is crucial in preventing any further damage. Research shows that the effects of repeated concussion in young athletes can be cumulative. Most athletes who experience an initial concussion can recover completely as long as they are not returned to contact sports too soon. Following a concussion, there is a period of change in brain function that varies in severity and length with each individual. During this time, the brain is vulnerable to more severe or permanent injury. If the athlete sustains a second concussion during this time period, the risk of more serious brain injury increases.

The following treatment of a sports related concussion is recommended:

1. **Rest** - The most important thing you can do following your concussion is rest. Rest allows your brain to heal and return to normal function. It is very important that the athlete increases their amount of sleep time as this helps the healing process. They may hear the term “relative rest”. Relative rest means that you should restrict your physical and mental activity as much as possible. You should only do the minimum activity you need to do to complete your schoolwork, housework etc. This includes limiting your participation in sports and physical education as well as limiting your computer use, video game playing and other activities that can stimulate your brain.
2. **Education** - One important component of treating your concussion involves education. This booklet was designed to help you and your family understand what a concussion is, how to identify it and what to do to treat it. The intent is that by educating you on these things, you can begin to receive care immediately in the future if you sustain a concussion, therefore reducing your recovery time and risk for long term damage.
3. **Computerized Neuropsychological Testing** - Some medical professionals utilize the ImPACT Computerized Concussion Test to help provide an objective measurement of how your brain is functioning. This tool assists the physician in determining the severity of the injury and when it is safe for you to return to play. We recommend taking the ImPACT test within 48-72 hours of your injury.
4. **Student Advocacy** - Your physicians should work with your family and school faculty to ensure that your academic achievement does not suffer as a result of your injury. Guidelines regarding studying, test modification etc. should be discussed with you and your family with the appropriate recommendation made to your school.
5. **Physical Exertion Testing** - Once you are symptom free at rest, the physicians will generally allow you to resume gradual physical activity. If this activity is tolerated without a return of symptoms, it can be progressed by your school’s Licensed Athletic Trainer.
6. **Return to Play** - Once you are symptom free at rest, your neuropsychological test is back to normal (if applicable) and you are symptom free with exertion and sports specific activity, your physician may allow you to return to sports participation. If at anytime during your return to play you experience a return of your concussion symptoms, it is very important that you notify your coach, parent, Licensed Athletic Trainer or Physician.

HEAD INJURY CARE INSTRUCTION SHEET

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This athlete has sustained a head injury. This is a medical follow up sheet to use to ensure the health and safety of this athlete. Quite often signs of head injury do not appear immediately after trauma. The purpose of this sheet is to alert you and your family of the symptoms of significant head injuries that may occur several hours after the initial head injury. Please follow the suggestions listed below:

- Keep careful watch over the athlete.
- Do not allow the athlete to consume alcoholic beverages.
- **Do not allow the athlete to take aspirin or ibuprofen products until 48 hours after the injury as these products thin the blood and may mask symptoms of a more severe injury!**

Contact the athlete's primary care physician or take the athlete to the nearest hospital Emergency Room **IMMEDIATELY** if any of the following symptoms persist or worsen:

1. Difficulty in waking the athlete
2. Dizziness or disorientation
3. Nausea or Vomiting
4. Severe headache, particularly at a specific location, which is continuing, increasing or changing in pattern
5. Blurred vision
6. Pupils which are dilated, unequal in size, or nonreactive to light
7. Poor balance or unsteadiness
8. Weakness or numbness in either arm or leg
9. Mental confusion such as difficulty in remembering recent events or meaningful facts.
10. Convulsions
11. Unusual or Bizarre behavior
12. Persistent ringing of the ears
13. Any discharge from the ears or nose
14. Slurring of Speech

The appearance of any of the above symptoms indicates that this athlete has a sustained a significant head injury that requires immediate medical attention!

For more information about concussions, visit our website at www.Wisportsconcussion.org

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Frequently Asked Questions (FAQ)

1. My son suffered a concussion on Wednesday; will he be able to play in Friday's football game?

It is recommended that an athlete should not return to competitive sports until they are symptom free, both at rest and with exercise and their neuro-cognitive function returns to normal. Return to play should only occur with permission from your Physician

2. Can I give my son/daughter any pain medications?

We do not recommend that the athlete take medicine without your physician's permission. Aspirin, Non-Steroidal Anti Inflammatory Drugs (Advil, Ibuprofen, Aleve), blood thinners and drugs that cause drowsiness should be avoided. Headache intensity may worsen with too much activity; therefore, rest instead of medicines should be the first choice for treatment. Alcohol use should also be avoided.

3. Can my child participate in school, work or other activities?

Returning to school or work activities will be at the discretion of the Physician. Some school and work activities may need to be monitored, for example: the athlete may need to participate in only ½ days of school with frequent break periods, homework may need to be monitored, he or she may need to avoid loud music and video games. Academic tests and written papers may also need to be postponed.

4. What are the long-term effects?

It is the opinion of experts that if concussions are properly treated, there are no long term effects for the vast majority of people.

5. How can we prevent concussions?

1. Proper headgear and appropriate fit (football, biking, skiing, lacrosse, soccer, roller blading, skateboarding, snowboarding, or other contact sports)
2. Proper tackling in football (head up- no spearing)
3. Fitted mouth guard
4. Proper management of a first concussion, if that should occur.

6. What happens if my child returns too soon?

If your child is under the care of a Credentialed ImPACT Consultant or qualified physician he or she will make sure that the athlete is cleared mentally, physically, and neurologically before the athlete returns to play. However, if your child's concussion is not properly managed they could suffer what is called Second ImPACT syndrome. Second ImPACT syndrome occurs when an athlete sustains a second head injury before symptoms associated with the first have cleared. Although, very rare, Second ImPACT syndrome can be fatal.

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Frequently Asked Questions (FAQ) Continued

7. My daughter's teammate just suffered a concussion and she was allowed to return to play sooner than my daughter, why is that?
Each concussion should be treated individually. Concussion symptoms and severity are different for each head injury and the return to play decisions vary based on the individual.
8. If my child has a negative MRI/CT scan why can't they play?
MRIs and CT scans are tests to rule out more significant injuries such as bleeding in the brain or skull fractures. We rely on other tests to help determine the appropriate return to play. We evaluate physical and cognitive symptoms as well as neurological deficits. While we do use the ImPACT Computerized Concussion Test to help assess your son or daughter's neuro-cognitive function, it is only one of the tools we use to assist in determining the level of their concussion.
9. Is concussion management covered by my insurance?
Most insurance companies cover the office visit and the ImPACT exam. However, we always encourage our patients to verify coverage prior to coming to the appointment. You may be able to use your Flexible Spending Account for this treatment.
10. Why can't my child take a follow up ImPACT exam at school?
We perform baseline testing at most of the local high schools. However, if your child suffers a concussion, it is recommended that he or she be evaluated by a physician prior to returning to activity. Due to the medical nature of the Post Concussion ImPACT test, it is only administered in a physician clinic where it can be accurately evaluated and utilized as part of the examination.