



CONCUSSION:

A PATIENT GUIDE



Orthopedics and
Sports Medicine

WHAT IS A CONCUSSION?

A concussion, or mild traumatic brain injury, is an injury that interferes with normal brain function, leading to temporary problems with how you feel, think and act. Concussions need to be taken seriously, as improper management can lead to prolonged symptoms, permanent functional deficits and, in rare cases, death.

HOW DOES A CONCUSSION OCCUR?

Concussions typically occur from a blow to the body or head that causes the brain to get jarred or shake inside the skull. As it attempts to heal itself, the brain requires more resources and energy than the body can provide. This can lead to multiple symptoms, which may include:

Physical symptoms

Headache
Dizziness
Balance problems
Nausea
Vision problems
Sensitivity to noise/light
Increased fatigue
Trouble falling asleep
Sleeping more/less than usual

Cognitive symptoms

Difficulty concentrating
Difficulty remembering
Feeling slowed down
Feeling mentally foggy

Emotional symptoms

More emotional/moody
Increased irritability
Anxiety
Nervousness

Some symptoms will resolve quickly, while some may be longer lasting. Each injury and each child will recover differently.

QUICK FACTS

- The medical community has done away with "grading" concussions. Only once symptoms have completely resolved can the true severity of a concussion be determined.
- A loss of consciousness (LOC) is **not required** for a concussion to occur, nor does it indicate severity of a concussion. Some concussions in which there was LOC resolve in a matter of days, while others that occurred without LOC can take several weeks.
- Studies suggest that once you have sustained a concussion, you are at a higher risk of concussions in the future.
- Helmets, soccer headgear and mouth guards **cannot** prevent concussions. No equipment exists to keep the brain from shifting within the skull. Ensuring properly fitted protective equipment and teaching proper technique are the best ways to allow an athlete to participate safely.
- Sixty percent of teens admit to lying about their symptoms. Athletes are likely to hide symptoms and thus require careful, detailed questions about how they feel and how they function (sleeping, homework, computer time, etc.).
- Imaging studies (MRI or CT) are not often initially needed for concussion evaluation and management. Typically, these studies are ordered when there is concern about a skull fracture or bleeding within the brain. These studies are ordered occasionally to look for other abnormalities in patients with prolonged symptoms.
- Concussions can affect mental and emotional health, and sometimes bring on symptoms related to depression and anxiety. Concussions also might intensify these types of previously existing conditions.



COMPLICATIONS

It is important to follow the physical activity restrictions given by your child's doctor or athletic trainer to allow the brain to fully heal. When a second injury to the brain occurs before the first fully heals, it can lead to prolonged and/or more severe symptoms. In rare cases, second impact syndrome can occur. This can lead to permanent brain injury, and even death.

Post-concussion syndrome is a common condition in which symptoms of a concussion have failed to resolve over a period of months. These symptoms can be those listed on page one as well as depression, anxiety and irritability. These symptoms are often treated differently than the initial injury and sometimes involve referrals to our other concussion specialists.

HOW IS A CONCUSSION TREATED?

When treated properly, a concussion will heal. Caring for a concussion is centered on creating the best environment possible to allow the brain to rest and recover. This will require some accommodations and restrictions to be put in place for normal daily activities. Keep in mind that every concussion is unique and care needs to be individualized. The main components of care include:

Rest while limiting ...

- **Mental exertion:** Activities that require focus and concentration like school, homework, or reading might cause an increase in symptoms. Therefore, modifications could need to be made to your child's school schedule.
- **Visual activity:** Visual stimulation — including video games, computers, texting, television and reading — requires more energy from the brain, often increasing symptoms.



Avoid physical activity

Physical activity potentially can lead to prolonged symptoms if it occurs too soon. This includes weightlifting and conditioning/aerobic training, and even free play. No activity should be started without medical clearance from your child's physician. Simply attending sport practice/games to watch can cause an increase in symptoms due to the amount of audio, visual and emotional stimulation.



Sleep

Rest and sleep are some of the most important ways to help a concussion heal. Stick to a consistent bedtime schedule in a dark, quiet room. Naps should be limited to 20-30 minutes to avoid disrupting normal nighttime sleep cycles.



Diet/hydration

Stick to a regular eating schedule and don't skip meals. Maintain adequate hydration, preferably with water. A 100-pound child/adolescent should drink at least 70 ounces of water per day. Avoid being in the sun or hot environments when possible.



Pain Control

Over-the-counter acetaminophen (Tylenol®) is preferred over other medications after the initial injury. Your physician may recommend medication and/or supplements if your child's symptoms are severe or prolonged.



Returning to sports and other activities

Your doctor will provide a specific return-to-play program once concussion symptoms have resolved and your child has fully returned to academics without restrictions.

CONCUSSION RESOURCES

- The National Federation of State High School Associations' free concussion webinar: nfhslearn.com
- Wisconsin Interscholastic Athletic Association concussion education: wiaawi.org
- The Centers for Disease Control concussion education: cdc.gov/concussion
- Brain 101 – Webinar explaining concussions: brain101.orcasinc.com
- Brain Injury Association of America: biausa.org

Effective April 17, 2012, Wisconsin Act 172 requires athletes, coaches and parents involved in youth sports to be educated on the risks of concussion, and to sign an agreement indicating understanding of this risk prior to participation. This law requires immediate removal from play if symptoms indicate that a possible concussion has occurred, with return to play not granted until there is written clearance from an appropriate health care provider.

The sports medicine team at Children's Hospital of Wisconsin is always available to assist with additional questions you may have. You can contact our Concussion Line at **(414) 337-8000** during business hours to speak with a licensed athletic trainer or registered nurse regarding your questions. We are also available for any non-concussion sports injuries your child may have. If you have any questions or would like to schedule an appointment, please call our Sports Line at **(414) 604-7512**. Learn more at chw.org/sports.

