

Concussion and Related Neurotrauma

What Is a Concussion?

Concussions are also referred to as mild traumatic brain injuries. A traumatic brain injury can occur when the head gets hit hard, or when a sudden impact causes the brain to move within the skull. While most children recover from a concussion, for some symptoms can persist for days, weeks or longer.

Concussions can occur along with injuries to the neck and upper spine. Examples of these types of concussions include whiplash and sports injuries—often called “stingers”—that affect the nerves in the neck or shoulder.



What Causes Concussions?

The Centers for Disease Control and Prevention estimates that as many as 1.6 to 3.8 million Americans might experience a concussion every year. Infants and preschoolers (ages 0 to 4) and teenagers and young adults (ages 15 to 19) are at highest risk for traumatic brain injuries.

Activities that create risk for concussion in children include:

- Team sports.
- Biking.
- Skiing.
- Skating.
- Scooter and Skateboards

Motor vehicle accidents, falls and physical violence can also lead to a concussion.

To help prevent a concussion or minimize its damage, always use seat belts. Wear helmets appropriate for activities such as biking, horseback riding, skiing, and in-line skating.

Watch this video featuring tips from Angela Sinner, MD on preventing concussions during winter sports activities.

Concussion Symptoms and Effects

A child or teen who experiences a concussion might or might not get knocked out (lose consciousness). Either way, the head injury can damage cells, blood vessels and nerves in the brain.

Everyone responds differently to a traumatic brain injury. Some signs of concussion might include:

- Balance problems.
- Changes in school performance.
- Dizziness.
- Emotional changes, such as irritability, sadness, nervousness or lack of interest in favorite activities.
- Tiredness.
- Feeling foggy or confused.
- Trouble falling asleep or staying asleep.
- Headache.
- Impulsive behavior.
- Nausea.

- Sensitivity to noise or light.
- Sleeping more than usual, or less than usual.
- Slower reaction times.
- Taking longer to understand or process information.
- Trouble concentrating, remembering or paying attention.
- Visual problems.

Concussions are often difficult to identify, because concussion effects can be subtle, or get mistaken for something else. For example, your teen might be foggy and irritable due to ordinary sleepiness. But if your teen recently had a head injury, those symptoms might suggest a traumatic brain injury.

Recognizing symptoms in infants and toddlers can be difficult as well, because your child might not be able to describe how they feel. A young child who has experienced a traumatic brain injury might have symptoms such as:

- Changes in play or loss of interest in favorite activities.
- Excessive crying.
- Fogginess or confusion.
- Refusal to eat or nurse.
- Swelling of the scalp or soft spot.

Concussion Diagnosis and Treatment

Concussions take time and proper care to heal, but most kids recover fully. However, if your child experiences a second concussion before the first has healed, serious and long-lasting symptoms can occur. At Gillette Children's Specialty Healthcare, we provide thorough tests, expert care and consultations about returning to activities.

Here's is what you can expect:

Initial Assessment

All head injuries require evaluations by trained medical professionals, even if they don't lead to a blackout. Urgent care doctors, nurse practitioners or other primary care providers can perform a concussion test.

As part of the physical exam, a health care provider will check for signs of injury to the nervous system, especially the brain and spinal cord. Sometimes they will order **X-rays** to check for fractures, or an **MRI** or **CT** scans to check for signs of tissue damage and swelling.

Unfortunately, these imaging tests don't always show damage that has occurred, because changes often happen on a cellular level. For that reason, a proper diagnosis requires a complete physical exam.

Specialty Evaluation

If initial tests point to a head concussion, your child should have a complete medical evaluation before returning to school, sports, work or other daily activities. Your primary care providers might refer you to Gillette for a specialty evaluation and follow-up care.

Nurse practitioners who specialize in [pediatric rehabilitation](#) or [neurosurgery](#) at Gillette perform exams and develop care plans. As part of an evaluation, we might conduct tests, such as Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT), to screen for neurocognitive changes and to track healing progress.

Brain Rest

The best way to treat a concussion is to initially let the brain rest. Often, concussion treatment plans will include recommendations to eliminate or limit:

- Reading on books or screens.
- Video games and other types of screen time.
- Working and driving (for teens).

Physical Rest

If your child experiences a concussion, they should limit their physical activity, allowing the brain to rest and heal. Reintroduce physical activity gradually, as the brain and body can tolerate it. An experienced medical team can help your child return to school and activities.

Gradual Return to Activities and School

Your child gradually returns to regular activities, as recommended by your care providers. If symptoms don't return, they can increase the amount of time spent on activities such as schoolwork or exercise.

Follow-up Care

The need for follow-up care depends on your child's injury and symptoms. Some kids might work with specialists in [speech-language pathology](#), [physical therapy](#) and [occupational therapy](#). Your child also might undergo evaluations with [psychologists](#), [psychiatrists](#) and [neuropsychologists](#), if needed. Clinical [social workers](#) and psychologists can work with schools to plan any necessary accommodations.

Integrated Care

All brain injuries are serious. If your child or teen experiences a concussion, the Gillette Neurotrauma Clinic provides specialty evaluations and outpatient follow-up. We also offer evaluations and treatments specially designed for infants and toddlers. Our services also include administering ImPACT for children 5 and older.

To treat a concussion, your child might work with specialists in:

- [Neurology](#).

- [Neuropsychology](#).
- [Neurosurgery](#).
- [Radiology and imaging](#).
- [Rehabilitation medicine](#).
- [Rehabilitation therapies](#).
- [Therapeutic recreation](#).
- [Psychology](#).
- [Sleep Health](#).

When children age 15 and under experience a severe brain injury, Gillette provides [pediatric intensive care](#) (critical care) and [comprehensive inpatient rehabilitation](#) care. Our goal is to help your child make a full recovery, while reducing risk of long-term injury.

Your family will work closely with our highly trained specialists, who will offer guidance and support as you help your child return to normal activities.

Advocacy and Education Organizations

- [Brain Injury Association](#).
- [Minnesota Brain Injury Alliance](#).
- [MN Department of Education Special Education – Traumatic Brain Injury](#)

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[June 8, 2016](#)

[Saving Ahriana After Near-Tragic Accident](#)

["Don't think it won't happen to you," says Ahriana's mom, Cassie Sonnentag. Ahriana sustained serious injuries when a TV fell on her in a terrible accident. See how her family's quick action and care from the Level I Pediatric Trauma Center saved her life.](#)

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1 / 5

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If you are a Gillette patient with urgent questions or concerns, please contact Telehealth Nursing at [651-229-3890](#).