

TUFTS MEDICAL CENTER is verified by the American College of Surgeons and designated by the Massachusetts Department of Public Health as Level II Adult and Pediatric Trauma Centers, ensuring that the highest quality standards are maintained. A team of expert physicians, nurses and technologists is available 24/7 to meet the needs of all injured patients. The teams are lead by world-class adult and pediatric trauma surgeons. Patients are transported to the hospital or arrive from the surrounding community at the hospital's ED. Facilities available to the patient include 24-hour access to CT and MRI scans, to fully-staffed operating rooms and adult and pediatric intensive care units. Trauma care starts with prevention. Our professionals work to identify injury trends and develop educational programs to help keep our communities safe and injury free. Tufts Medical Center has a variety of injury prevention programs available.

Head Injuries

Q & A WITH BILL BRIGGS, RN, MSN, ALEX PAVOLL, MPH AND LESLIE RIDEOUT, RN, MS, FROM THE ADULT TRAUMA TEAM

What is a traumatic brain injury (TBI)?

Injuries to the brain can be classified as either Acquired Brain Injuries (ABI) or Traumatic Brain Injuries (TBI). ABIs are caused by internal factors such as a tumor, stroke, infection, lack of oxygen or a preexisting medical condition. TBIs are related to an external impact to the head or from rapid acceleration or deceleration to the head which tears nerve fibers.

A concussion is a specific type of TBI caused by a bump, blow or jolt to your head that can cause a change in the way your brain works. Concussions can be serious even if you were not “knocked out.” A small percentage of patients go on to have long-term symptoms.

What are the most common causes of TBI?

Everyone is susceptible to suffering a TBI. The following are the most common sources:

- ▶ **Car accidents** — impact-related or from a sudden acceleration or deceleration
- ▶ **Fall-related injuries** — falling off of ladders, tripping over objects, slipping on a wet or slick surface
- ▶ **Sports** — contact sports impact or a fall
- ▶ **Physical violence** — bullet wounds, assault with an object



How can I prevent head injury?

Always be aware of potential trip or slip hazards in your surroundings. Hold onto handrails on stairs and make sure pathways in and around your home are well-lit and free of clutter. Installing safety equipment in your home such as grab bars and non-slip mats in the shower can prevent falls. Physical exercise and the balance improvement characteristics of exercise such as tai chi can help protect you as well. Use extra caution when walking on slippery surfaces, and wear rubber soled shoes that have traction. Review your prescription medications with your physician to ensure that there are no conflicts that may lead to coordination problems and receive regular vision tests. Do not drive under the influence of drugs or alcohol. Do not text or perform actions that take your focus off the road, and always wear your seatbelt. Children should not text while riding on a bike, skateboard or scooter. Wear a helmet and safety equipment when performing any sport with a potential for TBI, from biking and skiing to football and hockey. Remove yourself from potentially harmful social situations, and alert the police if violent conflict arises. Make sure the coaches, teachers and trainers for your children's sports teams have been trained to recognize and intervene with head injuries.

A quick resource guide for your patients: clip and copy or download at www.tuftsmedicalcenter.org/HeadInjuries

What are the symptoms of a serious head injury?

A mild TBI can result in headache, nausea and vomiting, mild confusion or feeling “foggy” or “just not right.” A severe TBI can be fatal. Symptoms can include headaches, seizures, weakness, fatigue, sense deficiencies such as blurred or double vision, balance problems, impaired reasoning and memory, and coma. In the long term, TBI can lead to distractibility, emotional desensitization, substance abuse, depression, anxiety and/or mental instability. Even a minor TBI can have long term consequences and should be treated by a physician.

How are head injuries diagnosed?

A comprehensive assessment by a physician or other medical provider is the first step in determining the type and location of a TBI. This will include a thorough history of the injury, any previous injuries and your medical history. The provider will ask a series of questions to assess the patient’s mental status as well as do a physical exam. The Glasgow Coma Scale is a scored test that assesses the severity of a brain injury by checking your ability to follow directions, blink your eyes and move extremities. This test is used by health care professionals from EMTs to doctors. The coherence of your speech and your behavior also provides important clues. A CT scan is a specialized x-ray that creates multiple cross-sectional images of the head, which can reveal bleeding and clotting in the brain, in addition to swelling. An MRI is a very sensitive test often used to diagnose head and spinal cord injuries; it is typically used after the patient has stabilized, and not in the Emergency Department.

What are some treatments for head injury?

Treatments vary depending on the type and severity of the TBI. Mild TBI may only require observation, rest and medications. At the opposite extreme, surgery may be required to stop internal bleeding, remove blood clots and reduce the pressure on the brain. These patients are best cared for in a trauma center, such as Tufts Medical Center, that has the specialized capabilities, including trauma surgery, neurosurgery, neurology, intensive care, and 24-hour access to testing including CT and MRI.

Patients who suffer from concussions and mild TBI who have symptoms that persist more than a few days should follow-up with a neurosurgeon or neurologist.

When should you consult a physician?

You should consult your physician or go directly to the Emergency Department if you experience any injury with loss of consciousness (knocked out) or amnesia; vision problems; bleeding from eyes, ears or mouth; change in behavior (sleep, irritability, lethargy); fluid draining from nose; repeated vomiting; or irregular breathing or heart rate. Children under the age of 2, persons under the influence of alcohol or other drugs, and anyone with suspected child or domestic abuse should be seen right away.

In the case of any serious injury with loss of consciousness, abnormal behavior, neck pain or other injuries, call 911 right away.

If you are taking any blood thinners such as Coumadin® (warfarin), aspirin or Plavix, you are at a higher risk for serious brain injury. Even a minor injury can cause bleeding into the brain, and you should be evaluated by a medical provider or in the Emergency Department.

How long should you expect symptoms to last?

The length of time that symptoms last varies considerably from patient to patient. Some patients’ symptoms clear instantly, while as many as one third of concussion patients have symptoms at three months. Your doctor should follow your progress.

Patients with severe TBI may have permanent brain damage and require extensive rehabilitation. Even then, there may be changes in personality, behavior, memory and intelligence. The patient may have to relearn many of the skills lost due to the injury. Support groups may help the patient and family adapt to these changes.

What about playing sports after a concussion?

Do not return to playing sports until after a physician has cleared you for symptoms. Resuming too early could lead to the more serious second impact syndrome, in which the brain swells following a second concussion before the symptoms from an earlier concussion have passed. □

Where can I find more information?

www.cdc.gov/concussion
www.brainline.org
www.braintrauma.org

Tufts Medical Center