

TRAUMATIC BRAIN INJURY

BY JENNA HAINES

Basics for patients and their caregivers

Feeling a little dizzy after that spill down the stairs? While you may be tempted to shrug it off in favor of that giant to-do list, don't. Put down the laundry basket and consult a doctor. Like most injuries, traumatic brain injury (TBI), usually results from a singular event, such as a fall or a car accident. What differentiates TBI from your run-of-the-mill bruise, sprain, or puncture, though, are the after-effects. According to the Centers for Disease Control and Prevention (CDC), there are 1.7 million TBI cases every year, and they contribute to approximately one-third of all injury-related deaths in the U.S.

TBIs are particularly scary because the brain controls multiple functions of the body, and the effects are contingent on the severity of the blow and what specific areas of the brain are injured. As a result of these complex variables, no two brain injuries are alike, and symptoms can range from mild (e.g. a light concussion) to severe (e.g. death).

Effects of an Injury

According to the Brain Injury Association of America (BIAA), damage to the left side of the brain can cause difficulties

in understanding and/or speaking language, impaired logic, decreased control over movements on the right side of the body, verbal memory loss, depression, and anxiety. Injuries on the right side of the brain can cause visual-spatial impairment, visual memory loss, a loss of "big picture" thinking, and distorted creative and musical perception. A diffuse brain injury, an injury in which the effects are literally diffused through both sides of the brain, can cause concussion-like symptoms, including slower thinking, confusion, impaired concentration, fatigue, and reduced cognitive ability.

Common Causes

According to the CDC, the chief causes of TBIs are falls (35%), motor vehicle/traffic crashes (17%), being struck by or against an object (17%), and assault (10%). Falls, the leading cause of TBIs, are responsible for 50% of brain injuries in children aged 0-4 and 61% among adults 65 and older. According to the National Institute of Neurological Disorders and Strokes (NINDS), traffic accidents are a top cause of TBIs in people under 75.

Overall, ages at each end of the spectrum have the highest risk. Approximately 22% of all TBI-related hospitalizations involve adults aged 74 years and older, and approximately 18% of all TBI-related emergency department visits involve children aged 0-4.

What to Look For

In order to minimize the long-term damage of a TBI, it is important to recognize the signs and symptoms. In the case of a mild to moderate TBI, some common indicators to look for are fatigue, confusion, memory issues, changes in sleep patterns, blurred vision, lingering headaches or neck pain, increased sensitivity to light, sounds, or distractions; nausea, and dizziness.

The BIAA notes that these injuries can cause more lasting damage in children because of the plasticity of their brains. The effects may not seem particularly obvious at first, but they can increase over time. If you or your child is experiencing any of these symptoms, it is important to see a doctor immediately.

Sports-Related TBIs: A Growing Problem

In recent years, sports-related TBIs have caught the attention of the media—and with good cause. The CDC says that during the last decade, emergency department visits for sports- and recreation-related TBIs among children and adolescents has increased by 60%.

Overall, the activities associated with the greatest number of TBI-related ED visits include:



If you are a coach or a parent, you can play a key role in preventing TBIs and responding properly when they occur. For resources and information on how to recognize and respond to these injuries, visit [cdc.gov/concussions/sports](https://www.cdc.gov/concussions/sports).

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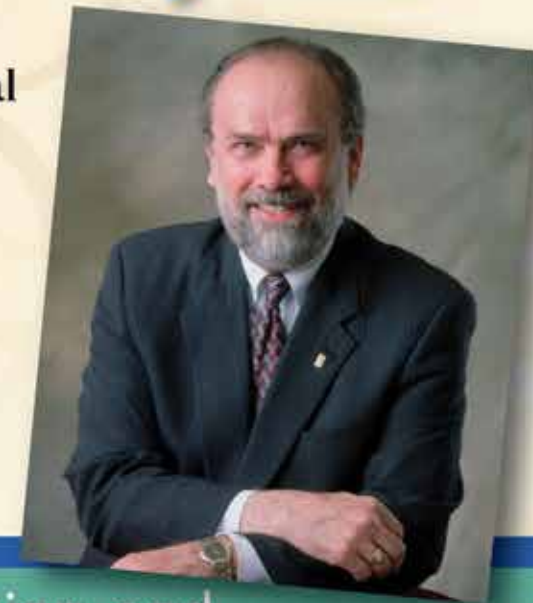
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An Ounce of Prevention
You can reduce your risk of a TBI by taking precautions in your day-to-day life. The CDC recommends wearing a seatbelt (this includes buckling children properly), and wearing helmets when riding a motorcycle, biking, playing a contact sport, skating or skateboarding, riding a horse, batting and running bases in baseball, and skiing or snowboarding. Bullets and firearms should be properly stored in a locked cabinet, and you can avoid falls by using handrails on stairways and a step stool with a grab bar when reaching for high

objects. If you have small children, install window guards and use safety gates at the tops and bottoms of stairs.

Get Medical Care

In case of an injury, see a doctor immediately – the severity of a TBI isn’t always immediately apparent. To assess the severity of the injury, the doctor may use imaging technology, including a Computed Tomography (CT) or a Magnetic Resonance Imaging (MRI) scan.
“After a concussion, which is the mildest form of TBI, the brain of a child is particularly vulnerable for a period of time to repeat injury with potentially devastating consequences,” says Dr. Michel Paré, a neurosurgeon with the Neurosurgery and Spine Center, part of Hamilton Physician Group. “This is why caution is recommended before returning athletes to play. In the best-case scenario, athletes are assessed before the season using neuro-cognitive, balance, and visual perception tests to provide a baseline. Tests



Phil Megison, M.D.
Chattanooga
Neurosurgery
and Spine

should be repeated and returned to normal after an injury to ensure it is safe to return to play. When in doubt, sit them out!”


Treating TBIs

Dr. Phil Megison of Chattanooga Neurosurgery and Spine notes that treatment for a traumatic brain injury depends on a variety of factors, including: the amount of injury sustained by the brain tissue, how the injury was sustained, and any other extenuating circumstances like blood clots, fractured bones, or drug-related problems. “Treatment regimens depend on these types of questions, to decide whether or not there is a need for surgery or a medically-induced coma, or whether or not the patient needs to be cooled to decrease the amount of brain activity,” he says.



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If the brain injury is mild, the doctor may prescribe an over-the-counter pain reliever and rest. He or she can also let you know when it's okay to return to normal activities. If the injury is more serious, medication used to prevent further damage may include diuretics (to decrease pressure on the brain), anti-seizure medicines, and/or even coma-inducing drugs. In extreme cases, surgery may be needed to remove blood clots, repair skull fractures, or open up the skull to relieve pressure.

According to Dr. Brian Kalla of Siskin Hospital for Physical Rehabilitation, patients with more severe injuries will need inpatient rehabilitation to help them recover as much function as possible. The process usually starts in the hospital and continues with outpatient care for as long as needed. "It usually takes several months," says Dr. Kalla. "Even after discharge, patients may continue to see improvements for over a year with appropriate outpatient care."

Dr. Amjad M. Munir, medical director of HealthSouth Chattanooga, explains why receiving rehabilitation in an acute inpatient rehabilitation hospital is usually the best option for care and recovery. "Rehabilitation promotes healing and 'rewiring' of the brain after an injury, promoting improved strength and balance, improved ability to think, reason, and communicate, and improved independence with functional activities," he says.

The type and duration of rehabilitation will depend on the severity of the injury and the parts of the brain affected. Treatment typically includes a multidisciplinary approach; rehabilitation specialists can range from psychologists and physical therapists to speech-language pathologists and vocational counselors. "Each member of this team has a unique focus geared towards maximizing the patient's function so he or



Brian Kalla, M.D.
Siskin Hospital
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Rehabilitation



she can return to the community with the highest level of independence," Kalla says.

Dr. Munir agrees. "The rehabilitation setting provides the patient an opportunity to receive an intense level of therapy on a daily basis from a treatment team consisting of physical, occupational, and speech therapies, rehabilitation nurses, and physiatrists – doctors who specialize in rehabilitative medicine."

It's important to understand that the recovery process can feel tediously slow. Make it a priority to take care of yourself—get enough sleep, eat, and make sure you reach out for help. In addition to offering physical assistance, family and friends can provide a strong source of emotional support—an integral piece to the overall healing process.

Local Support

The aftermath of a TBI can be overwhelming for both patient and family. It's important to know that you're not alone. The



Amjad M. Munir, M.D.
medical director,
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Chattanooga Area Brain Injury Association (CABIA) is a non-profit 501 (c) (3) organization dedicated to providing education, information, resources, support and advocacy to those who have a brain injury and to their families, and all services are provided free of charge. CABIA helps patients in whatever way it can to make connections, return to home/school/community/work, apply for needed services, and navigate through resources available. It also offers two support groups (one in Chattanooga and one in Cleveland). For more information, call Lisa Morgan at 423.634.1572 or visit online at cabiatn.org.

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