

# Traumatic Brain Injury

## Fast Facts

### Test Your Knowledge Q:

What is the best way to protect yourself from a sports-related brain injury?

**A:** Correct use of an approved helmet is the best way to protect your head and brain from sports-related injuries. It is also important to play by the rules and avoid unnecessary force.

**Q:** What are some of the symptoms of a mild traumatic brain injury (TBI)?

**A:** Loss of balance, vision, memory or hearing, dizziness, unconsciousness, headache or seizures are all symptoms. Not all symptoms need to be present to suspect a concussion or traumatic brain injury. Seek medical attention for any suspected concussion or brain injury.

*Injury to the brain can be mild, or can lead to life-long disability or death. Prevention measures help protect your brain by lowering your risk for injury.*

A traumatic brain injury, or TBI, is defined as an alteration in brain function, or other evidence of brain pathology, caused by an external force.<sup>1</sup> An injury to the brain can be mild or severe, and can lead to life-long effects in cognition (thinking) and body functions, such as movement. Developing safe practices for driving, avoiding violence, protecting from falls and playing sports can help reduce the risk for brain in-

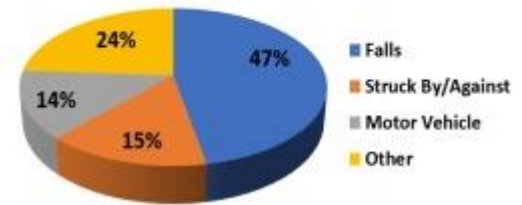
### KNOW THE FACTS

- In 2014, 2.87 million emergency room visits, hospitalizations or deaths were associated with TBI.<sup>2</sup>
- TBI accounts for 30% of all injury related deaths in the U.S.<sup>2</sup>
- Most TBIs that occur each year are concussions, which are a mild form of TBI.<sup>2</sup>
- Approximately half of patients with a severe head injury will need surgery to remove or repair brain bleeding or bruising.<sup>3</sup>
- It is estimated that 3.2 to 5.3 million Americans are living with long-term or life-long disabilities resulting from a TBI.<sup>4</sup>

*The brain is made of nerve tissue, which does not heal in the same way bone or skin is able to.*



Causes of Brain Injury



Source: Centers for Disease Control and Injury Prevention

### HOW ARE TEENS AFFECTED?

- The risk of motor vehicle crashes is higher among 16-19 year-olds than any other age group. In 2017, 2,364 teens 16-19 were killed and about 300,000 were treated in emergency rooms for injuries suffered in motor-vehicle crashes.<sup>5</sup>
- Sports and recreational activities contribute to about 21% of all traumatic brain injuries to children and adolescents. Although sports-related injuries don't often cause death, TBI's are the leading cause of death in sports.<sup>6</sup>
- Violence is the third leading cause of death among people age 15-19.<sup>7</sup>

### WHO ARE MOST LIKELY TO INCUR A TBI?

- Children 0-4 years and older adolescents/adults 15-24 years are the most likely to visit the ED for a TBI-related injury.<sup>8</sup>
- Over 800,000 emergency department visits each year for a TBI occur among children.<sup>8</sup>
- Adults 75 and older have the highest rates of TBI-related deaths.<sup>9</sup>

### WHAT ARE THE COSTS?

The estimated direct and indirect medical costs in the US during the year 2010, including injury-related work loss, disability and lost income from premature death as a result of a TBI was \$76.5 billion.<sup>10</sup>

# Think**First** about...

## Traumatic Brain Injury *Fast Facts!*

. . . protecting yourself and others from a traumatic brain injury! TBIs are one of the leading causes of death in the United States.<sup>2</sup> For those who survive, brain injuries can have serious mental and physical health effects. Preventing a TBI can be as simple as wearing a helmet, properly using a seatbelt, driving safely and playing sports responsibly. Do your part to *think first* about traumatic brain injuries.

### Classification of a TBI

#### Severity

As determined by the Glasgow Coma Scale, the severity can range from a rating of mild (13-15), moderate (9-12) and severe (3-8). Duration of loss of consciousness and other presenting signs are factors.

#### Type of Injury

Closed Injury: the skull is not fractured but the brain inside can swell and become injured due to pressure

Open Injury: the skull is fractured and the dura is penetrated

Penetrating Injury: an object cuts into the brain bringing skin, hair and debris into the skull, damaging the brain

### POTENTIAL CONSEQUENCES

- Cognition: affecting thinking, memory, reasoning, awareness, speech
- Sensory processing: affecting sight, hearing, touch, taste & smell
- Behavioral or mental health: causing personality changes, depression, anxiety, aggression
- Serious injuries can lead to a lack of consciousness, coma and death

### PREVENTION TIPS

- Wear an ASTM certified helmet while using a bicycle, skate board, inline skates or scooter.
- Wear the appropriate helmets with other sports, such as horse back riding, ice skating, skiing or snow boarding.
- Wear a certified motorcycle helmet when riding a motorcycle.
- Don't drive under the influence of alcohol or impairing drugs.
- Don't use a cell phone to talk or text while driving.
- Always wear a seatbelt while driving or riding in a vehicle.
- Install handrails on stairways and grab bars in bathtubs and showers.
- Keep floors and stairs clear of clutter and loose throw rugs.
- Supervise infants and young children at all times to prevent falls.
- Secure children correctly in appropriate child safety seats and booster seats.
- Never shake a baby or young child.
- Avoid unnecessary roughness in sports and activities.
- Solve disputes in a non-violent way.

### WHAT CAN YOU DO?

1. Protect yourself and others by making safe choices.
2. Teach children about the brain and help them develop safe habits.
3. Encourage a culture of safety with school and community programs.

### Sources

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## Think**First**

National Injury Prevention Foundation

The ThinkFirst Foundation is a 501c3 nonprofit organization dedicated to preventing brain, spinal cord and other traumatic injuries through education, research and advocacy. For injury prevention handouts, products and chapter directory for school presentations go to:

[www.thinkfirst.org](http://www.thinkfirst.org)