

An Overview of Traumatic Brain Injury

The background of the slide features several overlapping, wavy shapes in various shades of orange and red, creating a soft, abstract design. The colors transition from a light peach at the top to a deeper red at the bottom, with the shapes flowing across the page.

What is a Traumatic Brain Injury?

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Traumatic Brain Injury (TBI) is an alteration in the brain function caused by an external force.

- The head being struck by an object
- The head striking an object
- Acceleration/deceleration of the brain without direct impact
- A penetrating injury by foreign object
- The force from a blast/explosion

Causes of a Traumatic Brain Injury

Causes of Traumatic Brain Injury

- **Falls** -The most common cause of traumatic brain injury overall, particularly in older adults and young children.
- **Vehicle related accidents-** This includes car, motorcycles, bicycles, scooters, skateboards.
- **Violence.** Gunshot wounds, domestic violence, child abuse and other assaults are common causes.
- **Sports injuries**
- **Explosive blasts and other combat injuries.**

Traumatic Brain Injury Symptoms

Traumatic Brain Injury Symptoms

Traumatic brain injury can have wide-ranging neurological (physical and cognitive) and psychological effects. Some signs or symptoms may appear immediately after the traumatic event, while others may appear days or weeks later.

Traumatic Brain Injury symptoms

Physical symptoms

- Headache
- Nausea or vomiting
- Fatigue or drowsiness
- Dizziness
- Loss of balance

Traumatic Brain Injury Symptoms

Sensory symptoms

- Sensory problems, such as blurred vision, ringing in the ears, a bad taste in the mouth or changes in the ability to smell
- Sensitivity to light or sound

Traumatic Brain Injury Symptoms

Neurologic and behavioral symptoms

- Loss of consciousness
- State of being dazed, confused or disoriented
- Speech deficit
- Comprehension deficits
- Muscle weakness
- Memory or concentration problems
- Mood changes or mood swings
- Feeling depressed or anxious
- Difficulty sleeping
- Sleeping more than usual

Classification of Traumatic Brain Injuries

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TBI can be mild, moderate, or severe, depending on the extent of damage to the brain. The degree of damage can depend on several factors, including the nature of the injury and the force of impact.

Classification of Traumatic Brain Injuries

Mild Traumatic Brain Injury

Loss of Consciousness < 30 minutes

Glasgow Coma Scale 13-15

Post Traumatic Amnesia 0 to 1 day

*Imaging usually normal

Classification of Traumatic Brain Injuries

Moderate TBI

Loss of consciousness 30 minutes to 24 hours

Glasgow Coma Scale 9-12

Post Traumatic Amnesia >1 day < 7 days

*Imaging normal or abnormal

Classification of Traumatic Brain Injuries

Severe TBI

Loss of Consciousness > 24 hours

Glasgow Coma Scale < than 8

Post Traumatic Amnesia > 7 days

*Imaging abnormal

Classification of Traumatic Brain Injuries

What about concussions?

A concussion is the same as a mild traumatic brain injury.

Treating Traumatic Brain Injuries

Treating Traumatic Brain Injuries

Mild Traumatic Brain Injury

Mild traumatic brain injuries usually require no treatment other than rest and over-the-counter pain relievers to treat a headache. However, a person with a mild traumatic brain injury usually needs to be monitored closely at home for any persistent, worsening or new symptoms.

Treating Traumatic Brain Injuries

Moderate to Severe Traumatic Brain Injury

Most people who have had a significant brain injury will require rehabilitation. They may need to relearn basic skills, such as walking or talking. The goal is to improve their abilities to perform daily activities.

Treating Traumatic Brain Injuries

Moderate to Severe Traumatic Brain Injury

Therapy usually begins in the hospital and continues at an inpatient rehabilitation unit, a residential treatment facility or through outpatient services. The type and duration of rehabilitation is different for everyone, depending on the severity of the brain injury and what part of the brain was injured.

Treating Traumatic Brain Injuries

The Treatment Team

Treatment is typically directed by a neurologist or a physical medicine and rehabilitation specialist (physiatrist).

Treating Traumatic Brain Injuries

The Treatment Team

Neurologists and Psychiatrists are trained to make a targeted diagnosis of traumatic brain injury by obtaining a thorough history and a detailed neurological examination.

Treating Traumatic Brain Injuries

The Treatment Team

Additionally, **Physiatrists** have training in setting up a proper rehabilitation program designed to maximize the patient's physical and neuro-cognitive recovery, as well as provide the patient with tools to help cope with potential newfound deficits.

Treating Traumatic Brain Injuries

The Treatment Team

- **Occupational therapist**, who helps the person learn, relearn or improve skills to perform everyday activities
- **Physical therapist**, who helps with mobility and relearning movement patterns, balance and walking
- **Speech and language therapist**, who helps the person improve communication skills and use assistive communication devices if necessary
- **Neuropsychologist**, who assesses cognitive impairment and performance, helps the person manage behaviors or learn coping strategies, and provides psychotherapy as needed for emotional and psychological well-being

Recovering from Traumatic Brain Injury

Recovering from Traumatic Brain Injury

Recovery from a TBI is highly individualized. It depends on the severity, cause and type of injury.

Recovering from Traumatic Brain Injury

Mild TBI

The majority of people that suffer a mild TBIs are expected to improve and return to their pre-injury functioning within days to a few months.

In some cases, however, a mild traumatic brain injury could take from 6 to 24 months after the initial injury to achieve full recovery.

Recovering from Traumatic Brain Injury

Moderate to Severe TBI

Moderate to severe TBIs can cause more significant difficulties with changes occurring to a person's their thinking and behavior. People with severe TBIs can have lifelong changes.

Persistent Post Concussive Symptoms

Persistent Post Concussive Symptoms

Persistent post-concussive symptoms, also called post-concussion syndrome, occurs when concussion symptoms last beyond the expected recovery period after the initial injury.

The risk of developing persistent post-concussive symptoms doesn't appear to be associated with the severity of the initial injury.

Persistent Post Concussive Symptoms

- Headaches
- Dizziness
- Fatigue
- Irritability
- Anxiety
- Insomnia
- Loss of concentration and memory
- Ringing in the ears
- Blurry vision
- Noise and light sensitivity
- Rarely, decreases in taste and smell

Multiple Concussions

Multiple Concussions

Individuals that had multiple head injuries in a short period of time may have more difficulty in their recovery.

Traumatic Brain Injury Long Term Complications

Traumatic Brain Injury Long Term Complications

A moderate or severe TBI can cause permanent brain damage and disabilities.

Traumatic Brain Injury Long Term Complications

People with TBIs also have a higher risk of:

- Anxiety
- Depression
- post-traumatic stress disorder (PTSD).
- Seizures (epilepsy).

Traumatic Brain Injury Long Term Complications

The relationship between degenerative brain diseases and brain injuries is still unclear. But some research suggests that repeated or severe traumatic brain injuries might increase the risk of developing **Alzheimer's, Parkinson's disease, Chronic Traumatic Encephalopathy, and Dementia Pugilistica.**

Thank you!