

Mild Traumatic Brain Injury

MTBI Facts

- 1.7 million people suffer a TBI each year in the U.S, of these, between 75% and 90% are categorized as MTBI.
- MTBIs cost the nation nearly \$17 billion each year.
- Research indicates that up to 15% of patients diagnosed with MTBI may have persistent, disabling problems.

Defining MTBI

The occurrence of injury to the head arising from blunt trauma or acceleration or deceleration forces involving *any one* of the following:

- Any period of loss of consciousness.
- Any loss of memory for events immediately before or after an accident.
- Any alteration in mental state at the time of the accident.
- Focal neurological deficits that may or may not be temporary.

Severity of injury does not exceed:

- Loss of consciousness of more than 30 minutes.
- Initial Glasgow Coma Scale of 13-15.
- Post-traumatic amnesia longer than 24 hours.

Symptoms Following a MTBI

- Dizziness
- Vertigo
- Musculoskeletal complaints
- Post-traumatic headaches
- Balance and spatial disorientation
- Visual disturbances
- Altered taste and smell
- Hearing changes
- Fatigue
- Sensitivity to light
- Decreased attention and concentration
- Reading and auditory comprehension problems
- Increased irritability
- Depression and anxiety
- Sleep disturbances

What Happens Inside the Head After an MTBI?

A series of biochemical and physiological events occur following an MTBI, which can include the following:

- A breakage of the neuronal membrane by the injury.
- A decrease in cerebral blood flow to neurons.
- An increased demand for glucose, which is not present in sufficient amounts to maintain neuronal stability.
- A deficient blood supply combined with deficient oxygen supply, which leads to a metabolic disturbance.
- An immediate release of excitatory neurotransmitters causing neurons to fire repeatedly until they die.
- These cumulative events impact neurons that are distant from the injury site for many weeks or months.

Early Treatment is Essential for Maximum Recovery

- Early intervention can provide significant benefits in rate of recovery, cost per unit of recovery, care requirements and reduction of lifetime costs.

- Evidence exists that early rehabilitation interventions following brain injury are less expensive and more time efficient when compared to rehabilitation that is delayed.

Potential Complications Following MTBI

- Tendency for re-injury
- Depression and anxiety
- Avoidance of activities
- Isolation
- Client and family stress
- Suicidal ideations and attempts
- Functional difficulties at work and home
- Delays in recovery
- Chronic disability
- Long-term costs
- Problems with the law and/or litigation

References

Ashley, M, O'Shanick, G, Kreber, L. *Early vs. Late Treatment of Traumatic Brain Injury*. Vienna, VA: Brain Injury Association of America, 2009.

Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. *Report to Congress on mild traumatic brain injury in the United States: steps to prevent a serious public health problem*. Atlanta (GA): Centers for Disease Control and Prevention; 2003.

Langlois JA, Rutland-Brown W, Wald M. *The epidemiology and impact of traumatic brain injury: a brief overview*. *Journal of Head Trauma Rehabilitation* 2006; 21(5):375-8

Finkelstein E, Corso P, Miller T and associates. *The Incidence and Economic Burden of Injuries in the United States*. New York (NY): Oxford University Press; 2006

Bazarian J, et al. *Mild traumatic brain injury in the United States, 1998-2000*. *Brain Injury* 2005; 19(2):85-91.

Bazarian J, Blyth B, Cimpello L. *Bench to bedside: evidence for brain injury after concussion—looking beyond the computed tomography scan*. *Academic Emergency Medicine* 2006; 13(2):199-214.

Mooney G, Speed J, Sheppard S. *Factors related to recovery after mild traumatic brain injury*. *Brain Injury* 2005; 19(12):975-87

Sponsored by:

