

Motorcycle Accidents and Their Impact on the Brain, Part 1

In general, road accidents are one of the leading cause of fatal injuries in the United States. Specifically, motorcycle accidents are among the most dangerous of all road-related injuries sustained by Americans every day, in large part because of the sudden damage to the brain caused by a blow to the skull, which is not protected by a vehicle when it comes in contact with the road.

A short ride can have long term effects

In this article we'll seek to explain the dangers of motorcycle-accident related traumatic brain injury and the long-term effects a TBI potentially poses to a victim.

First, we'll begin by looking at what occurs during the course of a traumatic brain injury as a result of a motorcycle-related accident. Due to someone else's negligence, a victim following the rules of the road and taking the proper precautions (helmet, protective clothing, abiding traffic laws) can still become critically injured by no fault of their own.

Following motorcycle accidents, brains take a beating

When a driver on a motorcycle sustains a TBI, the impact to the head causes the brain to move back-and-forth within the skull. The force causes bruising, bleeding, and shearing of the brain in response. TBI is classified according to severity.

The three levels of TBI are as follows:

- **Mild:** awake with eyes open. Symptoms vary but can include confusion, disorientation, headache, loss of memory and consciousness.
- **Moderate:** lethargic; eyes open and responsive to stimulation. Loss of consciousness can occur and last anywhere from 20 minutes to 6 hours. Cranial edema and bleeding of the brain can cause sleepiness. The victim is able to be roused.
- **Severe:** unconsciousness occurs; eyes will not open no matter the amount of stimulation. Loss of consciousness sustained longer than 6 hours.

Focal injuries pose steep risks to long-term function

When the portion of the brain is involved due to a road accident, this type of injury is called "focal". focal injuries should not be treated as less than severe simply because they only occur in one area of the brain. A focal TBI is still a life-threatening medical situation and if not acted upon quickly by emergency services, the victim is at-risk for permanent impairment. It's important to differentiate the three types of focal traumatic brain injuries to better understand the risk of each:

- **Contusion:** "contusion" is the term medical professionals use to refer to a bruise. When a contusion to the brain occurs due to impact to the skull, this can be referred to in one of two ways; "coup" or "countercoup". In a coup injury, the brain is directly under the area of impact. In a countercoup the brain is injured on the opposite side of impact.
- **Hematoma:** to better understand this type of injury, first we must define the meaning of the term. "Hematoma" is defined by medical professionals as "a solid swelling of clotted blood within the tissues." A hematoma can occur when a blood vessel within the brain ruptures. The ensuing blood that then escapes the bloodstream begins to clot as the body's natural defense against excessive bleeding.

Diffuse injuries: from concussion to catastrophic

When the entire brain is involved due to a motorcycle collision, this type of injury is called “diffuse”. Diffuse injuries are extensive and if not treated quickly by medical professionals, the victim is at-risk for permanent brain damage or even death. It’s important to differentiate the three types of diffuse traumatic brain injuries to better understand what risk each one poses:

- **Concussion:** this is a mild form of brain injury that often causes brief loss of consciousness and under normal circumstances does not cause permanent brain injury. In severe concussions, what’s known as “post-concussion syndrome” can occur days to week after a blow to the head.
- **Traumatic subarachnoid hemorrhage:** in this type of TBI there is bleeding within the skull around the brain. While this space is normally filled with CSF (cerebrospinal fluid) which acts to protect the brain from injury, when the skull comes in contact with a hard surface with blunt force, the space instead fills with blood. This has long term and long ranging effects on the victim.
- **Diffuse axonal injury:** “DAI” is a shearing of the nerve cells within the brain. This occurs when the brain rapidly moves back and forth within the skull and nerve axons tear, causing a “shearing” effect. Depending on the level of shearing that occurs, substantial changes in consciousness can occur.

Recovery, long-term prognoses, and your rights when injured

In Part 2 of this series, we’ll explore what life looks like for the victim post-TBI, and the long-term effects a traumatic brain injury can have on his or her life. We’ll also go in-depth to get a better understanding of your rights should you or a loved one sustain a traumatic brain injury at the hands of a negligent motorist.

Contact us to schedule a complimentary consultation. There’s no obligation. Take the first step and call today: (877). 529-0080



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