

According to the CDC, Traumatic brain injury (TBI) is a major cause of death and disability in the United States, contributing to about 30% of all injury deaths. Every day, 138 people in the United States die from injuries that include TBI. Those who survive a TBI can face effects lasting a few days to disabilities which may last the rest of their lives. Effects of TBI can include impaired thinking or memory, movement, sensation (e.g., vision or hearing), or emotional functioning (e.g., personality changes, depression). These issues not only affect individuals but can have lasting effects on families and communities.

TBI can run the gamut from concussion without loss of consciousness and only brief, fully reversible symptoms to severe tissue injury to the brain resulting in coma, vegetative state, or death.

Almost a century ago, a form of serious TBI was observed to be associated with repetitive head injuries in boxing. This type of brain injury was appropriately coined "Boxer's dementia." Lately, this "punch drunk" dementia has been found to affect athletes in other sports, such as American football and soccer, where athletes experience repetitive blows to the skull. A new medical term was created to describe this entity.

Chronic traumatic encephalopathy (CTE) is a type of brain injury that has been shown to affect athletes in many sports and, more rarely, non-athletes who sustain head injuries. It has been in the news lately because of high profile cases affecting NFL players and hockey players.

Repetitive brain traumas, especially chronic injuries such as those sustained in sports can, over time, lead to irreversible brain damage. There is only so much jarring and shaking the brain can take.

Chronic traumatic encephalopathy impacts many areas of brain functioning, including mood, emotional control, cognitive capacity, memory, and personality. It often doesn't develop until years after the traumas have occurred, and can present with a different combination of symptoms in each person afflicted.

More advanced stages of the disease can produce more severe cognitive deficits, full-blown dementia, and Parkinsonism. It is suspected that Muhammad Ali suffers from just such a syndrome.

Autopsy studies have shown that repeated blows to the head causes irreversible changes to the brain that microscopically bear a resemblance to Alzheimer's disease.

Other affected areas, like the hippocampus, likely underlie the loss of memory that some patients experience. Neural changes in the frontal cortex likely explain the deficits in thinking, judgment and decision-making seen in CTE.

From 2001 to 2009, the rate of emergency department visits for sports and recreation-related injuries with a diagnosis of concussion or TBI, alone or in combination with other injuries, rose 57% among children (age 20 or younger).

Unfortunately, in years past, concussions often went unrecognized or were downplayed by athletic trainers, coaches, and some health care professionals. Many individuals responsible for the safety of our youth were under the mistaken assumption that lack of a loss of consciousness meant that there had been no concussion. This sometimes resulted in athletes returning to play while they were still symptomatic from a head injury. Individuals who return to play too quickly are at a significantly higher

risk for not only for a second concussion but also for potential catastrophic neurological injury including death.

With more than one million athletes now experiencing a concussion each year in the United States, the American Academy of Neurology (AAN) has released an evidence-based guideline for evaluating and managing athletes with concussion. This guideline was developed reviewing all available evidence published through June 2012. These practice recommendations are based on an evaluation of the best available research. Concussion symptom awareness has markedly increased in recent years, particularly among those who supervise middle and high school athletes. Effective assessment tools for use on the sideline and to establish a baseline before concussion occurs are available to trainers and coaches. The new guideline has been well-received by many athletic organizations and has been endorsed by the National Football League Players Association.

It is important to remember that concussion is a clinical diagnosis and no single test can make the diagnosis. The best rule of thumb is "when in doubt, sit it out." In other words, when concussion is suspected, pull the athlete from the contest. In suspected concussion, an athlete should be evaluated by a qualified licensed health care provider with specialized training in concussion or a neurologist- a medical doctor with advanced training in disorders of the brain and nervous system.

Some genetic risk factors can place athletes at a higher risk for chronic cognitive problems down the road. Certain sports including football, rugby, hockey, and soccer can pose a higher risk of concussive injury. The risk of concussion for young women and girls is greatest in soccer and basketball. Football helmets offer some degree of protection. However, despite claims to the contrary, there is currently no scientific evidence that one type of football helmet is significantly better than another. In fact, some experts have argued that player's may take more risks if they perceive that their helmet offers an additional hedge of protection. An athlete who has a history of one or more concussions is at greater risk for being diagnosed with another concussion. The first 10 days after a concussion appear to be the period of greatest risk for being diagnosed with another concussion. An athlete should not return to play until he/she is completely asymptomatic, is off of pain medications, and has passed a supervised, graduated return to play physical and cognitive program without recurrence of symptoms.

Signs and symptoms of a concussion include: Headache and sensitivity to light and sound, changes to reaction time, balance and coordination, changes in memory, judgment, speech and sleep, and loss of consciousness or a "blackout" (happens in less than 10 percent of cases). We only have one brain, so take care of it.

To learn more about concussion, visit the American Academy of Neurology website at www.aan.com/concussion.

Dr. Wayne Sida is a neurologist with Piedmont Neurology and has practiced in Greenwood for since 1996. A neurologist is a medical doctor with specialized training in diagnosing, treating, and managing disorders of the brain and nervous system including traumatic brain injury and concussion. Dr. Sida has advanced training in MRI, CT, and ultrasound. He has special expertise in the management of stroke, multiple sclerosis, and migraine. He has over 20 years of experience in the administration of Botox for medical disorders, migraine, and is proficient in cosmetic Botox for wrinkles.