# Contact Sport-Related Head Injuries

By Dr. Murray Engel

Although sports injuries do not often contribute to fatalities, the Center for Disease Control and Prevention reports that as many as 3.8 million sports- and recreation-related concussions occur each year in the United States. Other causes include car and bicycle accidents, work-related injuries, falls and fighting.

Over the past five-to-10 years, there has been a significant rise in the number of head injuries, most likely due to the fact that more individuals are playing sports and the reporting of head injuries has become more accurate. Athletes of any sport run the risk of a potential head injury, but male competitors who play football, ice hockey or lacrosse, and female athletes involved in soccer, lacrosse or field hockey tend to suffer concussions more often than those who swim, play baseball or volleyball or compete in track and field.

Cerebrospinal fluid and the skull protect the brain and allow it to withstand many minor day-to-day injuries. However, when the head hits an object or a moving object strikes the head with enough force to cause the brain to bounce against the rigid bones of the skull, there is potential for injury. This type of head trauma can cause a concussion, the most common type of traumatic brain injury, resulting in a change in brain function.

Generally, a concussion is a short-lived loss of function that resolves itself spontaneously. The pediatric population is of particular interest since the brain is still developing during those early years. A child's brain has more potential for reorganization, so in many ways it is more vulnerable to a concussion than an adult's.

Primary sensory and motor skills are still developing to age four, language skills to age 10 years and complex thinking (reason, judgment and emotion) through adolescence.

Headache is the most common symptom of a concussion, and occurs in up to 90 percent of mild traumatic brain injuries. Changes in alertness or personality, irritability, nausea, lack of motor coordination, difficulty balancing, dizziness, slower reaction time, light sensitivity, trouble concentrating and changes in sleep patterns are also symptoms of brain injury.

An athlete should seek immediate medical attention to be thoroughly assessed following any type of head trauma. A healthcare professional will take a history of the incident and conduct a physical examination, including a complete neurologic examination and inspection for weakness, paralysis or change of sensation in the body. Balance, coordination, vision and hearing may also be checked. A CT or MRI scan of the brain can also be obtained. If necessary, advanced imaging techniques can be used to show abnormalities.

Once a patient is diagnosed with a concussion or other similar brain injury, he or she will need to allow time for the brain to completely heal. Ultimately the brain will recover on its own, but a patient should not engage in any physical activity until he or she is completely asymptomatic. This will require extra rest without a lot of cognitive thinking. For three to five days the individual should be on “house arrest,” sleeping as much as possible and avoiding computers, televisions, smartphones and other electronics. The patient should not participate in activities that would cause over-exertion and should not do homework. Once the patient is no longer exhibiting any symptoms, he or she can begin to partake in some light exercise, including walking or biking. This can be followed

by low-intensity exercise specific to his or her sport such as running or skating. Before returning to full play, an athlete should spend some time participating in no-contact drills and light-contact play. There is no return to play for any symptomatic athlete.

Dr. Murray Engel specializes in Child Neurology at Stamford Hospital, where he serves as division chief. Dr. Engel is board certified in Neurology, Pediatrics and Clinical Neurophysiology. He is a Professor of Clinical Neurology and Pediatrics at the Weill Cornell Medical College, and serves as Director of the Clinical Service of Division of Child Neurology.

For more information, visit www.stamfordhospitalortho.com or contact Stamford Hospital's Orthopedic Institute at 877-747-4640.