

# SPORT CONCUSSIONS AND CERTIFIED ATHLETIC THERAPISTS



# WHAT IS A CONCUSSION?

When a blow to the head or a whiplash motion shakes the space between the brain and the skull, the result is a concussion. A concussion is a complex pathophysiological process affecting the brain, induced by the traumatic biomechanical forces. A concussion is a mild traumatic brain injury (MTBI). It is the most common type of brain injury. A concussion can affect how your brain works. While most concussions are temporary disturbances, if not recognized, treated promptly and appropriately, concussions can lead to serious problems.

In sports and physical activities of all types, the potential for a concussion is high. It is important to know about the symptoms, the causes and how to administer first aid to a concussion victim. Most schools and teams should, but do not yet have policies to ensure an Athletic Therapist is at games and practices as first contact of appropriate treatment.



## RECOGNITION AND AWARENESS

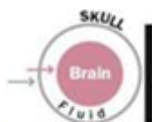
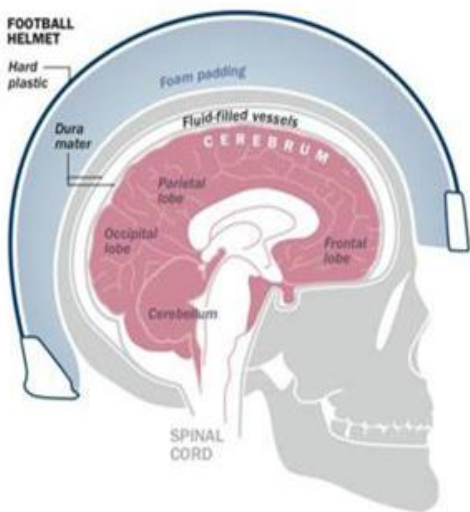
The most serious problem when it comes to brain injuries is a lack of basic understanding of concussions. Many athletes and players have suffered from a concussion at some time and not even known it. Concussions screening tools are not widely used in elementary and high school and sporting activities. Colleges and universities are more likely to have an Athletic Therapist available.

There is no mandatory reporting of concussion in most sports and return-to-play guidelines are not always followed, but this is changing with greater awareness of the condition.

Be alert and aware that diagnosing a mild traumatic brain injury is difficult because symptoms similar to other medical conditions is common. An Athletic Therapist can help.

# ROOM TO MOVE

The brain does not sit snugly in the skull but is set off by an intracranial space. The skull and the brain thus do not move in tandem.



The head in motion stops suddenly.....



...the brain compresses into the skull...



...& compresses again as it rebounds.

## Simple Concussion

Brain swelling, axonal damage and metabolic disruption lead to classic concussion symptoms.

## Hematoma

Damaged vessels can cause blood to collect above or below the dura, which is a much more serious injury than a simple concussion.

## Fracture

Uncommon for players wearing football helmets. A fracture can leave bone shards in the brain or otherwise damage soft tissue.



# CAUSES

A concussion can result from a fall, from impact in car accidents, sport and physical activities and accidents to the head and upper neck. All it takes is significant movement of the brain from a jarring impact to the body in any direction to cause a concussion. Concussions can be caused by either a direct blow to the head, face, neck or elsewhere on the body when an "impulsive" force is transmitted to the head.



## SYMPTOMS

**Concussion symptoms range from mild to severe and can include:**

- Loss of consciousness, seizure or convulsion
- Amnesia, headache, “pressure in head”
- Neck pain, nausea or vomiting, dizziness
- Blurred vision, balance problems
- Sensitivity to light or noise, confusion
- Difficulty concentrating or remembering
- Fatigue or low energy, more emotional
- Sadness, nervous or anxious, feeling “in a fog”

**Emergency symptoms of concussions that should prompt immediate medical attention include:**

- Have a headache that gets worse, any appearance of new symptoms
- Are very drowsy and cannot be awakened
- Cannot recognize people or places
- Have repeated vomiting
- Behave unusually or seem confused and irritable
- Have seizures, weak or numb arms or legs
- Are unsteady on your feet; have slurred speech

# TREATMENT

Healing or recovering from a concussion takes time. It can take days, weeks or months. Concussions that are unrecognized or mismanaged put athletes or non-athletes at considerable risk. There is a possibility of potential catastrophic second-impact syndrome, sub-dural hematoma or elongation of expected recovery of a relatively minor incident. Timely diagnosis and prompt treatment can help prevent more serious concussion complications.

## Treatment protocols include:

- ❑ Remove the athlete from competition immediately and do not allow him or her to resume play for the remainder of the game.
- ❑ Perform a sideline concussion assessment using the most current Sport Concussion Assessment Tool (SCAT) or King-Devick test.
- ❑ Monitor for worsening of symptoms and/or focal neurologic deficits, including weakness and sensory change, every 15 to 30 minutes during the first several hours after injury. If symptoms worsen, the athlete should be transported to an emergency department for further evaluation -- changes may suggest an injury more serious than a concussion, such as intracranial hemorrhage.
- ❑ If symptoms remain stable or improve, the athlete can be sent home if an adult caregiver is present. The caregiver is given a list of symptoms to be aware of that would warrant a trip to an emergency department. The athlete is not allowed to drive.
- ❑ Place the athlete on physical (no sport, running, jumping, or weightlifting, for example) and cognitive (no school, studying, texting, radio, T.V or video games, for example) rest to minimize stress on the brain.
- ❑ Have the athlete follow up with his or her physician within 24 to 48 hours for a physical examination and symptom evaluation, as well as additional cognitive testing.
- ❑ Graduated return to learn/play protocol are the gold standard in concussion management and has been adopted by the OATA.

# BASELINE STUDIES

Athletic Therapists, in conjunction with local Sports Medicine Physicians, specialize in administering baseline and follow-up ImPACT and similar computerized programs for concussion testing, post concussion SCAT or King-Devick testing, as well as a variety of other neurocognitive testing tools. A baseline study is done *before* an athlete sustains a concussion and is used to measure brain activity. An Athletic Therapist can compare baseline brain activity to post-concussion activity in the same regions of the brain to properly assess and treat an athlete.

# CONCUSSION FACTS

- 80% to 90% of all traumatic brain injury is classified as mild.
- 'Normal' or expected recovery occurs from one to two weeks, to up to three months.
- Up to 20% of people with concussion/MTBI will continue to experience significant symptoms beyond three months. Some people have these troublesome symptoms for much longer. These symptoms include post-traumatic headaches, sleep disturbances, balance disorders, cognitive impairments, fatigue and mood disorders.
- Research is showing that repeated concussions can lead to late brain degeneration with clinical deficits similar to Alzheimer's and Parkinson's disease.
- Children account for almost 40% of emergency room visits related to concussions.
- Diagnosing Mild Traumatic Brain Injuries can be challenging as symptoms are common to those of other medical conditions (e.g. depression, headaches, vomiting).
- Due to lack of recognition and missed diagnoses the true number of incidences of MTBI is unknown.

## Common Symptoms of Concussion



**Dizziness**



**Nausea**



**Headaches**



**Light  
Sensitivity**



**Confusion**



### Ontario Athletic Therapist Association

60 Columbia Way, Suite 280, Markham ON L3R 0C9

**T** (905) 946-8080 **F** (905) 946-1517 **E** [oatamembership@gmail.com](mailto:oatamembership@gmail.com)

[www.ontarioathletictherapists.org](http://www.ontarioathletictherapists.org)