

Concussion/Mild Traumatic Brain Injury
(MTBI) Adopted May 18, 2010

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Definition:

Concussions or Mild Traumatic Brain Injury (MTBI) is caused by an impact to the head resulting in mild to severe injury. Every concussion, regardless of severity, results in an injury to the brain. It is believed that the young developing brain is more vulnerable to injury. Approximately 10% of student athletes experience a concussion every season.

The Centers for Disease Control and Prevention defines Mild Traumatic Brain Injury as “the occurrence of injury to the head arising from blunt trauma or acceleration or deceleration forces with one or more of the following conditions attributable to the head injury:

Any period of observed or selfreported:

- Transient confusion, disorientation or impaired consciousness;
- Dysfunction or memory around the time of injury; or
- Loss of consciousness lasting less than 30 minutes. Observed signs of other neurological or neuropsychological dysfunction such as:
 - Seizures acutely following injury to the head;
 - Irritability, lethargy, or vomiting following head injury, especially among infants and very young children; or
 - Headache, dizziness, irritability, fatigue or poor concentration especially among older children and adults.”

There are a number of scales for classifying the severity of a concussion. A widely used scale comes from the American Academy of Neurology. They define the spectrum of injury as follows:

- ○ **Grade 1 Concussion:** Transient confusion without loss of consciousness lasting less than 15 minutes.
- ○ **Grade 2 Concussion:** Transient confusion without loss of consciousness lasting greater than 15 minutes.
- ○ **Grade 3 Concussion:** Any loss of consciousness.

Some symptoms may not manifest until hours or days following the impact. Recovery from a concussion may take days to months.

Students with more than one concussion are at higher risk for additional brain injury and may experience prolonged symptoms. Students that suffer a second

concussion before the symptoms of the first have resolved are at significant neurological risk, from severe neurological sequela to death.

Treatment: Baseline testing is recommended for all athletes engaged in contact sports. This provides a benchmark which would be used to measure postinjury recovery. A concussion assessment tool assists athletic directors, coaches and trainers to more accurately assess injury and postinjury recovery. It is imperative that athletes are protected from prematurely returning to play, placing them at risk of a repeat concussion. There are a variety of such tools. (ImPACT, Concussion Resolution Index and CogSports are among them.)

Athletes experiencing any signs or symptoms after a blow or jolt to their head should remain out of play the day of the injury and should be evaluated by a health care professional to rule out intracranial pathology before returning to play.

The International Conference on Concussion in Sports Treatment recommends that athletes experiencing a concussion must progress through each of the steps below having resolved all symptoms before advancing to the next. The steps are:

- 1 No activity and rest until asymptomatic,
- 2 Light aerobic exercise,
- 3 Sportspecific training,
- 4 Noncontact drills,
- 5 Fullcontact drills, and
- 6 Return to play.

General recommendations for students with a concussion beyond seeking medical evaluation include rest and avoidance of high risk activities such as contact sports, biking, boarding, playground equipment, etc. The International Conference on Concussion in Sports guidelines as published in the British Journal of Sports Medicine recommends that students with concussions should be carefully monitored and their activities restricted until fully recovered. This includes, beyond restricting physical activities, cognitive rest (no academic activities, no text messaging, no video games and no television).

Prevention: Helmet use is important for activities that increase the risk for head injuries such as contact sports (football, baseball batters, etc.), biking, boarding, skiing, snowmobiling, and horseback riding. The use of seatbelts in automobiles is important for all.

Role of the School Nurse:

- 1 In conjunction with the school physician, athletic director and trainer, develop protocols for individual athlete baseline data collection and assessing head injuries including how to manage and when to return the athlete to play.
- 2 Participate with the school physician, athletic director and trainer in providing education to coaches including basic information regarding concussion, signs and symptoms, how to manage athletes with concussion and recovery.
- 3 Provide information to parents of students with a head injury.

- 1 Help teachers understand the academic difficulties a student may have following a concussion, including the industrial arts teacher to determine the student's capacity for operating machinery.
- 2 Assist teachers and staff to make accommodations for a student returning to school with a brain injury.

Resources:

Centers for Disease and

Control: www.cdc.gov/concussion/HeadsUp/youth.html and www.cdc.gov/ncipc/pub-AmericanSpeechLanguageandHearingAssociation,
www.asha.org/Publications/leader/2009/09714.htm

Sports Concussion New England: www.sportsconcussion.net

American Academy of Neurology,

www.aan.com/professionals/practice/guidelines/pda/Concussion_sports.pdf

Science Daily/International Conference on Concussion in Sports Treatment,

[www.sciencedaily.com/releases/2009/090608125105.htm](http://www.sciencedaily.com/releases/2009/09/090608125105.htm)

Potential tools for screening of concussive injury:

ImPACT – www.impacttest.com

Concussion resolution Index, www.headminder.com

Cog Sports, www.cogstate.com/go/sport