

PINKERTON ACADEMY SPORTS MEDICINE

Concussion Protocol



Definition of concussion

- ▣ Defined as a complex process affecting the brain, induced by traumatic biomechanical forces.
- ▣ May be caused by a direct blow to the head, face, neck or elsewhere on the body with force transmitted to the head.
- ▣ Most often times results in the rapid onset of short term impairment of neurological function that resolves spontaneously.

Definition of concussion

- ❑ Not typically a structural injury but rather a change in how the brain functions.
- ❑ Concussions may or may not involve loss of consciousness and the majority do not.
- ❑ Concussions are no longer graded.
 - grades I, II, III
- ❑ Symptoms could take as many as 24 hours to appear after sustaining a concussion.

Concussion Statistics

- ▣ Estimated 136,000 concussions occur per academic year in high schools alone.
- ▣ Number of concussions are highest in football and girl's soccer.
- ▣ During the last decade Emergency Department (ED) visits have risen 60% among children and adolescents for head injuries.
 - 71% of all sports and recreation related head injury (ED) visits were males
 - 70.5% of all sports and recreation related head injury (ED) visits were 10-19 years of age
- ▣ Activities associated with the greatest number of head injury related (ED) visits include bicycling, football, playground activities, basketball, and soccer.

Concussion Statistics Pinkerton Academy

- ▣ 2011-2012 Pinkerton Academy saw a total of 45 concussions among 11 sports.
 - Collision sports which include football, hockey and boys lacrosse there were a total of 15 concussions.
 - Contact sports which include soccer, wrestling, basketball, and cheerleading there were a total of 26 concussions.
 - Other sports including volleyball, ski club, AAU basketball, and travel soccer there were a total of 4 concussions.
- ▣ 2012 season we have seen a total of 15 concussions.
 - 6 girls soccer
 - 2 football
 - 2 boys soccer
 - 1 cheerleading
 - 1 field hockey
 - 3 occurred outside of PA athletics

Concussion Symptoms

Athlete may report one or more of these symptoms.

Headache or “pressure” in head

Nausea or vomiting

Dizziness

Double or blurry vision

Sensitivity to light

Feeling sluggish, hazy, foggy, or groggy

Concentration or memory problems

Confusion

Not “feeling right”

Fatigue

Sadness

Irritability

Nervous or anxious

Sensitivity to noise

Sensitivity to light

ringing in ears

Concussions Signs Observed

Signs observed by Athletic trainer, coach, parent or guardian

Shows mood, behavior, or personality changes

Appears dazed or stunned

Forgets an instruction

Is unsure of game, score, opponent

Answers questions slowly

Cannot recall events prior to injury

Cannot recall events after injury

Slurring of speech

Pupils that are not of equal size

Abnormal drowsiness

Loss of appetite

Home Care

- ❑ Unless directed by a physician refrain from taking aspirin, ibuprofen, or acetaminophen (Tylenol) for the first 24 hours.
- ❑ There is no need to wake athlete up every hour to check on them.
- ❑ Athlete needs both physical and mental rest. It is important that they refrain from video games, texting, computer, television and any activities that “strain the brain”.
- ❑ Monitor for concussion signs as stated in previous slide.
- ❑ If symptoms worsen in number and intensity athlete needs immediate medical care (ED).

Concussion Facts

No two concussions are the same and therefore no two concussions recover the same

- Any athlete who exhibits signs or symptoms of a concussion, or has abnormal cognitive testing, **will not be permitted to return to play that day.**
- Athletes often experience different symptoms from other athletes when sustaining a concussion.
- The only symptom that appears to be standard is a headache and it is typically the last symptom to go away.
- The athlete does not have to lose consciousness to be diagnosed with a concussion.

Concussion Myths

Myths often associated with concussions

- Need to have suffered loss of consciousness to be considered a concussion.
- Athlete is out for two weeks
- CT (cat) scan will show a concussion

(CT scan is used to diagnose or rule out a structural deformity or bleeding that may occur on the brain after suffering a concussion)

- Impact testing is used to diagnose a concussion

Return to Play Protocol

- Pinkerton Academy's return to play (RTP) protocol was adapted from the Zurich Guidelines (International conference on concussion held in Zurich Switzerland November 2008).
- It has been reviewed and approved by our team physician.
- A similar protocol is used by many college and professional teams.
- SB 402 - all student-athletes who are suspected of having sustained a concussion must be removed immediately from a game or practice. Injured students will be allowed to return to play only after they have been evaluated by a healthcare provider, receive medical clearance and have written authorization allowing them to play from their medical provider.

Return to Play Protocol

- ▣ Athlete must meet all of the following criteria in order to return to play
 - Asymptomatic at rest and with exertion
 - Have written clearance returning them to participate from a physician if the athlete saw a physician
 - Must have parent/guardian permission to begin RTP
 - SB 402 Senate concussion safety bill
 - Impact scores return to baseline if athlete has a baseline

- ▣ There are no clear cut answers when an athlete can return to play after sustaining a concussion. Factors include severity of clinical symptoms, previous concussion history and severity of those concussions received.

Return to Play Protocol

Complete 6 phase RTP (athlete must remain asymptomatic throughout entire RTP)

- | | |
|--------------------------------|---|
| 1. No activity | Complete physical and cognitive rest |
| 2. Light Aerobic exercise | Walking, swimming, stationary cycle |
| 3. Sport specific exercise | Skating or running drills, no head impact activities |
| 4. Non-contact training drills | Progression to more complex drills, passing or shooting drills, may start weight training |
| 5. Full-contact practice | Following medical clearance, participate in normal training activities |
| 6. Return to Play | Normal game play |

ImPACT Testing

- ImPACT (Immediate Post Concussion Assessment and Cognitive Testing).
- Series of neurocognitive tests used to determine individual baseline.
 - Tests for memory, concentration, speed, and reaction time
- Test is set up in a “video game” type format and takes 25-30 min.
- Before ImPACT testing this type of testing was done by a neuropsychologist on paper.
- The post injury test is only compared to the individual’s baseline.
- The test results are examined by Arthur Maerlender, Ph.D.
Director, Pediatric Neuropsychological Services at Dartmouth Hitchcock Medical Center
- http://impacttest.com/index.php/about/test_features/neurocognitive_test

ImPACT Testing

- ▣ The ImPACT test is designed to be used as a “tool” to help medical staff better determine return to play status.
- ▣ It is not intended to diagnose an athlete who is suspected of having a concussion.
- ▣ Often times athletes need to take the post injury test more than once.
- ▣ ImPACT recommends that baseline tests are to be done every two years.

Resources

- International concussion in sport group
 - McCrorry P, Meeuwisse W, Johnston K, et al. consensus statement on concussion in sport held in Zurich, November 2008. J Sci Med Sport. Apr 8 2009.
- Center for Disease Control
 - www.cdc.gov/concussion/sports/index.html
- Impact testing
 - www.impacttest.com
- William P. Meehan III, MD, Pierre d'Hemecourt, MD, and R. Dawn Comstock, PhD, High School Concussions in the 2008-2009 Academic Year, American Journal of Sports Medicine Vol. 38 no. 12.