

## **ATHLETIC CONCUSSION REGULATIONS**

### **Section I. What is a Concussion?**

A concussion is defined as a transient alteration in brain function without structural damage, but with other potentially serious long-term ramifications. In the event of a concussion, the brain sustains damage at a microscopic level in which cells and cell membranes are torn and stretched. The damage to these cells also disrupts the brain at a chemical level, as well as causing restricted blood flow to the damaged areas of the brain, thereby disrupting brain function. A concussion, therefore, is a disruption in how the brain works; it is not a structural injury. Concussions are difficult to diagnose because the damage cannot be seen. A MRI or CT Scan cannot diagnose a concussion, but they can help rule out a more serious brain injury to a student athlete. Because concussions are difficult to detect, student athletes must obtain medical approval before returning to athletics following a concussion.

### **Section II. Mechanism of Injury:**

A concussion is caused by a bump, blow or jolt to the head or body. Any force that causes the brain to bounce around or twist within the skull can cause a concussion. A bump, blow or jolt to the head or body can be caused by either indirect or direct trauma. The two direct mechanisms of injury are coup-type and contrecoup-type. Coup-type injury is when the head is stationary and struck by a moving object such as another player's helmet, a ball, or sport implement, causing brain injury at the location of impact. Contrecoup-type injury occurs when the head is moving and makes contact with an immovable or slowly moving object as a result of deceleration, causing brain injury away from the sight of impact. Indirect forces are transmitted through the spine and jaw or blows to the thorax that whip the head while the neck muscles are relaxed. Understanding the way in which an injury occurred is vital in understanding and having a watchful eye for athletes who may exhibit symptoms of a concussion so these student athletes can receive the appropriate care.

### **Section III. Signs and Symptoms:**

#### **Signs (what you see):**

- Confusion
- Forgets plays
- Unsure about game, score, opponent
- Altered coordination

- Balance problems
- Personality change
- Slow response to questions
- Forgets events prior to injury (retrograde amnesia)
- Forgets events after injury (anterograde amnesia)
- Loss of consciousness (any duration)

**Symptoms (reported by athlete):**

- Headache
- Fatigue
- Nausea or vomiting
- Double vision/ blurry vision
- Sensitivity to light (photophobia)
- Sensitivity to noise (tinnitus)
- Feels sluggish
- Feels foggy
- Problems concentrating
- Problems remembering
- Trouble with sleeping/ excess sleep
- Dizziness
- Sadness
- Seeing stars
- Vacant stare/ glassy eyed
- Nervousness
- Irritability
- Inappropriate emotions

If any of the above signs or symptoms are observed after a suspected blow to the head, jaw, spine or body, they may be indicative of a concussion and the student athlete must be removed from play immediately and not allowed to return until cleared by an appropriate allied health professional.

#### **Section IV. Management and Referral Guidelines:**

**1.** When an athlete loses consciousness for any reason, the coach should immediately call EMS, check ABCs (airway, breathing, circulation) and not move the athlete until help arrives.

**2.** Any athlete who is removed from the competition or event and begins to develop signs and symptoms of a worsening brain injury will be transported to the hospital immediately. **Worsening signs and symptoms requiring immediate physician referral include:**

- A.** Amnesia lasting longer than 15 minutes
- B.** Deterioration in neurological function
- C.** Decreasing level of consciousness
- D.** Decrease or irregularity of respiration
- E.** Decrease or irregularity in pulse
- F.** Increase in blood pressure
- G.** Unequal, dilated, or unreactive pupils
- H.** Cranial nerve deficits
- I.** Any signs or symptoms of associated injuries, spine or skull fracture, or bleeding
- J.** Mental-status changes: lethargy, difficulty maintaining arousal, confusion, agitation
- K.** Seizure activity
- L.** Vomiting/ worsening headache
- M.** Motor deficits subsequent to initial on-field assessment
- N.** Sensory deficits subsequent to initial on-field assessment
- O.** Balance deficits subsequent to initial on-field assessment
- P.** Cranial nerve deficits subsequent to initial on-field assessment

**Q.** Post-Concussion symptoms worsen

**R.** Athlete is still symptomatic at the end of the game

**3.** After a student athlete sustains a concussion, their return to school and play should be managed by their health care provider and/or the school nurse.

**4.** Any athlete who is symptomatic but stable is allowed to go home with their parent(s)/guardian(s) following the head injury.

**A.** If the head injury occurs at practice, parent(s)/guardian(s) will immediately be notified and must come and pick up the student athlete and talk to the coach in person.

**B.** If the injury occurs at a game or event, the student athlete may go home with the parent/guardian(s) after talking with the coach.

**C.** Parent(s)/guardian(s) will receive important information regarding signs and symptoms of deteriorating brain injury/function prompting immediate referral to a local emergency room as well as return to play requirements. Parent(s)/guardian(s), as well as student athletes, must read and sign the Concussion Information and Gradual Return to Play form and bring it back to the school nurse before starting with the return to play protocol.

#### **V. Gradual Return to Play Protocol:**

**1.** Student athletes, with the consent of their parent(s)/guardian(s), may take the ImPact Test (**or other approved test identified by the School District**). The ImPact Test is a tool that helps manage concussions, determine recovery from injury, and is helpful in providing proper communication between coaches, parents/guardians and clinicians. The ImPact Test is a neurocognitive test that helps measure student athletes' symptoms, as well as test verbal and visual memory, processing speed and reaction time. It is recommended for all student athletes to take the ImPact Test for a baseline score. The ImPact Test appears to be a promising tool in monitoring a student athlete's prior concussions, as well as any future concussions.

**A.** At the beginning of every sport season, student athletes are required to complete a concussion history form and return it to the athletic department. This information will be recorded in the student information system for tracking purposes.

**B.** Following any concussion the coach must notify the athletic director and school nurses. The school nurse, in consultation with the student athlete, their family and their health care provider will determine when the student may return to school and play.

## **Section VI. School Nurse Responsibilities:**

1. Participate and complete the CDC training course on concussions. A certificate of completion will be recorded by the nurse leader yearly.
2. Complete symptom assessment when student athlete enters Health Office (HO) with questionable concussion during school hours. Repeat in 15 minutes.
3. Observe students with a concussion for a minimum of 30 minutes.
4. If symptoms are present, notify parent/guardian(s) and instruct parent/guardian(s) that the student must be evaluated by their health care provider.
  - (a) If symptoms are not present, the student may return to class.
5. If symptoms appear after a negative assessment, the school nurse will refer the student to their health care provider.
6. Allow students who are in recovery to rest in school when needed.
7. School nurse will notify teachers and guidance counselors of any students or student athletes who have academic restrictions or modifications related to their concussion.
8. Educate parents/guardians and teachers about the effects of concussion and returning to school and activity.
9. If injury occurs during the school day, inform administrator and complete accident/incident form.
10. Enter physical exam dates and concussion dates into the student information system.

## **Section VII. School Responsibilities:**

1. Once the school is informed of the student's concussion, a contact or "point person" should be identified (e.g. the guidance counselor, athletic director, school nurse, school psychologist or teacher).
2. Point person to work with the student on organizing work assignments, making up work and giving extra time for assignments and tests/quizzes.
3. Assist teachers in following the recovery stage for student.
4. Decrease workload if symptoms appear.
5. Educate staff on the signs and symptoms of concussions and the educational impact concussions may have on students.
6. Include concussion information in student handbooks.

### **Section VIII. Athletic Director Responsibilities:**

1. Provide parents/guardians, athletes, coaches, and volunteers with educational training and concussion materials yearly.
2. Ensure that all educational training programs are completed and recorded.
3. Ensure that all students meet the physical exam requirements consistent with 105 CMR 200.000 prior to participation in any extracurricular athletic activity
4. Ensure that all students participating in extracurricular athletic activity have completed and submitted their pre-participation forms, which include health history form, concussion history form, and MIAA form.
5. Ensure that all head injury forms are completed by parent/guardian(s) or coaches and reviewed by the coach, school nurse and school physician.
6. Inform parent/guardian(s) that, if all necessary forms are not completed, their child will not participate in athletic extracurricular activities.

### **Section IX. Parent/Guardian Responsibilities:**

1. Complete and return concussion history form to the athletic department.
2. Inform school if student sustains a concussion outside of school hours. Complete new concussion history form following new injury.
3. If student suffers a concussion outside of school, complete head injury form and return it to the school nurse.
4. Complete a training provided by the school on concussions and return certificate of completion to the athletic department.
5. Watch for changes in your child that may indicate that your child does have a concussion or that your child's concussion may be worsening. Report to a health care provider:
  - A. Loss of consciousness
  - B. Headache
  - C. Dizziness
  - D. Lethargy
  - E. Difficulty concentrating
  - F. Balance problems

- G.** Answering questions slowly
  - H.** Difficulty recalling events
  - I.** Repeating questions
  - J.** Irritability
  - K.** Sadness
  - L.** Emotionality
  - M.** Nervousness
  - N.** Difficulty with sleeping
6. Encourage your child to follow concussion protocol.
  7. Observe and monitor your child for any physical or emotional changes.
  8. Request to extend make up time for work if necessary.
  9. Recognize that your child will be excluded from participation in any extracurricular athletic event if all forms are not completed and on file with the athletic department.

**Section X. Student and Student Athlete Responsibilities:**

1. Return required concussion history form prior to participation in athletics.
2. Participate in all concussion training and education and return certificate of completion to the athletic department prior to participation in athletics.
3. Report all symptoms to ~~athletic trainer~~ coach, guardian, health care provider and/ or school nurse.
4. Follow recovery plan.
5. Tell your teachers if you are having difficulty with your classwork.
6. Return to sports only when cleared by health care provider or school nurse.
7. Report any symptoms to the coach and/or school nurse and parent(s)/guardian(s) if any occur after return to play.
8. Return medical clearance form to the school nurse prior to return to play.
9. Students who do not complete and return all required trainings, testing and forms will not be allowed to participate in sports.

## **Section XI. Coach Responsibilities:**

1. Participate in Concussion Education Course offered by the National Federation of State High School Associations (NFHS) on a yearly basis. Complete certificate of completion and return to the athletic department.
2. Complete a head injury form if their player suffers a head injury. This form must be shared with the school nurse.
3. Remove from play any student athlete who exhibits signs and symptoms of a concussion.
4. Do not allow student athletes to return to play until cleared by a health care provider or school nurse.
5. Follow the return to play plan made for the student athlete.
6. Refer any student athlete with returned signs and symptoms back to the school nurse.

## **Section XII. Post Concussion Syndrome:**

Post Concussion Syndrome is a poorly understood condition that occurs after a student athlete receives a concussion. Student athletes who receive concussions can have symptoms that last a few days to a few months, and even up to a full year, until their neurocognitive function returns to normal. Therefore, all school personnel must pay attention to and closely observe all student athletes for post concussion syndrome and its symptoms. Student athletes who are still suffering from concussion symptoms are not ready to return to play. The signs and symptoms of post concussion syndrome are:

- Dizziness
- Headache with exertion
- Tinnitus (ringing in the ears)
- Fatigue
- Irritability
- Frustration
- Difficulty in coping with daily stress
- Impaired memory or concentration
- Eating and sleeping disorders
- Behavioral changes



- Alcohol intolerance
- Decreases in academic performance
- Depression
- Visual disturbances

### **Section XIII. Second Impact Syndrome:**

Second impact syndrome is a serious medical emergency and a result of an athlete returning to play and competition too soon following a concussion. Second impact syndrome occurs because of rapid brain swelling and herniation of the brain after a second head injury that occurs before the symptoms of a previous head injury have been resolved. The second impact that a student athlete may receive may only be a minor blow to the head or it may not even involve a hit to the head. A blow to the chest or back may create enough force to snap the athlete's head and send acceleration/deceleration forces to an already compromised brain. The resulting symptoms occur because of a disruption of the brain's blood autoregulatory system which leads to swelling of the brain, increasing intracranial pressure and herniation.

After a second impact a student athlete usually does not become unconscious, but appears to be dazed. The student athlete may remain standing and be able to leave the field under their own power. Within fifteen seconds to several minutes, the athlete's condition worsens rapidly, with dilated pupils, loss of eye movement, loss of consciousness leading to coma and respiratory failure. The best way to handle second impact syndrome is to prevent it from occurring altogether. All student athletes who incur a concussion must not return to play until they are asymptomatic and cleared by an appropriate health care professional.

### **Section XIV. Concussion Education:**

It is extremely important to educate coaches, athletes and the community about concussions. On a yearly basis, all coaches must complete the online course called "Concussion In Sports: What You Need to Know". This course is offered by the National Federation of State High School Associations (NFHS). Student athletes also need to understand the importance of reporting a concussion to their coaches, parents/guardians, school nurse and other school personnel. Every year student athletes and parents/guardians will participate in educational training on concussions and complete a certificate of completion. This training may include:

- CDC Heads-Up Video Training, or
- Training provided by the school district

SOURCE: MASC - Reviewed 2021

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