



## Saucon Valley Athletic Department Concussion Protocol and Procedures



**Protocol Statement:** This document outlines protocol and procedures to assist in the management of concussions and the safe return to play and academics for student athletes managed by OAA Orthopaedic Specialists Medical Staff and the Saucon Valley Athletic Department.

**Purpose:** To develop and articulate a thorough method for the recognition, evaluation, and management of student-athletes who have sustained a concussion. Specifically, ensure the proper diagnosis and management of concussions as well as prevent prolonged recovery or permanent disability by comprehensively monitoring recuperation through regular contact with physicians and certified athletic trainers (ATC).

### **Definition of Concussion:**

1. A concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces.
2. A concussion may be caused by either a direct blow to the head, face, neck, or elsewhere on the body with an “impulsive” force transmitted to the head.
3. A concussion typically results in the rapid onset of short lived impairment of neurologic function that resolves spontaneously.
4. A concussion results in a set of clinical symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course; however, it is important to note that in a small percentage of cases, post concussive symptoms may be prolonged.

### **Community Educational Goals:**

1. Student-Athlete
  - a. Student-athletes will be educated on the importance of taking responsibility for reporting their signs and symptoms to their coach, parent, and ATC.
  - b. The student-athlete will be educated on the importance of adhering to the concussion protocol. Should a concussion occur, they must be an active participant in adherence to the recovery process.
  - c. Each student-athlete involved in a contact/collision sport will be required to complete a baseline neurophysiological test (ImPACT®). Baseline testing will be completed prior to their first year of participation and every other year until graduation.

1. Schools offering Middle School/Junior High testing will complete prior to each season until freshman year or patient achieves 14 years old.
2. Student athletes who have sustained a concussion during the previous athletic year will be required to complete a new baseline test prior to the next athletic year.

## 2. Coaches

- a. The concussion guidelines will be reviewed annually with coaches.
- b. All coaching staffs are strongly encouraged to attend at least one education seminar presented by the OAA team prior to each athletic year.
- c. The coach will also be educated on the importance of adhering to the concussion protocol. Should a concussion occur, they must be an active participant in adherence to the recovery process.

## 3. Parents

- a. Parents will be educated on the importance of taking responsibility for reporting their child's signs and symptoms to the coach or ATC.
- b. Each parent will be given ample opportunity to attend an OAA concussion educational seminar given through their school district prior to the school year.
- c. The parent will also be educated on the importance of adhering to the concussion protocol should a concussion occur. They must be an active participant in adherence to the recovery process.

## **Management:**

### 1. **Acute Management**

- a. Any student-athlete who exhibits concussion signs and/or symptoms while participating with any school athletic team will be removed from the remainder of the event and not allowed to perform any activities that may increase the severity of the signs and/or symptoms.
- b. If a team physician or ATC is on site, the student-athlete will be referred to that individual to have a concussion evaluation performed.
- c. After examination by the team physician or ATC, a student-athlete who is suspected to have suffered a concussion shall not return to participation on the same day. Return on the same day will only be allowed if the team physician and/or ATC determine that no concussion

or other brain injury has occurred and that it is safe to return to participation.

- d. If a physician or ATC is not present at the event, the head coach for the sport will be responsible for keeping the student-athlete out of competition for the day and contact the ATC and parents of the student-athlete.
- e. Any student-athlete who is exhibiting concussion symptoms must have their parent(s)/guardian notified by the team physicians, ATC, or head coach.
- f. The student athlete should be released only to the direct supervision of the parent(s)/guardian unless arrangements have been made between the physician or ATC, and the parent(s)/guardian.

## **2. Monitoring at time of concussion**

- a. Following a suspected concussion, the ATC or a member of the coaching staff should escort student athlete at all times.
- b. Regular neurological checks will be performed by ATC. Any decline in the neurological status should be noted and may involve emergency transport for further evaluation.
- c. ATC will complete *Concussion Symptom Checklist*
- d. Parents will be notified of concussion
  - i. A written copy of the *Saucon Valley School District/OAA Orthopedic Specialists Post-concussion Home & School Instructions* will be provided to and reviewed with the parents.
  - ii. All questions clarified prior to release to parents custody
  - iii. Emergency transport should always be offered even if not clinically mandated.
- e. Student-athletes will be notified they are off exercise and vigorous activity until cleared by physician,

## **3. Non emergent referral**

- a. Initial 24-72 hours
  - i. Student-athletes will be instructed to check in with ATC daily.
    - 1. *Concussion Symptom Checklist* will be completed by ATC daily.
    - 2. Coaches will be notified of concussion and off-exercise status

3. Teachers will be notified that the student-athlete may require special academic accommodations
    4. Any student-athlete who demonstrates signs and symptoms of a concussion will not be permitted to exercise, including participation in physical education classes, until medically cleared.
  - ii. Student-athletes will undergo post-concussion neurophysiological testing (ImPACT® testing).
    1. A quiet environment free of students, coaches and parents will be provided.
    2. Test will be supervised by trained staff.
  - iii. ATC will be responsible for initiating contact with OAA medical staff via phone, email or in person.
    1. Written description of events will be provided.
    2. *Concussion Symptom Checklist* will be provided for review.
    3. Access to post-concussion ImPACT® scores will be provided for physician review.
  - iv. **At the discretion of the medical staff, the student may require office visit.** ATC is responsible for notifying parents of office visit request.
  - v. ATC/AD is responsible for notifying school nurse of concussion.
    1. Student-athletes may be permitted to continue with classes, however if classes exacerbate symptoms an adapted school day may be recommended.
    2. Recommendations for adapted school day will be provided by OAA medical staff when appropriate.
    3. Student-Athlete will be informed when they are able to return to normal classroom activities so that they may begin to make-up essential material missed during the time of their concussion.
- b. Subsequent management (post initial 72 hours)
  - i. Plan of care will be established as a collaborative effort between physician, parent, student-athlete and ATC
    1. Plan of care will be supplied in writing by OAA medical team.
    2. Plan of care will be communicated to coaching staff by ATC

3. Daily logs of *Concussion Symptom Checklist* will be maintained by ATC
  4. Decline in condition will be communicated directly to treating physician via phone or email.
- ii. Physician will establish post-concussive ImPACT® testing timeline. Athletes will not have more than one ImPACT® test in a seven day period of time unless outlined in treatment plan of MD.

#### 4. **Emergency referral**

- a. The student athlete will be transported to the nearest medical facility by EMS if any of the following signs/symptoms are noted:
  - i. Loss of consciousness on the field/court
  - ii. Deterioration of neurological function
  - iii. Decreasing level of consciousness
  - iv. Abnormally unequal, dilated, or unreactive pupils
  - v. Any signs or symptoms of associated head/neck injuries, spine or skull fractures, or bleeding
  - vi. Mental status changes: lethargy, difficulty maintaining mental arousal, confusion, or agitation
  - vii. Weakness or numbness
  - viii. Slurring of speech
  - ix. Headaches that are worsening over time
  - x. Cranial nerve deficits
- b. Student-athletes who are stable, but symptomatic can be transported by parents
- c. Student-athletes, whose parents are not at the practice or game, shall be notified immediately by the ATC or Head Coach.
- d. It is the discretion of the medical staff to determine necessity of emergency transport to the hospital.
- e. The parents always have the option of emergency transportation.

#### 5. **Return to play guidelines**

- a. Return to play depends on several factors
  - i. Physical exam
  - ii. The *Concussion Symptom Checklist*
  - iii. Past history of head injury
  - iv. ImPACT® testing scores
  - v. Recommendations by OAA medical staff, including ATC

- b. The student athlete must meet **all** of the following criteria to return play
  - i. Asymptomatic at rest and with exertion
  - ii. ImPACT® scores within normal range of baseline
  - iii. ImPACT® scores reviewed by OAA medical staff and recommendations obtained
  - iv. Student athletes must remain asymptomatic for 7 days
  - v. Student athletes must obtain written clearance from physician
  
- c. If student chooses to obtain medical clearance from another physician, OAA Athletic Trainers will not allow any student athlete to return to participation until they are symptom free as deemed by our concussion protocol. **Any notes from outside physician will not be used to override OAA protocol.**
  
- d. Progression is individualized and will be determined on case by case basis. The speed of progression will be established by collaboration between student athlete, ATC and OAA medical staff.
  
- e. Factors affecting speed of progression:
  - i. Previous concussion history
  - ii. Duration and type of symptoms
  - iii. Age of student athlete
  - iv. Sport of participation
  
- f. Stepwise progressions will be utilized. Each step should take 24-48 hours. Student athlete must remain asymptomatic prior to taking the next step. If symptoms return, a 24 hour suspension of progression should take place before resuming the previous level.
  - i. If symptoms return during progression, student athletes should be removed from participation until symptoms resolve.
  - ii. If symptoms don't resolve, student athlete should be referred back to OAA medical for re-evaluation
  
- g. OAA utilizes the Zurich Consensus Statement from the 3<sup>rd</sup> International Congress on Concussion in Sport (each step requiring 24-48 hours):
  - i. Step 1: Light aerobic exercise (ie: stationary bike, elliptical machine)
  - ii. Step 2: Moderate aerobic exercises (begin running program)

- iii. Step 3: Functional exercises (increase running intensity, begin agilities, NON-contact sport specific drills)
  - iv. Step 4: NON-contact practice activities
  - v. Step 5: Full contact practice
  - vi. Step 6: Full game participation
- h. ALL return to play guidelines must be met and the each step must be completed in its entirety with ATC clearance prior to being cleared to participate.
6. **ImPACT-** Saucon Valley School District utilizes the ImPACT® (Immediate Post Concussion Assessment and Cognitive Testing) software program to assist in the management of head injuries. It tracks neurocognitive information such as memory, reaction time, brain processing speed and concentration. We conduct a post-concussive test at 24-72 hours from date of injury and continue to test the student athlete until their scores return to normal. Additional information about ImPACT® can be found at [www.impacttest.com](http://www.impacttest.com)

### **Acknowledgements**

McCrary P, Meeuwisse W, Johnston K, et al. Consensus statement on concussion in sport: The 3rd international conference on concussion in sport held in Zurich, November 2008. *British Journal of Sports Medicine*. 2009;43:i76-i84.

McCrary P, Johnston K, Meeuwisse W, et al. Summary and agreement statement of the 2nd international conference on concussion in sport, Prague 2004. *British Journal of Sports Medicine*. 2005;39:196-204.

McCrea M, Guskiewicz KM, Marshall SW, et al. Acute effects and recovery time following concussion in collegiate football players: The NCAA concussion study. *Journal of the American Medical Association*. 2003;290:2556-2563.

Gioia G, Collins M. Acute concussion evaluation (ACE) physician/clinician office version. In: "Heads Up: Brain Injury in Your Practice" Tool Kit: Centers for Disease Control and Prevention; 2006.

Sport Concussion Assessment Tool 2 (SCAT2). *British Journal of Sports Medicine*. 2009;43:i85-i88.

Collins MW, Stump J, Lovell MR. New developments in the management of sports concussion. *Current Opinion in Orthopaedics*. 2004;15:100-107.  
Guskiewicz KM, Bruce SL, Cantu RC, et al. National Athletic Trainers' Association position statement: Management of sport-related concussion. *Journal of Athletic Training*. 2004;39:280-297.

Center for Disease Control: Heads Up: *Concussions in High School Sports*, Toolkit  
[http://www.cdc.gov/ncipc/tbi/coaches\\_tool\\_kit.htm#](http://www.cdc.gov/ncipc/tbi/coaches_tool_kit.htm#)