

Ardasley High School Concussion Protocol

If a member of the Ardsley High School staff has a concern that a student-athlete may have sustained a sports concussion or closed head injury due to their participation in athletics, or if one or more individuals express concern to a member of the staff that a student-athlete may have suffered a sports concussion or closed head injury, this Policy and Protocol will be followed. The health and welfare of the student-athlete will be the primary consideration throughout the process.

Definition of Sports Concussion:

“Sports concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces”. (Concussion in Sports Group, Zurich 2008, Clin J Sports Med,19:185-200, 2009)

1. A concussion may be caused by a direct blow to the head, face, neck, or elsewhere on the body with an “impulsive” force transmitted to the head.
2. A concussion typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously.
3. A concussion may result in neuropathological changes, but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.
4. A concussion results in a graded set of clinical syndromes 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.
5. No abnormality on standard structural neuroimaging studies is seen with a concussion.

Definition of Closed Head Injury:

Any injury to the head can cause damage to the brain stem and other vital centers of the brain. This can include but is not limited to traumatic brain injury, cerebral contusion, epidural hematoma, and subdural hematoma. (NATA Position Statement: Management of Sport-Related Concussion, 2004)

Signs and Symptoms of Sports Concussion and/or Closed Head Injury:

A sports concussion and/or closed head injury will be suspected if any Ardsley High School student-athlete presents with one or more of the following signs, symptoms, or problems, in excess of his/her baseline symptom score, after sustaining direct or indirect contact to the head. If no baseline test is available, a student-athlete must be symptom free according to the Certified Athletic Trainer’s assessment. These can include clinical symptoms, physical signs, cognitive impairment, and/or loss of consciousness. Any student-athlete with signs, symptoms, or problems will be removed from play that day, monitored and will not return to play on the day of injury.

The following is a list of possible signs, symptoms, or problems of a sports concussion or closed head injury: This list is not an all-inclusive list, other signs, symptoms, or problems may occur that are not listed.

- Headache
- Irritability
- Nervous or Anxious
- Sadness
- “Pressure in the head”
- Confusion
- Trouble falling asleep
- Sensitivity to light
- Neck Pain
- Feeling slowed down
- Balance problems
- Sensitivity to noise
- Drowsiness
- Feeling like “in a fog”
- Nausea or vomiting
- Convulsions or Seizures
- Fatigue or low energy
- “Don’t feel right”
- Blurred vision
- Difficulty concentration
- More emotional than usual
- Balance problems
- Dizziness
- Difficulty remembering

REFERRAL GUIDELINES:

- Once a student-athlete has presented with any of the above signs, symptoms, or problems; they will be monitored, including vital signs and level of consciousness, every several minutes after the onset of symptoms. Monitoring will continue until one of the following scenarios is determined:

1. Immediate Referral to Emergency Room:

- Any student-athlete presenting with any of the following signs, symptoms, or problems will be
 - Referred to the emergency room immediately upon on-field assessment:
 - Deterioration of neurological function
 - Decreasing level of consciousness
 - Irregularity in respirations
 - Irregularity in pulse
 - Unequal, dilated, or unreactive pupils
 - Any signs or symptoms of associated injuries, e.g. spine or skull fracture, or bleeding
 - Mental status changes: lethargy, difficulty maintaining arousal, confusion, or agitation
 - Seizure activity

2. Referral to Physician on the Day of Injury:

- Any student-athlete presenting with any of the following signs, symptoms, or problems when compared to the initial on-field assessment, will be referred to a physician on the day of injury:
 - Loss of consciousness
 - Amnesia lasting longer than 15 min
 - Increase in blood pressure
 - Cranial nerve deficits
 - Vomiting
 - Motor deficits subsequent to initial on-field assessment

- Sensory deficits subsequent to initial on-field assessment
- **Gross motor deficits subsequent to initial on-field assessment**
- Cranial nerve deficits subsequent to initial on-field assessment
- Postconcussion symptoms that worsen
- Additional postconcussion symptoms as compared with those on the field
- Student-athlete will also be referred to a physician on the day of injury if he/she has not shown improvement in their signs, symptoms or problems by the end of practice or competition.

3. Release of the Student-Athlete from the Supervision of a Certified Athletic Trainer with Take-Home Instructions:

If the student-athlete has shown an improvement in their signs, symptoms or problems by the end of the practice or competition, they will be given Take-Home-Instructions (See Appendix A) for care while they are at home and not under the supervision of a Certified Athletic Trainer. These instructions will be given and explained to the individual student as well as their parents. The student-athlete will be continually monitored for deterioration every few hours and days afterwards as problems could arise over the next 24-48 hours. The student-athlete will be monitored regularly until they are symptom free.

4. Delayed Referral (after the day of injury):

If a student-athlete that was released from the supervision of a Certified Athletic Trainer and given Take-Home Instructions presents with any of the following signs, symptoms, or problems after the day of injury, he/she will be referred to a physician by the Certified Athletic Trainer.

- Any Student-Athlete that has presented with signs, symptoms, or problems related to a sports concussion will be monitored regularly using the Post Concussion Symptom Scale (See Appendix B).

Return-To-Play (RTP) Assessment

Assessment Tools:

Ardsley High School utilizes the computerized ImPACT test. ImPACT is a program that measures multiple aspects of cognitive functioning in student-athletes including: attention span, working memory, sustained and selective attention time, response variability, non-verbal problem solving, and reaction time.

Testing:

All student-athletes at Ardsley High School will undergo baseline testing using the ImPACT test in ninth and eleventh grades or every other year. All student-athletes must be tested prior to the first day of practice.

ImPACT Testing/ Retesting:

After a student-athlete sustains a concussion, he/she will be referred to a physician (as stated above). A physician must medically clear all student-athletes suspected of a concussion prior to the beginning of the return-to-play protocol. The medical clearance will include approving the use of the physical exertion testing protocol and time frame for return-to-play or make specific

recommendations. ImPACT test will be administered when the athlete is symptom free for 24 hours. If the athlete passes the ImPACT test, as determined by physician, and has medical clearance they can begin the physical exertion testing protocol. If the athlete does not return to baseline on the ImPACT then they must wait an additional 12 hours before being retested. This will occur until the athlete has returned to their baseline scores.

Physical Exertion Testing Protocol (Appendix C)

The student-athlete must be symptom free each consecutive day (minimum of 12 hours between each day) before he/she can progress to the next step in the sequence. The student-athlete will not be returned to full contact activity until he/she has remained symptom free, he/she has been medically cleared by a physician, and he/she has been able to accomplish all of the Physical Exertion Testing Protocol steps without experiencing any return of signs, symptoms or problems.

If a student-athlete experiences any signs, symptoms, or problems at any one step he/she will stop the physical exertion testing protocol and begin at the previous step the next symptom free day as long as he/she has been symptom free for a minimum of 12 hours.

Disqualification:

If the data shows that a student-athlete has suffered a sports concussion or closed head injury, a multidisciplinary approach will be taken to return the student-athlete to active status. The student- athlete will be spoken with regularly until symptom free. Because no two concussions are the same, disqualification for practice, competition, season or career will be determined by the certified athletic trainer, physician, and any other involved medical specialists.

References:

National Athletic Trainers' Association Position Statement: management of Sports-Related Concussion, *Journal of Athletic Training*, 2004; 39(3): 280-297

Summary and agreement statement of the first International Conference on Concussion in Sport, Vienna 2001, *British Journal of Sports Medicine*, 2002;36: 6-7

Summary and agreement statement of the 2nd International Conference on Concussion in Sport, Prague 2004, *British Journal of Sports Medicine*, 2005;39: 196-204

Sex Differences and the Incidence of Concussions Among Collegiate Athletes, *Journal of Athletic Training*, 2003; 38(3); 238-244

NCAA Special Issue, *Journal of Athletic Training*, April-June 2007; 42(2): 173-319 Consensus Statement on Concussion in Sport 3rd International Conference on Concussion in Sport, Zurich 2008, *Clinical Journal of Sports Medicine*, 2009;19: 185-200

Appendix: A

Take-Home-Instructions:

Any student-athlete who experiences any of the signs, symptoms, or problems of a Sports Concussion and is not being referred to a physician or emergency room the day of injury will be given these Take- Home-Instructions. The student-athlete must be monitored for possible deterioration as problems could arise over the first 24-48 hours. You should not be left alone and must go to the hospital at once if you experience any of the following:

<ul style="list-style-type: none"> ○ Have a headache that gets worse ○ Are very drowsy or can't be awakened (woken up) ○ Can't recognize people or places ○ Have repeated vomiting ○ Behave unusual or seem confused; are very irritable ○ Have seizures (arms and legs jerk uncontrollably) ○ Have weakness or numbness in arms, legs, or face ○ Are unsteady on feet (dizziness) 	<ul style="list-style-type: none"> ○ Have slurred speech ○ Experiences changes in breathing/pulse rate ○ Experiences memory deficits ○ Experiences any vision difficulties ○ Experiences anything out of the ordinary ○ Experiences any increase in symptoms
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*** Remember, it is better to be safe. ***

It is believed that your child has sustained a concussion on _____. Please make sure you follow the following important recommendations:

- a. Please remind your child to report to the Nurse or the Athletic Trainer the following school day for a follow-up evaluation.
- b. Review the items listed above and if any problems develop prior to his/her return to school, please go to the hospital immediately. Otherwise, you can follow the instructions below.

It is OK to:	There is NO need to:	DO NOT:
<ul style="list-style-type: none"> ○ Use ice pack on head and neck as needed for comfort ○ Eat a light diet ○ Return to school ○ Rest (no strenuous activity or sports) 	<ul style="list-style-type: none"> ○ Check eyes with flashlight ○ Test reflexes ○ Stay in bed 	<ul style="list-style-type: none"> ○ Drink alcohol ○ Do drugs ○ Drive ○ Take medication for symptoms ○ Exert yourself (physically or mentally) including no texting, video games, or computer that may increase symptoms ○ Train (cardio or strength)

Appendix B:
Post Concussion Symptom Scale

Instructions: The Post Concussion Symptom Scale should be used for each subsequent follow-up assessment until all symptoms have cleared at rest and during physical exertion. In lieu of simply checking each symptom present, the ATC or Nurse can ask the student-athlete to grade or score the severity of the symptom on a scale of 0-6, where 0 = none, 1-2 = mild, 3-4 = moderate, and 5-6 = most severe.

Student-Athlete _____

Symptom	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:
Headache					
“Pressure in head”					
Neck pain					
Nausea or Vomiting					
Dizziness					
Blurred Vision					
Balance Problems					
Sensitivity to Light					
Sensitivity to Noise					
Feeling Slowed Down					
Feeling “in a fog”					
“Don’t feel right”					
Difficulty concentrating					
Difficulty remembering					
Fatigue or low energy					
Confusion					
Drowsiness					
Trouble falling asleep					
More emotional					
Irritability					
Sadness					
Nervous or anxious					
Other:					

Appendix : C
Ardsley High School Concussion Return to Play Protocol

Student-Athlete's Name: _____ Date of Concussion: _____

IMPACT:

Date: _____ Pass / Fail Clinician: _____

Date: _____ Pass / Fail Clinician: _____

Date: _____ Pass / Fail Clinician: _____

The Student-Athlete should stop **IMMEDIATELY** if he/she experiences any symptom(s) during any part of this test

Step 1. Aerobic exercise – short sprints, sit-ups, push-ups, etc.

Age: _____ Max Heart Rate (220-age): _____ 70% of Max Heart Rate: _____

*****Patient should wear heart rate watch monitor if available*****

Timed Run (Total time = 15 minutes):

HR After 5 minutes: _____ S/Sx: _____

HR After 10 minutes: _____ S/Sx: _____

HR After 15 minutes: _____ S/Sx: _____

Suicide or Albany x 4 (30-60 second break between):

Suicide/Albany #1 (Followed by 30 sec. of push-ups) HR: _____

Suicide/Albany #2 (Followed by 30 sec. of up-downs) HR: _____

Suicide/Albany #3 (Followed by 30 sec. of jumping jacks) HR: _____

Suicide/Albany #4 (Followed by 30 sec. of mountain climbers)HR: _____

Comments: _____

Clinician: _____ **Date:** _____

Step 2. Non-contact drilling/ Sport-specific exercise:

Clinician: _____ **Date:** _____

Step 3. Controlled contact drilling:

Clinician: _____ **Date:** _____

Step 4. Full-contact/ Competition:

Clinician: _____ **Date:** _____