



# **NovaCare Rehabilitation Athletic Training Services**

**Concussion Management Standards:**

**Trinity High School  
3601 Simpson Ferry Rd.  
Camp Hill, PA 17011**



Medical management of sports-related concussion is evolving. In recent years, there has been a significant amount of research into concussions, and in 2011, the General Assembly in Pennsylvania passed the Safety in Youth Sports Act. This act establishes "standards for managing concussions and traumatic brain injuries for student-athletes." Trinity High Schools protocol is designed to exceed these guidelines, and to outline the proper procedures our Certified Athletic Trainer's will follow in the event of an injury. When followed, these procedures will ensure that injured athletes are identified, treated and referred appropriately; receive appropriate follow-up medical care during the school day, including academic assistance; and are fully recovered prior to returning to play.

This protocol will be reviewed on a yearly basis, by the Certified Athletic Trainer. Changes will be made according to the latest research recommendations and as new assessment tools are developed. These changes will be made upon consultation with the Athletic Director, Supervising Team Physician and/or Concussion Specialist, Health Services Coordinator and Athletic Training Staff. All above mention staff will sign off on the new concussion protocol.

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## Recognition of Concussion

The 2012 Zurich Consensus Statement defines concussion as, “a complex pathophysiologic process affecting the brain, induced by traumatic biomechanical forces.” It may be caused by a direct blow to the head or a blow somewhere else on the body. It may cause immediate or delayed neurological impairment. Concussion may result in neuropathological changes, but it is typically a functional problem, not a structural one, and there is usually no abnormality seen on standard neuroimaging. A concussion results in clinical symptoms that do not need to include a loss of consciousness. Only one sign or symptom is needed for the clinical diagnosis of concussion to be made. The common Signs and Symptoms are listed below. A comprehensive Signs and Symptoms list is provided in the resource section of the manual.

### Common Signs (observed by others):

- Athlete appears dazed or stunned
- Confusion (about plays, assignment, etc.)
- Forgets plays
- Unsure about game, score, opponent
- Moves clumsily (altered coordination)
- Appears off balance
- Personality changes
- Vomiting
- Responds slowly to questions
- Forgets events prior to hit or forgets events after the hit
- Loss of consciousness (any duration)

### Common Symptoms (reported by athlete):

- Headache
- Fatigue
- Nausea
- Double vision
- Blurry vision
- Sensitivity to light or sounds
- Feels slow or sluggish
- Feels "foggy"
- Problems concentrating
- Problems remembering
- May feel an increase in symptoms with physical or mental exertion



**\*Athletes reporting any one or combination of these signs and symptoms should be removed from activity immediately, with no same day return to play permitted.**

## **Preseason Preparation**

- ***Baseline Testing:***

- ImPACT Baseline testing of all moderate to high-risk student-athletes will be conducted prior to the start of their respective season. (See “The ImPACT System and Concussion Management for further instructions)

- ***Coaches Requirements:***

***Educational Requirements:***

- All coaches (paid and volunteer) are required annually to complete the NFHS Concussion Training module prior to the start of the season or a similar approved module.
- After completing the module, coaches will provide a copy of their certificate to the athletic director annually.
- Any coach not providing a certificate of completion to the athletic director will not be allowed to coach until the certificate is received by the athletic director.
- The athletic director will collect & file certificates from the Concussion Training module for all coaches.
- The ATC will provide coaches with a copy of the EAP including concussion protocol. Coaches will sign an acknowledgement of receipt.

***Immediate Removal From Play:***

- If an athlete is believed to be exhibiting any signs or symptoms of concussion or TBI, the coach must immediately remove that athlete from play
- An athlete removed from play will not be allowed to return to play the same day and may not return to play until evaluated and has received written clearance from:
  - Licensed physician who is trained in the evaluation and management of concussions or a licensed health care professional with such training designated by such physician or



- A licensed neuropsychologist trained in the evaluation and management of concussions or who has postdoctoral training in neuropsychology and specific training in the evaluation and management of concussions

### ***Penalties***

- If a coach fails to remove a player with signs and symptoms of concussion from play or allows a player to return to play without proper medical clearance the following minimum penalties will be handed down:
  - 1<sup>st</sup> violation: suspension for remainder of the season
  - 2<sup>nd</sup> violation: suspension for remainder of the season AND next season
  - 3<sup>rd</sup> violation: permanent suspension from coaching
- ***Parent / Student Requirements***

#### ***Educational Requirements:***

- The athletic trainer will provide to parents and students a concussion and traumatic brain injury information sheet annually.
- Students and a parent/guardian must sign and return annually a form acknowledging receipt, review, and understanding of the information sheet
- Online educational links are available on the school website and completion is strongly recommended by parents and students.

#### **Post-Concussion Protocol/Plan Compliance:**

- Standardized sideline evaluation.
  - ATC will first rule out cervical spine injury or other life threatening injuries and activate the emergency action plan, if necessary.
  - ATC will determine if the athlete's symptoms are from a concussion utilizing SCAT (Sideline Concussion Assessment Tool).



- Required assessments are a standardized symptom assessment, health history, Modified Maddocks questions, Heel -Toe walking forward (with eyes open, then closed), Heel -Toe walking backwards (with eyes open, then closed), Romberg's test , 5 Word Memory (with delayed recall), Backwards Digits, Months in Reverse Order, and cranial nerve function.
- ATC will document and file all records.
- Re-evaluation should be conducted at 15 post-injury, 30 minutes post-injury and 1 hour post-injury (if able).
- Additional tools that may be utilized are the following but not limited to: BESS Test, Modified BESS Test and Finger-to-Nose, Exertion Exercises, Glasgow Coma Scale, Orientation Score.
- **There will be NO same day return to play for any athlete exhibiting signs and symptoms of concussion.**
- The ATC will provide the Select Medical Concussion packet to the parent/guardian containing take home instructions, referral list, and an information packet to be provided to the treating physician.
- The parent/guardian will sign a form acknowledging that they have received and had all materials provided in the Select Medical Concussion packet reviewed with them by the ATC. Signed forms will be kept on file in the athlete's file.
- The ATC will refer the concussed athlete to an appropriate medical provider.
- Written documentation from the Concussion Specialist outlining treatment and management guidelines for athlete's concussion will be required.
- The ATC will follow-up with the concussed athlete and communicate with coaches, parents, school nurse/health services, academic advisor/guidance counselor regarding physical and academic restrictions.
- The ATC will utilize the graded symptom checklist during each follow up encounter.



- The ATC will provide daily self-reported symptom checklist forms for the parent/guardian to complete with the student-athlete each day to monitor progression and to recognize any activities that may be increasing symptoms.
- The ATC will receive written clearance by the Concussion Specialist prior to progressing athlete back to play.
  - The ATC will provide the Concussion Specialist with all baseline and post-injury testing.

#### **For Visiting Athletes:**

- The ATC will communicate with visiting coach regarding visiting athlete's injury detailing extent of injury and plan of care.
- The ATC will provide Select Medical "Take Home Instructions" for athlete and coach, if parent/guardian not present.
- If parent/guardian is not present, the ATC will communicate with parent/guardian, via phone.
  - The ATC will confirm with parent/guardian how the athlete will get home once they arrive at their school. (No concussed athlete should ever be permitted to drive.)
- The ATC will communicate with athlete's ATC within 24 hours of injury detailing injury and initial treatment/plan of care.

#### **Emergency Action Plan Compliance**

- The ATC will create and keep on file a venue specific EAP which will include delineation of roles, methods of communication, available emergency equipment, and access to and plan for emergency transport.
- The ATC will provide a copy of the EAP to all coaches and administrators involved in athletics.



- EAP will be reviewed annually (and rehearsed, if possible) by all licensed ATs, first responders, coaches, nurses, ADs, security, and volunteers involved in athletics.

### **Specific Management and Referral of Concussions**

- Any athlete with a witnessed loss of consciousness for any duration should be spine boarded and transported to the nearest emergency department via emergency vehicle.
- Any athlete who has symptoms of concussion, and is not stable, is to be transported to the nearest emergency department via emergency vehicle.
- Any stable athlete, whose condition is changing, needs to be transported to the emergency department by a vehicle determined to be appropriate by the Certified Athletic Trainer on site.

### **Symptoms Requiring Emergency Transport:**

1. Deterioration of neurological function.
2. Decreasing level of consciousness.
3. Decrease or irregularity in respirations.
4. Decrease or irregularity in pulse.
5. Unequal, dilated, or unreactive pupils.
6. Any signs or symptoms of associated injuries, spine or skull fracture, or bleeding.
7. Mental status changes: lethargy, difficulty maintaining arousal, confusion or agitation.
8. Seizure activity.
9. Cranial nerve deficits.

### **Procedures for the Athletic Trainer**

- The ATC will assess the injury, or provide guidance to the coach if unable to personally attend to the athlete.
- The ATC will perform sideline assessments, outlined above.





- The ATC will notify the appropriate personnel of the athlete's injury, prior to the next school day.
  - This communication should address the athlete's need for physical and cognitive rest.
    - Athletes should not be attending school until symptom free for 24 hours.
    - If required, ATC should obtain Standing Physician Orders from Supervising MD to address this area, and keep on file in appropriate location.
    - ATC will utilize a "Referral List" of Concussion Specialists for the athlete to see.

### **Procedures for Coaches**

- Recognize
  - The ATC will provide coaches with a written list of concussion symptoms to assist coaches in recognizing concussions
- Remove
  - Once a coach is aware that any athlete is experiencing any number of concussion-like symptoms, the coach will immediately remove the athlete from ALL activity and immediately refer the athlete to the athletic trainer.
  - If no ATC is available, and the athlete is stable, the coach will notify the parents/guardians and remove the athlete from ALL activity, until the ATC is available to assess the athlete.
  - No same day return to play is permitted.
- Refer
  - The athlete will be referred to the appropriate medical professional for evaluation.
  - The coach will notify the ATC of the injury immediately, or within 24 hours, if no ATC is available, for assessment and coordination of home instructions and follow up care.
  - The ATC will contact the athlete's parents/guardians and inform them of the injury.
  - Coaches will seek assistance from the host site ATC if at an away contest.



- The coach will contact the athlete's parents/guardians, in the event of an injury at an away contest.
- The coach will coordinate, with the parents/guardians, how the athlete is getting home from the contest (athletes with concussion are not permitted to drive).
- Coaches shall remind the athlete to report directly to the school nurse, athletic trainer, and academic advisor/guidance counselor when the athlete returns to school/classes following the injury.
- In the event that an athlete's parent/guardian can't be reached, or they are unable to pick up the athlete to go home (and immediate referral to an MD is not required):
  - The coach will insure that the athlete will be with a responsible adult, who is capable of monitoring the athlete and understanding the Take Home Instructions, before allowing the athlete to go home.
  - The coach/ATC will continue efforts to reach the parent/guardian.
  - If there is any question about the status of the athlete, or if the athlete is not able to be monitored appropriately, the athlete shall be referred to the nearest Emergency Department for evaluation.
  - A coach shall accompany the athlete and remain with the athlete until the parent/guardian arrives.

### **Post-Injury Testing/Follow-up**

- Following a concussion the ATC will follow-up with the injured athlete by:
  - Utilizing the Graded Symptom Checklist each day that the athlete reports to the AT Room.
  - Utilizing ImPACT post-injury assessments following the guidelines listed in "The ImPACT System and Concussion Management" section of this manual, or according to the treating MD.
- The ATC will provide all copies of Post-Injury testing results to the athlete, parent/guardian (upon request) and treating Concussion Specialist.
- The ATC will maintain all copies in the athlete's file in the athletic training room.



## **Return to Play Procedures Following Concussion**

- No same day return to play is permitted.
- Any athlete that denies symptoms, but has abnormal sideline balance or cognitive testing, should be held out of ALL activity, and the guidelines listed above should be followed.
- The athlete must meet ALL of the following criteria in order to progress to activity:
  - Athlete is asymptomatic at rest and with mental exertion (full day of classes is required to meet this criteria) AND:
  - Athlete's final balance and neurocognitive scores are within normal range of baseline on all Post-Injury Testing AND:
  - Have written clearance from Concussion Specialist who has personally evaluated the athlete, as well as, been given access to the athlete's Post-Injury test results (athlete must be cleared to begin progression by a Concussion Specialist from the referral list unless ordered by the treating physician).
  - Only a Concussion Specialist and/or athletic trainer will be permitted to make return to play decisions and will be done so in writing.
    - No outside MD is permitted to make any sort of return to play decisions regarding any athlete. Trinity High School and their Sports Medicine staff reserve the right to determine the return to play requirements for all athletes regardless of outside physician recommendations.
- Once the above criteria are met, the athlete will be progressed back to full activity following a stepwise process, under the supervision of the AT or qualified PT.
- Progression is individualized, and will be determined on a case-by-case basis.
  - Athletes with modifiers should be progressed more slowly.
  - Refer to the "Modifier Checklist" for the complete list.

**The general Graduated Return to Play (as described in the 2012 Zurich Consensus Statement) is outline below:**

Compiled by NovaCare Rehabilitation's Concussion Standards Panel, 2012  
Revised by Jeff Hutton, M.S., ATC, CSCS, PES 10/12



1. No activity – do not progress to step 2 until asymptomatic with mental exertion (full day of classes required)
2. Light aerobic exercise – walking, stationary bike
3. Sport-specific intense training – skating in hockey, running in soccer, etc.
4. Non-contact sports-specific training drills
5. Full-contact training – practice only
6. Full game play

**\*\*If the athlete experiences post-concussion symptoms during any step, the athlete should drop back to the previous asymptomatic level and resume the progression once symptom free for 24 hours.\*\***

**\*\*Sport specific graduated RTP procedures are outlined in this manual for Swimming, Diving and Cheerleading.\*\***

- The ATC and the athlete will discuss appropriate activities for the day.
- The athlete will be given verbal and written instructions regarding permitted activities.
- The ATC and the athlete will each sign these instructions.
  - One copy of this form is for the athlete to give to the coach, and the AT will maintain one.
- **The athlete must see the ATC daily if attending school for re-assessment and instructions until they have progressed to unrestricted activity, and been given a written report to that effect, from the ATC.**



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SIGNATURE OF NOVA CARE ATHLETIC TRAINER

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DATE

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SIGNATURE OF ATHLETIC DIRECTOR

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DATE

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SIGNATURE OF SCHOOL NURSE/HEALTH SUITE

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DATE

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SIGNATURE OF SUPERVISING PHYSICIAN/CONCUSSION SPECIALIST

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DATE



## References

D'Hemecourt P. Subacute Symptoms of Sports Related Concussion: Outpatient management and return to play. *Clinics in Sports Medicine* 2011; 30(1) 63-72.

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McCrory P, Meeuwisse W, Johnston K, et al. Consensus statement of Concussion in Sport 3<sup>rd</sup> International Conference on Concussion in Sport. Zurich, Switzerland, November 2008. *Br J Sports Med*; 43:i76-84.

*Putukian M. The Acute Symptoms of Sport-Related Concussion: Diagnosis and on-field Management. Clinics in Sports Medicine 2011; 30(1) 49-61.*

*"Safety in Youth Sports Act." SB 200*

*www.cdc.org*

*www.ncaa.org "Sports Medicine Handbook"*