



**East Penn School District
Department of Athletics**

East Penn School District's Protocol for Management of Traumatic Brain Injury





East Penn School District Department of Athletics

UNDERSTANDING OF RISK OF CONCUSSION AND TRAUMATIC BRAIN INJURY

What is a concussion? A concussion is a brain injury that:

1. is caused by a bump, blow, or jolt to the head or body.
2. can change the way a student's brain normally works.
3. can occur during Practices and/or Contests in any sport.
4. can happen even if a student has not lost consciousness.
5. can be serious even if a student has just been "dinged" or "had their bell rung".

All concussions are serious. A concussion can affect a student's ability to do schoolwork and other activities (such as playing video games, working on a computer, studying, driving, or exercising). Most students with a concussion get better, but it is important to give the concussed student's brain time to heal.

What are the symptoms of a concussion? Concussions cannot be seen; however, in a potentially concussed student, *one or more* of the symptoms listed below may become apparent and/or that the student "doesn't feel right" soon after, a few days after, or even weeks after the injury.

- Headache or 'pressure' in head
- Feeling sluggish, hazy, foggy, or groggy
- Nausea or vomiting
- Difficulty paying attention
- Balance problems or dizziness
- Memory problems
- Double or blurred vision
- Confusion
- Bothered by light or noise

What should a student do if he/she believes they or someone else may have a concussion?

- **Students feeling any of the symptoms set forth above should immediately tell their Coach, Athletic Trainer and their parents.** Also, if they notice any teammate evidencing such symptoms, they should immediately tell their Coach or Athletic Trainer.
- **The student should be evaluated.** A licensed physician of medicine or osteopathic medicine (MD or DO), sufficiently familiar with current concussion management, should examine the student, determine whether he student has a concussion, and determine when the student is cleared to return to participate in interscholastic athletics.
- **Concussed students should give themselves time to get better.** If a student has sustained a concussion, the student's brain needs time to heal. While a concussed student's brain is still healing, that student is much more likely to have another concussion. Repeat concussions can increase the time it takes for an already concussed student to recover and may cause more damage to that student's brain. Such damage can have long term consequences.

How can students prevent concussions? Every sport is different, but there are a steps student can take to protect themselves.

- Use the proper sports equipment, including personal protective equipment. For equipment to properly protect a student, it must be (1) the correct equipment for the sport, position, or activity (2) worn correctly and the current size and fit (3) used every time the student Practices and/or Competes (4) follow the Coach's rules for safety and the rules of the sport and (5) practice good sportsmanship at all times.



East Penn School District Department of Athletics

[*Adapted from “PIAA Comprehensive Initial Pre-Participation Physical Evaluation, Section 3: Understanding of Risk of Concussion and Traumatic Brain Injury (March, 2012)]

Protocol for Management of a Traumatic Brain Injury

East Penn School District’s Department of Athletics has developed a protocol for the staff to follow in the event of a traumatic brain injury (TBI), a.k.a. concussion, sustained by a student-athlete whether in athletic activity or otherwise. The purpose of this protocol is to educate and minimize the risk and potential injury that can be sustained during athletic activities. As stated by the Center for Disease Control (CDC), *a TBI is caused by a bump, blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain.*¹ Traumatic brain injuries can cause many health and mental problems throughout life, and possible risk of death. The protocol is in place so that we as an Athletic Department, student-athletes, and parents are aware of the severity and consequences that can develop from second-impact syndrome, which is caused by repeated trauma to the brain in a short period of time resulting in catastrophic injuries or are even fatal.¹ The Athletic Department has access to the ImPACT test, which can assist the athletic trainer in determining the severity of the TBI and subsequent safe return to activity.

- ❖ **All EPSD athletes are required to have an up-to-date baseline test prior to the start of the first practice of their sports season.**
 - EPSD defines an up-to-date baseline as:
 - A baseline that has been taken within the last two years (except middle school).
 - Baselines will be completed in 9th and 11th grade.
 - If a student experiences a concussion, another baseline will be administered prior to the start of the next season regardless of the grade.
 - 7th and 8th grade students are required to complete a baseline test prior to each season.

ImPACT TESTING

What is ImPACT testing? ImPACT testing is a software program used by the Athletic Training Staff to help determine if your son/daughter has suffered a head injury and when it is safe for an athlete to return to sports participation. The ImPACT test is a 20-40-minute, computerized test that assesses short and long-term memory, reaction time, mental processing speed, etc. (more information on ImPACT can be found at www.impacttest.com) Athletes are required to complete the first test while uninjured to establish a normal, healthy baseline evaluation of mental function. If your son/daughter is suspected of suffering a head injury during the sports season, a post injury test will be done within the first 24-72 hours and the scores of the two tests will be compared to look for deficits in memory, reaction time, processing speed, etc. If post test ImPACT identifies deficits athlete will need to be evaluated by a physician familiar with TBI and ImPACT, and retesting will be necessary until scores are within normal range of baseline. Retesting will follow the Post Injury ImPACT testing guidelines below. Based on deficits an athlete may also need temporary academic accommodations which will be arranged by the nursing staff and guidance department.

¹ Courtesy of the CDC



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Why is ImPACT testing so important? Head injuries are very serious and research has shown that athletes tend to hide the signs and symptoms of a head injury because they do not want to be removed from athletic competition. The problem with hiding a head injury is a condition called Second Impact Syndrome. Second Impact Syndrome occurs when an athlete receives a second blow to the head before the initial injury is totally resolved. A second blow has very serious consequences such as permanent brain damage or death. If that isn't scary enough, the force required to cause Second Impact Syndrome is minimal. Research also shows that as a person recovers from a head injury, s/he may physically feel fine long before their brain injury has resolved or mental function has returned to normal. Consequently, using physical symptoms isn't enough to determine if an athlete is safe to return to sports. ImPACT testing gives athletic trainers and physicians an objective tool to evaluate mental function and acuity in determining a safe return to sports. The ESPD takes head injuries very seriously and uses every method available to ensure our athletes are competing in sports safely following a head injury.

RECOGNITION

Recognizing a TBI is the very next step in treating a student-athlete behind prevention as the first. The list of signs/symptoms below are divided into three categories to differentiate the variety of signs/symptoms that can result from a traumatic brain injury.

An injury to the head resulting in one or more of the following symptoms should be treated as a TBI;²

AN ATHLETE EXPERIENCING/SHOWING ANY OF THE SIGNS OR SYMPTOMS LISTED ABOVE WILL BE REQUIRED TO REPORT TO ONE OF THE EPSD ATHLETIC TRAINERS

➤ **Cognitive Signs/Symptoms:**

○ Attention difficulties, concentration problems, memory problems, increased symptoms with mental activity, and/or orientation problems.

➤ **Physical Signs/Symptoms:**

○ Headache, dizziness, insomnia, fatigue, postural or balance problems, uneven gait, nausea, blurred vision, sensitivity to light or noise, and/or seizures.

➤ **Behavioral Changes:**

○ Irritability or more emotional than normal, depression, anxiety, sleep disturbances, problems with emotional control, and/or loss of initiative.

Once athlete reports symptoms they should not participate in any physical activity (ex. physical education, aquatics, high school sports, or club/recreation sports). REST IS KEY.

1. The athletic trainer will email the name of any athlete who sustains a head injury to the Director of Athletics and school nurse prior to the opening of the next school day.
2. The Athletic Director will then notify the Director of Guidance, who in turn will notify high school administration and all necessary faculty if the student-athlete needs academic accommodations.
3. Athletes are to be followed on a daily basis by the school nurse (during the day) and by our ESPD sports med staff (after school).

² Courtesy Dickinson College Post-Concussion Return-To-Play Criteria



**East Penn School District
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NO ATHLETE WHO IS SUSPECTED TO HAVE SUFFERED A CONCUSSION SHALL RETURN TO PARTICIPATION ON THE SAME DAY.

WHEN IN DOUBT, SIT THEM OUT!

RETURN-TO-PLAY

A student-athlete is ready to return to full participation following a TBI injury when s/he has been fully progressed, under the supervision of one of EPSD Athletic Trainers‡, and has remained symptom free through all six (6) physical exertion steps below based on the *Zurich Consensus Statement (2008)*³. Each step should take at least 24-48 hours*. If symptoms return during or after a step a 24* hour suspension of progression will take place before resuming from the previous level. In a case where symptoms do not resolve within 24 hours, that student-athlete may be referred back to original physician.

- ❖ A student-athlete **will not** begin the physical exertion steps until they meet all of the following criteria:
 - 1.) Is asymptomatic with out medication during regular activities of daily living.
 - 2.) Has post injury ImPACT scores within normal range of baseline that have been reviewed by an appropriate sports medicine professional.
 - if no baseline scores are available then scores will be compared with normative data.
 - 3.) Must have written clearance from an OAA (Orthopaedic Associates of Allentown) physician or a personal/family physician familiar with TBI and ImPACT.
 - Must be from a treating clinician; notes from the Emergency Department **WILL NOT** be accepted.
 - **Written clearance may not be in conflict with EPSD and OAA protocols**

Post Injury ImPACT Testing Guidelines

1. An initial post injury test will be done within the first 24-72 hours.
2. Retaking ImPACT will be determined by the physician and athletic trainer in charge of the case.
3. An athlete will NOT retake ImPACT more than twice a week, and will have to wait more than 48 hours between each supplemental ImPACT test given.
 - This is suggested by ImPACT.
 - Athlete must retake ImPACT under the guidance of Athletic Trainer, MD, or DO.

Physical Exertion Steps

- 1.) Light aerobic activity (ie stationary bike, elliptical machine, walking, <70% Max Heart Rate)
- 2.) Moderate aerobic exercise (begin running program)
- 3.) Sports specific functional exercise (ie. Sprinting/running, regular lifting, agilities; no head impact activities)
- 4.) Return to a NON-CONTACT training session or practice
- 5.) Return to a full contact training session or practice
- 6.) Full game participation

³ *Zurich Consensus Statement from the 3rd International Congress on Concussion 2008*

‡ If Athletic Trainer is not available on any given day to progress the athlete to the next step the athlete must wait until Athletic Trainer is available and will not skip a step unsupervised.

*times specified are minimums; the actual length will be determined by the Athletic Trainer and physician in charge of the case



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**PHYSICIAN CONCUSSION EVALUATION FORM
APPENDIX ONE**

Date: _____

Dear Physician:

_____ has sustained a concussion while participating in _____ at Emmaus High School/Eyer Middle School/Lower Macungie Middle School and has been referred to you for evaluation. The athlete presented with the following concussion sign(s) and symptoms (s) upon the initial evaluation:

_____ .

To assist you, the following is a background on how head injuries at _____ are handled, including return to play guidelines.

Please note according to the most recently published guidelines, if any of the following sign(s) or Symptom(s) appear following the injury, a concussion should be suspected; headache, dizziness, nausea, cognitive impairment (ie: “feeling in a fog”, irritability, light or noise sensitivity, sleep disturbance, fatigue, drowsiness, etc.

In concert with our consultants, and adopted by the East Penn School Board of Education, Emmaus High School/Eyer Middle School/Lower Macungie Middle School follows the concussion guidelines set forth by the Zurich Concussion Consensus Statement and PIAA guidelines described below:

RETURN TO PLAY GUIDELINES

First time concussed athletes with no loss of consciousness and signs/symptoms lasting less than seven (7) days may return to play when he/she meets the following criteria:

- 1. Asymptomatic (with no use of medication to mask symptoms).**
- 2. Completes the Zurich Activity Progression (see below) once asymptomatic for 24 hours and Medically cleared to do so.**
- 3. ImPACT scores return to within normal limits of baseline (if applicable). Any loss of consciousness, Signs/symptoms lasting seven (7) days or longer, or repeat concussions will require a minimum seven (7) day asymptomatic period and medical clearance before beginning the Zurich Activity Progression and will be managed on an individualized basis as approved by the school physician. The asymptomatic period for any concussion may be extended at the discretion of the physicians and athletic director.**



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ZURICH RETURN TO ACTIVITY PROGRESSION

We follow a stepwise activity progression based on the recommendations in the Zurich Consensus Statement from the 3rd International Congress on Concussion in Sports as follows:

Step 1: Light aerobic exercise (ie: stationary bike, elliptical machine)

Step 2; Moderate aerobic exercises (begin running program)

Step 3: Functional exercises (increase running intensity, begin agilities, non-contact sport-specific drills)

Step 4: Non-contact practice activities

Step 5: Full contact practice

Step 6: Full game play

Each step is separated by 24 hours. If any symptoms occur, the athlete will drop back to the previous level and try to progress again after 24 hours of rest has passed

ImPACT TESTING

In order to participate in athletics, we require pre-season baseline and post-concussion neurocognitive testing using 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 injury and continue to test the athlete until their scores return to normal. Additional information about ImPACT can be found at www.impacttest.com.

Thank you for your assistance. If you have any questions, please feel free to contact me.

Sincerely,



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**POST-CONCUSSION HOME & SCHOOL INSTRUCTIONS
APPENDIX TWO**

Following a concussion, **REST IS THE KEY**. The student should not participate in any high risk activities (e.g., sports, physical education, riding a bike, etc) or other physical activities that increase his/her normal heart rate. Limit activities that require a lot of lengthy mental activity (such as homework, schoolwork, job-related activities, extended video game playing) as this can make the symptoms worse. Get good sleep; no late nights or sleepovers. Take naps if tired. The student will need help from parents, teachers, coaches, and athletic trainers to help manage their activity level. They should not drive until cleared by a physician.

Returning to School:

1. Inform the school nurse and/or administrator about your child’s injury and symptoms. Your child’s teachers will then be notified by the appropriate individual.
2. Students who experience symptoms of concussion often need extra help to perform school-related activities and may not perform at their best in the classroom. Rest breaks during the school day can also be helpful. As symptoms decrease during recovery, the extra help can be removed slowly.

Parents and School Personnel Should Watch For:

1. Increased problems paying attention for concentration
2. Increased problems remembering or learning new information
3. Longer time needed to complete tasks or assignments
4. Greater irritability, less able to cope with stress
5. Increase in symptoms (e.g., headache, tiredness) when doing schoolwork

Returning to Sports & Recreation:

1. Your son/daughter should **NEVER** return to sports participation or active recreation with **ANY** symptoms, including practices and games.
2. No return to Gym.
3. Be sure that the Physical Education teacher and all coaches are aware of the injury.
4. It is normal for the student to feel frustrated because they cannot return to sports right away. With concussion, full recovery is essential to prevent long term issues.

It is OK to:	There is No Need to:	DO NOT:
Use Tylenol for headaches Use ice pack for headaches Eat a light diet Sleep	Check eyes with flashlight Wake up every hour Test reflexes	Drink alcohol Drive Exercise Take Advil, Motrin, aspirin, Naproxen or other NSAID

Serious Signs to Watch For:

Please watch carefully for any of the following serious signs and symptoms. The best guideline is to note symptoms that worsen, and behaviors that are a change in your son/daughter. If you observe any of the following signs, call your doctor or go to your emergency department immediately.

Headaches that worsen	Look very drowsy, can’t awaken	Can’t recognize people, places
Unusual behavior change	Seizures	Repeated vomiting
Significant irritability	Increasing confusion	Loss of consciousness
Slurred speech	Weakness/numbness in legs/arms	Neck pain

[*Adapted from ACE Care Plan “Heads Up: Brain Injury in Your Practice” (2007; National Athletic Trainers’ Association Position Statement: Management of Sport-Related Concussions (2004); OAA Post-Concussion Home & School Instructions



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Acknowledgement of this protocol is dictated by the signature below, and therefore is to be followed by the person(s) applicable

_____ Superintendent _____ Date

_____ Director of Student Services _____ Date

_____ School District Physician _____ Date

_____ Team Orthopaedic Physician _____ Date

_____ Athletic Administrator _____ Date

_____ Athletic Trainer _____ Date

_____ Athletic Trainer _____ Date

_____ Athletic Trainer _____ Date