



**EAST IRONDEQUOIT
CENTRAL SCHOOL DISTRICT**

**CONCUSSION
MANAGEMENT PROTOCOL**

August, 2020

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Foreword

In the ongoing process to improve health and safety within the student body of the East Irondequoit Central School District, our District Concussion Management Team presents a research-based protocol for the management of cerebral concussions. The protocols set forth in this manual are based on the recommendations of the New York State Concussion Management and Awareness Act, the New York State High School Athletic Association (NYSPHSAA) the National Athletic Trainers' Association (NATA), the American Orthopaedic Society for Sports Medicine (AOSSM), the American Academy of Neurology (AAN), and the Consensus Statement presented at the 5th International Conference on Concussion in Sport held in Berlin, October 2016.

The purpose of this document is to provide district personnel, coaches, parents/guardians, students, and healthcare providers with information on concussion management in the school setting. It explains the purpose of the concussion management protocol in the East Irondequoit Schools, and the step by step process taken to evaluate and treat these injuries. Ideally this will assist in identifying a student with a potential concussion, and ensure that a student who has been diagnosed with a concussion receives the appropriate care and attention at school to aid in their recovery.

This protocol will be reviewed on a yearly basis, by the East Irondequoit Central School District medical staff. Any changes or modifications will be reviewed and given to athletic department staff and appropriate school personnel in writing.

Definition of Concussion

A concussion is an injury to the brain that results in temporary loss of normal brain function. It is usually caused by a blow to the head or body. Cuts or bruises may be present on the head or face, but in many cases there are no signs of trauma. Many people assume that concussions involve a loss of consciousness, but that is not true. In most cases, a person with a concussion never loses consciousness. Essentially, a concussion results from the brain moving back and forth or twisting rapidly inside the skull.

The formal medical definition of concussion is: A clinical syndrome characterized by immediate and transient alteration in brain function, including alteration of mental status and level of consciousness, resulting from mechanical force or trauma.

Occasionally, players sustain a blow to the head resulting in a stunned, confused state that resolves within minutes. The colloquial term "ding" or "bell ringer" is often used to describe this initial state. However, the use of this term is not recommended because this stunned state is still considered a concussion resulting in symptoms, although only very short in duration, that should not be dismissed in a cavalier fashion⁷. Some athletes with concussions may not remember what happened immediately before or after the injury and they may act confused. A concussion can affect memory, judgment, reflexes, speech, balance, and muscle coordination. Every concussion should be taken seriously. Neurosurgeons and other brain injury experts emphasize that although some concussions are less serious than others, there is no such thing as a "minor concussion". In most cases, a single concussion should not cause permanent damage. A second concussion soon after the first one, however, does not have to be very strong for its effects to be deadly or permanently disabling.

Risks Associated With Concussion

We continue to learn that the long-term problems associated with concussions are potentially severe and debilitating, and yet so much is still unknown. What is known, however, is that sustaining one concussion significantly increases the risk for subsequent concussions, and ignoring the signs can be very harmful. Some concussions may present with additional complications above and beyond the common signs and symptoms. These complications may influence the management of injury in some cases⁵.

Second Impact Syndrome:

- A potentially catastrophic medical emergency where a 2nd concussion is sustained while still suffering from an initial concussion.
- Both injuries can occur within same sporting event.
- Vascular engorgement leads to massive intracranial pressure and brain herniation.
- May occur with subdural hematoma.
- Most cases result in brain damage or death.
- All cases in literature, athletes were under 20 years old.
- Should be treated as a potentially catastrophic medical emergency. Call 911.

Post-Concussion Syndrome:

- Persistent post-concussion symptoms lasting weeks, months, or years after a concussion.
- Indicator of severity, no return to play while symptoms persist.
- Student with post-concussive symptoms must be fully evaluated by a Neurologist before returning to activity.
- Symptoms generally resolve on their own within months.

Convulsions:

- Convulsive movement within seconds of concussion.
- Most cases benign.
- Student should be referred to ER via 911.

Seizures:

- Can occur days or months after concussion.
- Student should be referred to family physician/Neurologist for treatment before being allowed to return to sporting activity.

Concussions in the Adolescent Student

Concussions in the adolescent and adult differ. Children are not "little adults". They have actively developing bodies and brains that respond differently, have different needs, and face different expectations after injury. An appreciation of these differences and their implications is crucial for providing optimal care to the young student after concussion. Children ages 5-18 years old should not be returned to playing or training until clinically completely symptom free⁴. Because of the physiological response during childhood to head trauma, a conservative return to play approach is recommended.

Grading Concussions

Grading systems for concussions have been deemed obsolete in favor of a more conservative approach. The severity of a concussion cannot be fully determined until all symptoms have resolved and the student returns to practice/activity/competition.

The Importance of Rest

The cornerstone of concussion management is Physical **AND** Mental rest until complete resolution of symptoms. During the recovery from a concussion, there is to be no physical activity until directed by a Physician or Athletic Trainer. This includes running, jogging, bike riding, weightlifting, jump rope, physical education class, etc. For mental rest, athletes should have a quiet environment and avoid exposure to stimulation such as TV, Ipod, talking on the phone, texting, video games, computer screens, or heavy reading. Some analgesics and anti-inflammatory medication may be prescribed, but it should be recognized that these might mask some of the signs and symptoms of concussion. Students of driving age should also refrain from driving during their recovery.

In addition, special classroom accommodations can be made for students suffering from a head injury. The students' classroom teachers, guidance counselor, school nurse, certified athletic trainer, and appropriate administrators will be notified via email when a student suffers a concussive injury. Those students demonstrating signs and symptoms during class should be attended to promptly. Those displaying more long-term academic effects should be directed to the guidance department. If the student is symptomatic, classroom accommodations can be made as necessary.

Concussion Evaluation Procedures

Initial Evaluation

- 1.** Any student that suffers loss of consciousness (LOC) is treated as a medical emergency. **Do not move student.** Call 911 for stabilization and transport to ER.
- 2.** At time of suspected concussion, safely remove student from play and administer one of these assessment tests:
 - a. Initial Concussion Checklist – **Appendix A**
 - b. Sports Concussion Assessment Tool 5 (SCAT5)
- 3.** Observe student and re-evaluate every 5-10 minutes.
 - a. **ANY** positive signs and symptoms, student is held out of same competition, practice, or activity.
 - b. **NO student will be allowed to return to play (RTP) on the same day of concussion, regardless if signs and symptoms return to normal⁹.**
 - c. Contact parents.
 - d. If condition deteriorates upon re-evaluation, student should be referred at once for emergency care (Transport via ambulance recommended - call 911).
 - e. Continue re-evaluation until picked up by parents or transported to ER. A coach or district staff member should remain with student until parents arrive.
 - f. Give parents concussion packet – **Appendix B, C, & D**
 - g. Instruct parents that the student needs to be medically evaluated by their private physician, even if they go to ER.
 - h. Submit completed accident report and Initial Concussion Checklist to Athletic Trainer or Nurse.

In-School Management (Post-Injury)

- 1.** Student is to report to School Nurse/Athletic Trainer at the beginning of the first school day back, and submit initial Physician evaluation.
- 2.** School Nurse will document injury in student-athletes file, and notify Athletic Trainer (if he is not already aware) that student has suffered a concussion.
- 3. High School** - Athletic Director, School Nurse, or Director of Physical Education, will notify all classroom teachers and guidance counselor of students' injury.
 - a.** Students may need special accommodations such as limited computer work, reading activities, testing, assistance to class, etc. until symptoms subside.
- 4. Middle School and Elementary Schools** - Guidance department will be responsible for directing this information to classroom teachers upon recommendation from the school nurse.

Follow-up Evaluation

- 5.** Re-evaluation of signs and symptoms by Certified Athletic Trainer or School Nurse within 24-72 hours of injury.
- 6.** Post-concussion ImPACT testing within 48-72 hours of injury for High School students.
- 7.** Students rest until asymptomatic. Students must meet symptom free criteria and have physician clearance to commence return to play protocol (RTP).

Return To Play Protocol (RTP)

Stage 0 – Rest and/or symptom-limited activity until symptom-free (asymptomatic)

Stage 1 – Light aerobic exercise (<70% Max HR)

- a. Fast walking/jogging/stationary bike/elliptical 15-20 minutes.
- b. Any signs/symptoms during activity; stop for day and restart Stage 1 after asymptomatic for 24 hours.
- c. If symptomatic post exertion within 24 hours, rest until asymptomatic and restart Stage 1.
- d. Asymptomatic for 24 hours, successful completion of Stage 1, proceed to Stage 2.

Stage 2 – Higher impact, Sport specific non-contact activity (70-85% Max HR)

- a. Jogging/running, jumping rope, sport specific activity - 30 minutes.
- b. No resistance training.
- c. Any return in signs/symptoms, stop for day and restart Stage 2 after asymptomatic for 24 hours.
- d. If symptomatic post exertion within 24 hours, rest until asymptomatic and restart Stage 2.
- e. Asymptomatic for 24 hours, successful completion of Stage 2, proceed to Stage 3.

Stage 3 – Sport specific non-contact activity at full speed (100% Max HR)

- a. Sport specific drills for 45-60 minutes.
- a. Full conditioning.
- c. Any return in signs/symptoms, stop for day and restart Stage 4 after asymptomatic for 24 hours.
- d. If symptomatic post exertion within 24 hours, rest until asymptomatic and restart Stage 4.
- e. Administer ImPACT test **POST** exertion to evaluate cognitive function after activity.
- f. If ImPACT results are at or near baseline and athlete is asymptomatic for 24 hours, proceed to Stage 4.

Stage 4 – Full contact practice activities

- a. Any return in signs/symptoms, stop for day and restart Stage 5 after asymptomatic for 24 hours.
- b. If symptomatic post exertion within 24 hours, rest until asymptomatic and restart Stage 5.
- c. Asymptomatic for 24 hours, successful completion of Stage 5, proceed to Stage 6.

Stage 5 – Cleared for RTP to practice, competition or activity, no restrictions

- a.** Final clearance by District Physician and Certified Athletic Trainer.

*** Students suffering from multiple concussions will be handled on a case-by-case basis.**

ImPACT Testing Program

Given these outlined concerns and inherent difficulties in managing concussion, individualized and comprehensive management of concussion is optimal. At the forefront of proper concussion management is the implementation of baseline and/or post-injury neurocognitive testing. Such evaluation can help to objectively evaluate the concussed student's post-injury condition and track recovery for safe return to play, thus preventing the cumulative effects of concussion. In fact, neurocognitive testing has recently been called the "cornerstone" of proper concussion management by an international panel of sports medicine experts.

The acronym ImPACT stands for **Immediate Post Concussion Assessment and Cognitive Test**. ImPACT is a user-friendly computer-based testing program specifically designed for the management of sports-related concussion. The computer program can be administered by a Certified Athletic Trainer, Nurse or Teacher with training. ImPACT takes approximately 20-30 minutes to complete. The program measures multiple aspects of cognitive functioning in students. The instrument has been designed after approximately 10-years of University-based, grant-supported research. ImPACT is currently the most widely utilized computerized program in the world and is implemented effectively across high school, collegiate, and professional levels of sport participation.

The concept is simple enough; test athletes before they participate in what is called a baseline test and then test them again usually within 24-72 hours of a suspected concussion. Subsequent tests, if necessary, would also be administered until the athlete has scored virtually the same as he or she did on the baseline.

ImPACT is currently employed at Eastridge High School. All athletes participating in high risk sports will be required to take the pre-season ImPACT baseline test.

Any student unable to undergo the pre-season baseline testing at the scheduled time, and suffer a concussion, will follow the same concussion management protocol and will be tested post-injury using normative data supplied by ImPACT. This will not affect the efficacy of the concussion management protocol.

*****Please note: The ImPACT test is NOT a clearance test. The student must be medically cleared, clinically symptom free, successfully pass the RTP progression, and ImPACT scores must return to baseline levels to be fully cleared.***

APPENDIX A CONCUSSION CHECKLIST



Name: _____ Age: _____ Grade: _____ Sport: _____

Date of Injury: _____ Time of Injury: _____

Description of Injury: _____

Has the athlete ever had a concussion? Yes No If yes, date: _____

Was there a loss of consciousness? Yes No Unclear

Does he/she remember the injury? Yes No Unclear

Does he/she have confusion after the injury? Yes No Unclear

Symptoms observed at time of injury: * Please circle yes or no for each symptom listed.

Dizziness	Yes	No	Headache	Yes	No
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Ringing in Ears	Yes	No	Nausea/Vomiting	Yes	No
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Drowsy/Sleepy	Yes	No	Fatigue/Low Energy	Yes	No
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“Doesn’t Feel Right”	Yes	No	Feeling “Foggy”	Yes	No
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Numbness or Tingling	Yes	No	Balance Problems	Yes	No
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Memory Problems	Yes	No	Loss of Orientation	Yes	No
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Blurred Vision	Yes	No	Sensitivity to Light	Yes	No
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Vacant Stare	Yes	No	Sensitivity to Noise	Yes	No
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Emotionality	Yes	No	Irritability	Yes	No
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Other Findings/Comments: _____

Final Action Taken: Parents Notified Sent to Hospital

Evaluator’s Signature: _____ Title: _____

Date: _____ Phone No.: _____

APPENDIX B HOME INSTRUCTIONS



_____ has/may have sustained a concussion during _____ today. In some instances, the signs of a concussion do not become obvious until several hours or even days after the injury. Please be especially observant for the following signs and symptoms.

1. Headache (especially one that increases in intensity*)
2. Nausea and vomiting*
3. Mental confusion/behavior changes
4. Dizziness
5. Memory loss
6. Ringing in the ears
7. Changes in gait or balance
8. Blurry or double vision*
9. Slurred speech*
10. Changes in the level of consciousness (difficulty awakening, or losing consciousness)*
11. Seizure activity*
12. Decreased or irregular pulse OR respiration*

*** Seek medical attention at the nearest emergency department**

Things that are OK to do:

Things that are NOT allowed:

Things that are not needed:

Take acetaminophen (Tylenol) flashlight

Physical activity/Driving

Check eyes with a

Use ice packs on head or neck as needed for comfort

Watch TV, Video Games

Wake up every hour

Eat a light diet

Listen to Ipad or use phone

Test reflexes

Go to sleep (if symptoms have stabilized or resolved)

Use a computer /Excessive reading

Return to school
(If feeling up to it)

Bright lights/Loud Noise

If your Son/Daughter is seen by a Physician, you **MUST** have the Head Injury Referral Form (Page 3) completed and signed. Have student report to school nurses office when returning to school for follow-up exam. If you have non-emergent questions, contact the Athletic Trainer, Jarett Rhoads @ (585) 451-9105

Further recommendations: _____

Instructions provided by: _____

Date: _____ Time: _____ Contact Number: _____

APPENDIX C HEAD INJURY REFERRAL FORM



(To be completed by student athlete's primary care Physician or ER Physician ONLY!)

Name of Athlete: _____

Date of First Evaluation: _____

Time of Evaluation: _____

Date of Second Evaluation: _____

Time of evaluation: _____

***PLEASE INDICATE YES OR NO IN YOUR RESPECTIVE COLUMNS.**

Symptoms Observed:	First Doctor Visit		Second Doctor Visit	
Vertigo	Yes	No	Yes	No
Headache	Yes	No	Yes	No
Tinnitus	Yes	No	Yes	No
Nausea	Yes	No	Yes	No
Fatigue	Yes	No	Yes	No
Drowsy / Sleepy	Yes	No	Yes	No
Photophobia	Yes	No	Yes	No
Sensitivity to Noise	Yes	No	Yes	No
Ante Grade Amnesia	Yes	No	Yes	No
Retro Grade Amnesia	Yes	No	Yes	No

First Doctor Visit: (one or the other must be circled)

Did you review the "Initial Concussion Checklist" provided by the Athletic Trainer or Coach/Nurse?

Yes No

Did the student sustain a concussion?

Yes No

Positive finding on neurological exam?

Yes No

Additional Findings/Comments: _____

Recommendations/Limitations: _____

Physician's Signature: _____ Date: _____

Print Physician's Name: _____ Phone Number: _____

Second Doctor Visit:

Please check one of the following:

- ☐ Student is asymptomatic and may begin the return to activity progression/ImPACT Testing.
- ☐ Student is still symptomatic after seven days. Refer to a concussion specialist/clinic.

Physician's Signature: _____ Date: _____

Print Physician's Name: _____ Phone Number: _____

APPENDIX D

RETURN TO PLAY GUIDELINES FOR PARENTS



At the direction of our school physician, WorkFit Medical, LLC and our Concussion Management Team, the East Irondequoit Central School District follows the concussion guidelines set forth by the NYSPHSAA and New York State Law as follows:

Any time during practice or competition that a student-athlete experiences any sign(s)/symptoms(s) of a concussion he/she will not be permitted to return to play/practice that day. Proper evaluation and follow-up must be completed by the Athletic Trainer.

❖ **Students injured with a concussion may return to play athletics and physical education when he/she meets the following criteria:**

1. Initial evaluation by Physician*.
2. Asymptomatic for 24 hours.
3. Ability to tolerate a full day of school without symptoms returning.
4. Second medical clearance to commence the Return to Play Progression (see below).
5. Successful completion of the Return to Play Progression.
6. ImPACT scores return to within normal limits of baseline (if applicable).
7. Final medical clearance to return to full contact.

****Physicians evaluating concussed athletes should be “trained in the evaluation and management of concussions.” Physician clearance notes inconsistent with the concussion policy will not be accepted and such matters will be referred to our school physician.***

Return to Play Progression

We follow a stepwise activity progression based on recommendations from the Berlin Consensus Statement, 5th International Conference on Concussion in Sport, 2016 as follows:

- Stage 0: Rest and/or symptom-limited activity until symptom-free (asymptomatic)
- Stage 1: Light aerobic exercise (i.e. walking/jogging, stationary bike, elliptical-15 minutes)
- Stage 2: Higher impact, sport specific non-contact activity (i.e. jogging/running, jumping rope, sport specific exercise-30 minutes). No resistance training.
- Stage 3: Sport specific non-contact drills (i.e. increase running intensity, sport-specific drills- 45-60 minutes). Low resistance training with a spotter. Post-injury ImPACT test
- Stage 4: Full contact practice activities. High resistance training with a spotter.
- Stage 5: Final Clearance by District Physician and Athletic Trainer, cleared for return to play

Each stage should take 24 hours so that an athlete would take approximately one week to proceed through the full rehabilitation protocol once they are asymptomatic at rest and with provocative exercise. If any post-concussion symptoms occur while in the stepwise program, then the student should drop back to the previous asymptomatic level and try to progress again after a further 24 hour period of rest has passed.

ImPACT Testing (www.impacttest.com)

Eastridge High School currently uses ImPACT® (Immediate Post Concussion Assessment and Cognitive Testing) software to assist in the management of head injuries. The 20-30 minute, computer based program tracks neurocognitive information such as memory, reaction time, brain processing speed and concentration. We administer a post-concussion test 24-72 hours after injury, and we continue to re-test until their scores return to within normal limits. **ImPACT is an assessment tool and should not be confused with or considered a clearance.** All students are baseline tested during the first week of school in their Physical Education and Dance classes.

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