

**Concussion Management
for
Keshequa Central School Students**

Keshequa Central School District Plan

Updated July 2018

Resources:

The New York State Public High School Athletic Association
(<http://www.nysphsaa.org/safety/>)

The New York State Athletic Administrator's Association
Concussion Management Protocols (Cynthia DiLaura Devore, M.D., M.A., M.S., F.A.A.P)

**Sports Medicine Concepts (SMC), Center for Sports Medicine Research and Education (Michael Cendoma, M.S., ATC, Director/
www.SportsMedicineConcepts.com)**

Unity Health System Sports Concussion Clinic (Dr. Dombovy)

Center for Disease Control (CDC)

NYSED.gov - Guidelines for Concussion Management in Schools 2018

This plan includes the following:

- A. Information about Concussion
- B. Athletic Director – Responsibilities
- C. Coach – Responsibilities
- D. Student-Athlete – Responsibilities
- E. School Nurse – Responsibilities
- F. School Physician – Responsibilities
- G. Teacher & Counselor – Responsibilities

Appendices:

- A. Sideline Evaluation
- B. Return to Play Protocol
- C. Concussion Policy Acknowledgment Form
- D. Physician Evaluation (Form DR-1V)

A. Information about Concussion

What is a concussion?

- Mild traumatic brain injury. (CDC)
- A disruption in normal brain function due to a blow or jolt to the head. (CDC)
- A trauma induced alteration in mental status that may or may not involve loss of consciousness. (American Academy of Neurology)
- Immediate and temporary alteration of mental functioning due to trauma. The trauma may not necessarily be to the head. (www.sportsmedicineconcepts.com)
- Results from the brain moving back and forth or twisting rapidly inside the skull

What else should you know?

- There is no such thing as a mild head injury. All concussions are serious.
- A concussion can happen from a blow to the body.
- Many concussions go unreported and/or undetected.
- Loss of consciousness is not an indicator of whether or not a concussion is present. An athlete can still have a concussion if there has been no loss of consciousness.
- Recognition and proper management of concussions when they *first occur* can help prevent further injury or even death.
- Repeated jolts or blows to the brain but not to the severity of causing a concussion are under investigation. The phenomenon of “sub-concussive blows” is being researched.

Metabolic Cascade Following Traumatic Brain Injury

“Following concussion, cerebral pathophysiology can be adversely affected for days in animals and weeks in humans. Significant changes in cerebral glucose metabolism can exist even in head-injured patients with *normal* Glasgow Coma Scores, underscoring the need for in-depth clinical assessment in an effort to uncover neurocognitive correlates of altered cerebral physiology. Improved guidelines for clinical management of concussion may be formulated as the functional significance and duration of these postinjury neurometabolic derangements are better delineated.” (Journal of Athletic Training - <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC155411/>)

Research shows that the chemical changes and metabolic activity that occurs in the brain following a concussion takes at least 10 days to return to normal chemical levels. Refer to the above referenced article for detailed information.

What is Second Impact Syndrome?

“A repeat concussion that occurs before the brain recovers from the first – usually within a short period of time (hours, days or weeks) – reportedly can result in brain swelling, permanent brain damage, and even death. This condition is called second impact syndrome.” (CDC – *Head’s Up: Concussion in High School Sports, Guide for Coaches*)

Information about Concussion (cont’d.)

Neurocognitive Testing

As stated in the Zurich Consensus Statement on Concussion in Sport (McCrory et al, 2009), the application of neuropsychological testing in concussion has been shown to be of clinical value and contributes significant information in concussion evaluation. At the same time, NYSPHSAA recognizes that neuropsychological assessment should not be the sole basis of concussion management decisions, nor should it be conducted or used in isolation from appropriate professional consultation and supervision, such as that which can be provided by a neuropsychologist trained and experienced in the neurocognitive assessment of concussion. Moreover, it is also understood that the assessment and management of concussion continues to be an evolving practice and science, and there are currently various approaches to the role and application of neuropsychological testing in concussion. As such, the NYSPHSAA has reviewed a variety of neurocognitive testing tools, some of which are used in the practice of baseline cognitive testing in order to provide potentially useful information by which to compare with post-injury test data. Ultimately, the specific tool or approach which a school district chooses to use should be based, in large part, on the professional resources available to that district by which to ensure proper administration, interpretation, and application of that instrument. The NYSPHSAA, then, suggests that school districts consider the use of neurocognitive testing, administered or closely supervised by a medical professional with concussion management expertise, as they develop their District Concussion Management Policies, Procedures, and Protocols. (<http://www.nysphsaa.org/safety/>)

B. Athletic Director – Responsibilities

1. Seasonal meetings will be held with coaches and parents providing information (basic awareness information) concerning concussion and the KCS Concussion Management Plan. In addition, general information can be obtained from Center for Disease Control (CDC) and The New York State Public High School Athletic Association (<http://www.nysphsaa.org/safety/>)
2. The Athletic Director will monitor the neurocognitive testing program for all students including all new student entrants. The neurocognitive testing will be used as a helper source for the medical professional.
3. The Athletic Director will give final notification for full participation after *all* Return to Play (RTP) documentation is completed. This includes, but is not limited to Student-Athlete's physician's signed clearance *and* completion of Return to Play Protocol (RTP) from the school nurse.
4. The Athletic Director will oversee the organization and distribution of materials to all personnel involved with the Concussion Management Program (Student-Athletes, coaches, parents, school nurse, counselors, Physical Education teachers, general KCS staff where applicable, Impact Test Administrators, and the like). This includes giving the school nurse a copy of Sideline Evaluation as the Athletic Director receives them.
5. Enforce concussion certification for all coaches per the NYSED coaching certification guidelines.
6. The Athletic Director will form a concussion management team that will meet at least once a year. This team should consist of the following members: Athletic Director, School Nurse, 1 Physical Education teacher, 1 Coach, and 1 School Counselor.

C. Coach – Responsibilities

1. The coach will participate in basic awareness programs set forth by the Athletic Director. This may include watching videos on concussion signs and symptoms, first aid response to an injury, implementing sideline evaluations, return to play protocol and others.
2. The coach will read “Student-Athlete Responsibilities” to every player prior to the first practice. Coaches also will review the signs and symptoms of a concussion.
3. The coach will remove a Student-Athlete from *all activity* if a concussion is suspected. The coach will administer proper first aid to the Student-Athlete and involve necessary medical professionals as needed.
4. The coach will not discuss the Student-Athletes condition with anyone other than those allowed by FERPA law.
5. The coach will conduct a sideline evaluation using the “Sideline Evaluation Form” in triplicate. One copy will go to the Student-Athlete/Parent to give to a medical professional, one copy for the coach, and one copy to the Athletic Director. This form needs to be done to the best of your ability immediately after the injury occurs. It can be done by an assistant coach or a qualified KCS staff member under the coach's direction. If it is not possible to question the Student-Athlete, record as much information as you can, as soon as possible.
6. The coach will give the Student-Athlete/Parents Form DR-1V (Doctor's - Visit Form) and inform parents that this form must be returned to the school nurse. Return To Play Protocol (RTP) will start when the school nurse notifies the designated physical education teacher. The Student-Athlete must be cleared by physician that he/she is symptom free and able to return to activity. If clearance is not given after the first visit, the school nurse will send an additional form (DR - 1V). Once this form is returned and the Student-Athlete is cleared to play, the Return To Play Protocol may begin. **All coaches must refer to Return to Play Protocol for procedures.**
7. The designated physical education teacher will monitor and conduct the Return To Play Protocol. Step 5, full exertion, is not allowed until the school nurse gives clearance. The school nurse will send Step 5 paperwork with the athlete.

D. Student-Athlete – Responsibilities

1. The Student-Athlete will report any injury to his/her coach. This includes but is not limited to anything that may have caused a brain injury (fall, collision, quick stop, blow to the head, hit by an object, etc.).
2. The Student-Athlete will report any incident/injury that he/she suspects a teammate may have to his/her coach. This includes but is not limited to anything that may have caused a brain injury (fall, collision, quick stop, blow to the head, hit by an object, etc.).
3. The Student-Athlete will be given paperwork to take to his/her doctor. This paperwork must be completely filled out by his/her doctor and immediately returned to the school nurse.
4. The Student-Athlete will report all signs and symptoms to the best of his/her ability. This is done in two ways – 1) report signs and symptoms to the school nurse or the coach; 2) answer all questions as accurately as he/she is able.
5. The Student-Athlete will receive Return To Play paperwork from the school nurse. The Student-Athlete reports to his/her coach with the paperwork. The designated physical education teacher will then supervise the RTP Step-Wise protocol. The above mentioned occurs once Student-Athlete is cleared by his/her doctor.
6. The Student-Athlete will complete follow-up tests (Neurocognitive Testing – presently ImPACT Computer Program) by appointment with the school nurse or other designated staff member if recommended by physician.

E. School Nurse – Responsibilities

1. The school nurse will document the injury/incident once sideline evaluation form is submitted by the coach.
2. The school nurse will report to the Athletic Director, Physical Education teacher, and coach any medical restrictions and details concerning the injury. The student's academic day may need to be modified.
3. The school nurse will give the designated physical education teacher the Return To Play Protocol (RTP) folder when medical clearance is received. The designated physical education teacher will receive paperwork for Steps 1 – 4. Once this is completed, Step 5 paperwork will be given to the designated physical education teacher to complete the RTP protocol.
4. The school nurse, athletic director or designated approved staff member will complete the second signs and symptoms chart that is required on the Step-Wise RTP form.
5. The school nurse will retest students with neurocognitive testing as soon as possible as long as testing doesn't aggravate symptoms. This information will be faxed to the Student-Athlete's physician. The number of post tests conducted will be left up to the discretion of the school nurse and physician.
6. The school nurse will notify the Athletic Director of final approval for full participation (see RTP Protocol).
7. The school nurse will notify student's teachers and make modifications for the student in recovery phase. This recommendation should come from the student's physician.

Note: Depending on the severity and duration of concussion-related symptoms and associated academic difficulties, a 504 plan or IEP may need to be developed and implemented. Collaboration and communication with the medical providers treating the concussed student will foster development of an appropriate plan. Accommodations and activity restrictions will need to be modified according to the student's particular symptoms and the speed of recovery from injury. See - [Concussion in the Classroom](http://www.nysphsaa.org/safety/) (<http://www.nysphsaa.org/safety/>)

F. School Physician – Responsibilities

1. The school physician will review the KCS Concussion Management Policy and Procedures.
2. The school physician will fill out form **DR-1V Physician Evaluation** completely and photo copy the information for his/her records if athlete is seen by school physician. All other physicians will be asked to do the same. See form **DR-1V Physician Evaluation – Appendix D**.
3. The school physician will become familiar with the neurocognitive testing software used by the KCS District. This information will be provided. Presently, the product used is ImPACT – www.impacttest.com. The school nurse will provide test results (pre and post) if requested. Information can be provided on how to interpret data or can be found on the ImPACT website.
4. The school physician will become familiar with the following study - **Metabolic Cascade Following Traumatic Brain Injury (Journal of Athletic Training – <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC155411/>)**.
5. If the Student-Athlete is not a patient of the school physician, the school physician will make the final determination of a Student-Athlete's return to play *if requested* by KCS District. This may happen if a school official is in question about a Student-Athlete's return to play and the Student-Athlete has been medically cleared by his/her physician. All documentation will be provided to the school physician.

G. Teacher & Counselor – Responsibilities

When a student returns to school after a concussion, school professionals should watch for:

- Increased problems paying attention or concentrating
- Increased problems remembering or learning new information
- Longer time needed to complete tasks or assignments
- Difficulty organizing tasks
- Inappropriate or impulsive behavior during class
- Greater irritability
- Less ability to cope with stress or more emotional

Students may need to limit activities while they are recovering from a concussion. Exercising or activities that involve a lot of concentration, such as studying, working on the computer, or playing video games, may cause concussion symptoms (such as headache or tiredness) to reappear or get worse. **Monitor the student-athlete closely.**

Recommended Appropriate Academic Accommodations

- Strategies for teachers to help a student during recovery may include:
 1. Reduce assignments and workloads
 2. Build in rest periods throughout the day
 3. Provide additional time to finish assignments and take tests
 4. Spend fewer hours at school
 5. Receive help with schoolwork
 6. Outline and order steps for big tasks
 7. Provide written instructions for students to refer to
 8. Write down schedules with places and times
 9. Meet with teachers or aids to review homework assignments at the end of the day
- **Communicate** any changes made to the student-athletes' individual educational plan to the school nurse

Appendix A

Sideline Evaluation (SE)

- 1. Sideline Evaluation (SE)** is a critical piece in protecting the Student-Athlete. When a coach believes, witnesses or receives a report of a possible head injury, the player must be taken out of play and immediately evaluated.
2. Follow proper first aid procedures. The “Sideline Evaluation” form must be completed by the coach or qualified staff member.
3. The **SE** form is then distributed as follows: one copy to the Student-Athlete/parents to give to medical professional; one copy to the Athletic Director; one copy stays with the coach. The Athletic Director will make a copy for the school nurse. The Student-Athlete must see a medical professional.

Appendix B

Return to Play Protocol (RTP)

1. The Student-Athlete must return form - **Physician Evaluation** (DR-1V) to the school nurse after his/her doctor's appointment. If the Student-Athlete is given medical clearance the school nurse will begin the process for RTP. If any information is missing on the form (DR-1V), the school nurse will contact the Student-Athlete's physician for complete information. If the Student-Athlete is not cleared to begin RTP, the school nurse will monitor the circumstances according to the physician's orders. The physician will be asked to fill out additional **Physician Evaluation** forms until the Student-Athlete is cleared.
2. The Student-Athlete has the option to participate in RTP rehabilitation at an accredited Rehabilitation Facility approved by his/her physician. KCS reserves the right to have the KCS school physician review a case before full clearance is given.
3. Once medical clearance is received the Student-Athlete will begin the Step-Wise Return to Play Protocol under the supervision of a trained KCS staff member. The Student-Athlete must be symptom free and stay symptom free throughout the entire process. If the Student-Athlete experiences any symptoms, the activity stops and findings should be reported to the school nurse. However, current research suggests that some level of symptoms with activity is acceptable. The school will follow provider orders on return to activities.
4. The school nurse will notify the coach when the Student-Athlete is cleared to begin the RTP process. The school nurse will give the Student-Athlete a folder with RTP paperwork. The Student-Athlete gives the folder to the designated physical education teacher for each Step-Wise visit.
5. The designated physical education teacher then follows the Step-Wise procedures as written. If variations/modifications are needed, this can only be done through the approval of the Athletic Director. Steps 1 – 4 will be done first. Step 5 will not be done until the designated physical education teacher is notified by school nurse or athletic director. At which time, the necessary paperwork will be given to the Student-Athlete. This is to safeguard the Student-Athlete.
6. The designated physical education teacher will monitor the RTP process. Each Step-Wise step must be done as follows:
 - a) One step per 24 hours – totally symptom free.
 - b) On RTP Step-Wise form, Post Concussion Symptoms Scale (PCSS), left side chart, will be asked immediately before the Step-Wise workout. A second Post Concussion Symptoms Scale (PCSS), right side chart, must be completed immediately after exercising in the Step-Wise protocol.
 - c) A Student-Athlete may need to repeat a Step. Additional forms are available from the school nurse.

d) Heart Rate monitoring equipment is available in the fitness room for steps when specific heart rates need to be monitored. This may mean that the entire activity will take longer in order to gradually increase heart rate to the appropriate level.

Keshequa Central School Step-Wise Concussion Return-to-Participation (RTP) Protocol

If signs and symptoms rated at 3 or greater appear, stop activity, wait until asymptomatic, return to last asymptomatic Step-Wise stage and begin progression anew.

Step 1:

10 - 15 minutes of aerobic activity at 30 - 40% of maximum heart rate using a stationary bike, seated elliptical, swimming or walking on a treadmill. Exercise in a quiet area such as a rehabilitation or treatment room if possible. No impact or resistance activities. Limit head movement and positional change. Limit concentration activities. If Student-Athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Step 2:

20 - 25 minutes of aerobic activity at 40 - 60% of maximum heart rate using stationary bike, seated elliptical, swimming or walking on a treadmill. Exercise in area using various Nautilus style equipment, such as a weight room or fitness center if possible. Allow some positional changes and head movement. If Student-Athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Step 3:

25 - 30 minutes of aerobic activity at 60 - 80% of maximum heart rate using stationary bike, seated elliptical, swimming or walking on a treadmill. Exercise in any environment (indoor or outdoor). Initiation of agility drills appropriate at this stage, however, with no contact. Modify drills to ease the Student-Athlete back into sport specific activity. If the Student-Athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Step 4:

Sport performance activities can be allowed. No contact activity allowed. Exercise with enough intensity to reach 80% or maximum heart rate. If Student-Athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Note: Clearance needed from school nurse, Athletic Director and/or Physician before moving on to Step 5.

Step 5:

Practice Only—NO Athletic Contests allowed until this step is completed!

Sport performance activities with full exertion. Initiate contact activities as appropriate to sport activity.

Note: The Keshequa Central School Administration reserves the right to have the district's School Physician give final clearance. An example where this may occur is when a Student-Athlete gets full clearance from an "After Hours" physician's assistant or doctor or an Emergency Room's physician's assistant or doctor from the first/initial visit. This is for the protection of the Student-Athlete.

Appendix C - To be included in Student-Athlete & Student Handbooks

Keshequa Central School PARENT/GUARDIAN CONCUSSION POLICY ACKNOWLEDGMENT FORM

In order to help protect the student-athletes of Keshequa Central School, this form is designed to inform all athletes, parents/guardians and coaches about the dangers of concussion.

A concussion is a brain injury. All brain injuries are serious. It may be caused by a bump, blow, or jolt to the head, or by a blow to another part of the body with the force transmitted to the head. It can range from mild to severe and can disrupt the way the brain normally works. Even though most concussions are mild, **all concussions are potentially serious and may result in complications including prolonged brain damage and death if not recognized and managed properly.** In other words, even a “ding” or a bump on the head can be serious. You can’t see a concussion and most sports concussions occur without loss of consciousness. Signs and symptoms of concussion may show up right after the injury or can take hours or days to fully appear. If your child/player reports any symptoms of concussion, or if you notice the symptoms or signs of concussion yourself, seek medical attention right away.

Symptoms may include one or more of the following:

1. Headache.
2. Nausea/vomiting.
3. Balance problems or dizziness.
4. Double vision or changes in vision.
5. Sensitivity to light or sound/noise.
6. Feeling of sluggishness or fogginess.
7. Difficulty with concentration, short-term memory, and/or confusion.
8. Irritability or agitation.
9. Depression or anxiety.
10. Sleep disturbance.

Signs observed by teammates, parents and coaches include:

1. Appears dazed, stunned, or disoriented.
2. Forgets plays or demonstrates short-term memory difficulties (e.g. is unsure of the game, score, or opponent)
3. Exhibits difficulties with balance or coordination.
4. Answers questions slowly or inaccurately.
5. Loses consciousness.
6. Demonstrates behavior or personality changes.
7. Is unable to recall events prior to or after the hit.

What can happen if my child/player keeps on playing with a concussion or returns too soon?

Athletes with the signs and symptoms of concussion should be removed from play immediately. Continuing to play with the signs and symptoms of a concussion leaves the young athlete especially vulnerable to greater injury. There is an increased risk of significant damage from a concussion for a period of time after that concussion occurs, particularly if the athlete suffers another concussion before completely recovering from the first one. This can lead to prolonged recovery, or even to severe brain swelling (second impact syndrome) with devastating and even fatal consequences. It is well known that adolescent or teenage athletes will often under report symptoms of injuries. And concussions are no different. As a result, education of administrators, coaches, parents and students is the key for student-athlete’s safety.

If you think your child/player has suffered a concussion...

Any athlete even suspected of suffering a concussion should be removed from the game or practice immediately. No athlete may return to activity after an apparent head injury or concussion, regardless of how mild it seems or how quickly symptoms clear. Close observation of the athlete should continue for several hours.

An athlete who is suspected of sustaining a concussion or head injury in a practice or game shall be removed from competition at that time and may not return to play until the athlete is evaluated by a medical doctor trained in the evaluation and management of concussion and received written clearance to begin return to play protocol.

You should also inform your child’s Coach, and/or Athletic Director, if you think that your child/player may have a concussion. And when in doubt, the athlete sits out. For current and up-to-date information on concussions you can go to: <http://www.cdc.gov/concussion/sports/index.html>

Appendix D

Keshequa Central School (DR-1V) Physician Evaluation

One of our student-athletes has an appointment at your office for evaluation/follow-up for a possible concussion. Our school has adopted a specific concussion management and return to participation policy based on the Consensus Statement on Concussion in Sport resulting from the 3rd International Conference on Concussion in Sport, Zurich 2008. A copy of this consensus statement is available for your review upon request.

To help us provide our student-athletes with the most prudent care possible, please:

- 1) Complete the following form after completing your evaluation. Please photocopy for your records.
- 2) Please enclose any additional instructions for the athlete for the school nurse to share with the appropriate personnel. The athlete has been instructed to return this information to our school nurse.
- 3) The athlete will begin Return To Play Protocol at school or rehab facility upon your approval to do so.
- 4) Add separate documentation for medical restrictions (include physical and cognitive for classroom modifications).

Student-Athlete's Name: _____ **Date of Evaluation:** _____

Signs and Symptoms Observed	None	Minor → → → →	Moderate → → →	Severe → → →			
Headache	0	1	2	3	4	5	6
Pressure in Head	0	1	2	3	4	5	6
Neck Pain	0	1	2	3	4	5	6
Balance problems/dizziness	0	1	2	3	4	5	6
Nausea or vomiting	0	1	2	3	4	5	6
Vision problems	0	1	2	3	4	5	6
Hearing problems/tinnitus	0	1	2	3	4	5	6
Don't feel right	0	1	2	3	4	5	6
Feeling "dinged" or "dazed"	0	1	2	3	4	5	6
Confusion	0	1	2	3	4	5	6
Feeling slowed down	0	1	2	3	4	5	6
Feeling like "in a fog"	0	1	2	3	4	5	6
Drowsiness	0	1	2	3	4	5	6
Fatigue or low energy	0	1	2	3	4	5	6
More emotional than usual	0	1	2	3	4	5	6
Irritability	0	1	2	3	4	5	6
Difficulty concentrating	0	1	2	3	4	5	6
Sadness/depression	0	1	2	3	4	5	6
Nervousness/anxious	0	1	2	3	4	5	6
Trouble falling asleep	0	1	2	3	4	5	6
Sleeping more than usual	0	1	2	3	4	5	6
Sensitivity to light	0	1	2	3	4	5	6
Sensitivity to noise	0	1	2	3	4	5	6
Other:	0	1	2	3	4	5	6
Other:	0	1	2	3	4	5	6

Did this athlete sustain a concussion? Yes No (one must be circled)

Please check one of the following:

_____ No further evaluation is necessary. Student may resume normal activities.

_____ Athlete is asymptomatic and able to begin step-wise return to play protocol (RTP) indicated on the back of this form. The athlete reports being completely asymptomatic on: _____ (date)

_____ Athlete is symptomatic and requires a follow-up evaluation. Date of follow-up: _____

_____ Athlete is symptomatic and is being referred to a specialist.

_____ Other: _____

Physician's Signature: _____ Date: _____

Appendix D (cont.)
Keshequa Central School
Step-Wise Concussion Return-to-Participation (RTP) Protocol Review

KCS concussion policy requires a Step-Wise return to play progression be completed before final release of a concussed student-athlete to play, practice, and/or return to physical education class/athletics. The student-athlete must be asymptomatic prior to the initiation of the RTP progression.

Please confirm that this student-athlete is asymptomatic and provide permission for our staff to initiate the RTP progression. You may be asked to make a final examination to allow the student athlete to proceed to Step 5 and therefore, giving clearance to return to Physical Education class and athletics.

The following Step-Wise progression is listed below. The athlete must be **symptom free** in order to initiate this RTP protocol. A minimum of 24 hours is required between steps.

If signs and symptoms rated at a 3 or greater appear, stop activity, wait until asymptomatic, return to last asymptomatic Step-Wise stage and begin progression anew.

Step 1:

10 - 15 minutes of aerobic activity at 30 - 40% of maximum heart rate using stationary bike, seated elliptical, swimming or walking on a treadmill. Exercise in a quiet area such as a rehabilitation or treatment room if possible. No impact or resistance activities. Limit head movement and positional change. Limit concentration activities. If athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Step 2:

20 - 25 minutes of aerobic activity at 40 - 60% of maximum heart rate using stationary bike, seated elliptical, swimming or walking on a treadmill. Exercise in area using various Nautilus style equipment, such as a weight room or fitness center if possible. Allow some positional changes and head movement. If athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Step 3:

25 - 30 minutes of aerobic activity at 60 - 80% of maximum heart rate using stationary bike, seated elliptical, swimming or walking on a treadmill. Exercise in any environment (indoor or outdoor). Initiation of agility drills appropriate at this stage, however, with no contact. Modify drills to ease the athlete back into sport specific activity. If athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Step 4:

Sport performance activities can be allowed. No contact activity allowed. Exercise with enough intensity to reach 80% or maximum heart rate. If athlete is symptom free during and after workout, 24 hours must pass before starting the next step.

Note: Clearance needed from school nurse, Athletic Director and/or Physician before moving on to Step 5.

Step 5:

Practice Only—NO Athletic Contests allowed until this step is completed!

Sport performance activities with full exertion. Initiate contact activities as appropriate to sport activity.